IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

COURSE OUTCOMES (COs)

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

INDEX

S.No.	Name of School	Page No.
1	School of Computer Sciences and Applications	3-78
2	School of Agricultural Sciences and Engineering	79-204
3	School of Business Management	205-378
4	School of Engineering and Technology	379-606
5	School of Law	607-643
6	School of Sciences	644-808
7	Faculty of Pharmacy	809-848
8	School of Biotechnology	849-978
9	School of Social Sciences	979-1306

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

SCHOOL OF COMPUTER SCIENCES AND APPLICATIONS

PROGRAMME NAME – B.TECH. (COMPUTER SCIENCE AND ENGINEERING)

Course Code	TEMA – 102
Course Name	Elementary Mathematics – I

COs	Description
CO1	Understand the concept of partial fraction, logarithms, functions and limits of continuity.
CO2	Know the concept of matrices and determinant in field of engineering for national development.
CO3	Understand the concept of calculus.
CO4	Get familiar with the analytical geometry including straight line and integration.
CO5	Know the concept of differential equations and its applications in the field of engineering.

Course Code	TEPH-101/TEPH201
Course Name	Engineering Physics-I

COs	Description
CO1	Learn relativistic Mechanics, Frame of reference, Lorentz transformation equation.
CO2	Understand Statistical Mechanics, Maxwell- Boltzmann statistics and its applications.
CO3	Study Time Dependent & Time Independent Schrodinger Equation and applications of these equations.
CO4	Attain basic knowledge on different types of LASERs and their applications.
CO5	Gain knowledge of optical fibre being used in the global environment, its propagation and applications.

Course Code	TECE-101/201
Course Name	Environmental Science

COs	Description
CO1	Understand the issues related to global environment and their impact on the human life.
CO2	Learn the air quality parameters and control of air pollution.
CO3	Understand the air quality parameters and control of air pollution.
CO4	Understand about the industrial and domestic pollution and role of government agencies.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TECH-101/201
Course Name	Engineering Chemistry

COs	Description
CO1	Gain knowledge about the basic concepts of chemistry and states of matter.
CO2	Understand kinetic and electrochemical methods for various reactions.
CO3	Demonstrate the mechanism of different reactions and their characterization using spectroscopy.
CO4	Learn about the various kinds of polymers and their applications.
CO5	Demonstrate knowledge of science behind common impurities in water, methods to treat them and gain the basic knowledge of various types of Fuels being used in global environment, their properties.

Course Code	TEEC101/ 201
Course Name	Electronics Engineering

COs	Description
CO1	Understand the basic of national semiconductor technology for skill development.
CO2	Define the purpose of different diodes used in several applications for skill development and employability.
CO3	Develop understanding and impact of resistance regions for skill development, employability and entrepreneurship development.
CO4	Discuss how basic communication occurs over wireless medium for skill development and employability.
CO5	Discuss the benefits of transistors over conventional vacuum tubes for skill development, employability and entrepreneurship development.

Course Code	TEEE-101/TEEE-201
Course Name	Electrical Engineering

COs	Description
CO1	Use basic electrical DC concepts and theorems to analyze circuits for skill development.
CO2	Draw the relevant phas or diagrams and waveform diagrams of voltage and current along with the concepts of reactance and impedance and power factor. Use of resonance and implications for practical circuits for skill development and employability.
CO3	Understand the preference of poly phase system over single phase system, star and delta connections along with develops the knowledge of theoretical and mathematical principles of global electrical measuring

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	instruments for skill development, employability and entrepreneurship development.
CO4	Analyze magnetic circuit and differentiate magnetic and electric circuits and understand single phase transformer, auto transformer and three phase transformer for skill development and employability.
CO5	Understand the construction of D.C machine, different windings, their merits and demerits and the basic concept of Three-phase induction motor and its working principle instruments for skill development, employability and entrepreneurship development.

Course Code	**TPSD101/TPSD201**
Course Name	**Professional Skill Development-I**

COs	Description
CO1	Use grammar in their writing in global English correctly.
CO2	Have in-depth knowledge of action words, preposition and conjunction and to express their strong feelings and emotion.
CO3	Use clauses and phrases, write a sentence using Present, Past and Future Tense and to interchange the Voice (Active and Passive) and Narration (Direct and Indirect).
CO4	Write gist and paragraphs and to recall what is being read and listen including facts and main ideas.
CO5	Differentiate between Resume and Bio-data and to write letters for different reasons.

Course Code	**TEME – 101 / 201**
Course Name	**Engineering Mechanics**

COs	Description
CO1	Recognize different force systems, moments and couple for skill development.
CO2	To draw Free Body Diagram that can be used in national scenarios and label the reactions on it for skill development and employability.
CO3	Find centroid and Moment of Inertia of different bodies for skill development and employability.
CO4	To draw shear force diagram and bending moment diagram for skill development and employability.
CO5	Understand Newton's law in motion, and recognize different kinds of particle motions for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TECS101/ TECS201
Course Name	Computer Fundamentals & Programming

COs	Description
CO1	Basic knowledge of components of Computer in global environment.
CO2	Understanding the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming.
CO3	Write, compile and debug programs in C language and use different data types for writing the programs.
CO4	Design programs using the concepts decision statements, loops, functions, arrays pointers etc.
CO5	Programming by using function, recursion and pointers.

Course Code	TEMA – 202
Course Name	Elementary Mathematics – II

COs	Description
CO1	Remember equations, inequalities, and systems of equations to represent situations and find solutions via symbolic, numeric and graphic methods.
CO2	Understand and calculate Series, Sequences and Permutation and combinations issues.
CO3	Understand and calculate probabilities by applying probability laws and theoretical results.
CO4	Compare and analyze the methods by using coordinates to represent and work with vectors.
CO5	Understand the concepts & advance topics related to three-dimensional geometry and study the applications of conics which can be used for global interest.

Course Code	ECS 301
Course Name	Data Structures Using C

COs	Description
CO1	Able to choose appropriate data structure which can be applied to solve a specific problem of national/ international interest.
CO2	Able to handle operations like searching, insertion, deletion, traversing mechanism etc. on various data structures.
CO3	Able to apply concepts learned in various domains like DBMS, compiler construction etc.
CO4	Able to use linear and non-linear data structures like stacks, queues,

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	linked list, tree etc
CO5	Able to use searching, sorting of data
Course Code	**ECS 302 N**
Course Name	**Object Oriented Programming Using Java**

COs	Description
CO1	Understand the principles of object-oriented programming in the instruction of robust maintainable programs which satisfy the requirements.
CO2	Discuss the principles of inheritance and polymorphism and demonstrate though problem analysis assignments.
CO3	Importance in the use of Java Programming language in the development of small to medium sized application solving a national/international problem.
CO4	Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc
CO5	Develop program using the java collection API as well as the java standard class library

Course Code	**ECS 303 N**
Course Name	**Digital Electronics**

COs	Description
CO1	Have a thorough understanding of the fundamental concepts and techniques used in digital electronics. The ability to understand, analyze and design various combinational and sequential circuits.
CO2	Apply the fundamental knowledge of analog and digital electronics to get different types analog to digitalized signal and vice-versa.
CO3	Converters in global world with different changing circumstances.
CO4	Explains memory units. Recognizes RAM, ROM, PROM, EPROM, EEPROM recognizes the properties of memory units.
CO5	Understand basic counter and shift register applications.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECS 304
Course Name	Operating System Concepts

COs	Description
CO1	Understand the structure and functions of various type of Operating System and their services.
CO2	Acquire knowledge about the processes, threads and Concept of concurrency control.
CO3	To learn and create different algorithms for process scheduling to achieve better CPU utilization and thus compete in global scenario. Understand the Deadlock occurrence and prevention techniques
CO4	Describe the techniques for optimally allocating memory to processes by using the concept of virtual memory as swapping, paging, segmentation, fragmentation and threshing.
CO5	Study of I/O management system and file management system.

Course Code	ECS 305
Course Name	Discrete Mathematical Structures

COs	Description
CO1	To perform the operations associated with sets, functions, and relations.
CO2	Explain the fundamental concepts of advanced algebra such as groups, rings, Field, Normal group and cyclic group their role in modern mathematics and applied contexts
CO3	Understand the concepts of POSET, Lattices, and Boolean Algebrain analysis of various computer science applications
CO4	To understand the concept of predicate logic.
CO5	Able to model and solve global problems using graphs and trees

Course Code	PSD
Course Name	Professional Skill Development

COs	Description
CO1	Apply the comprehensive set of skills and knowledge for life success.
CO2	Understand the global communication process, its benefits and challenges
CO3	Learn to effectively lead others on a project or in an organization
CO4	Develop and articulate respect for the diversity of talents, ways of knowing and learning.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EHU 301
Course Name	Disaster Management

COs	Description
CO1	Understand the concepts, aspects & impacts of disaster.
CO2	Study the approaches to disaster Risk Reduction roles & responsibilities of community.
CO3	Study the inter- relationship between Disaster and Development
CO4	Understand the Disaster Risk Management in National Context.
CO5	Study of Applications, Case Studies & Field Works related to Disaster Management.

Course Code	ECS 401
Course Name	Data Communications

COs	Description
CO1	To learn the basic concepts of signals
CO2	To learn digital signal transmission and encoding techniques
CO3	To learn about Analog Transmission
CO4	To learn multiplexing techniques.
CO5	To analyze connection establishment and bandwidth sharing with respect to different Network in national and international scenario.

Course Code	ECS 402
Course Name	Design and Analysis of Algorithms

COs	Description
CO1	Analyze worst-case running times of algorithms based on asymptotic analysis and justify the correctness of algorithms.
CO2	Describe the greedy paradigm and explain when an algorithmic design situation calls for it. For a given problem develop the greedy algorithms.
CO3	Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Synthesize divide-and-conquer algorithms. Derive and solve recurrence relation.
CO4	Describe the dynamic-programming paradigm and explain when an algorithmic design situation calls for solving any national/ international problem.

Sanjeev Bhatt
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Analyze randomized algorithms and approximation algorithms

Course Code	ECS 403
Course Name	Database Management Systems

COs	Description
CO1	To learn the basic concepts of Database Data Modeling and ER Diagrams.
CO2	To learn about Relational Data Model.
CO3	To learn about Database Design and Normalization.
CO4	To learn about the global Transaction Processing Concepts.
CO5	To learn about Concurrency Control Technique

Course Code	ECS 404 N
Course Name	Computer Organization & Architecture

COs	Description
CO1	To describe basic structure of the computer system.
CO2	To demonstrate the arithmetic algorithms for solving ALU operations.
CO3	To describe instruction level parallelism and hazards in typical processor pipelines.
CO4	To describe superscalar architectures, multi-core architecture and their advantages
CO5	To describe basic structure of the computer system being used in global environment.

Course Code	ECS 405
Course Name	Software Engineering

COs	Description
CO1	To develop a broad understanding in the area of global software engineering.
CO2	To give detailed knowledge various software engineering techniques.
CO3	Complete understanding of Software Design and Coding.
CO4	To get detailed knowledge of techniques for the analysis and Design of complex software intensive systems.
CO5	Detailed Study Software Maintenance and Software Management

Sanjeev Sharma
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EMA-401
Course Name	Computer Based Numerical & Statistical Techniques

COs	Description
CO1	Be familiar with finite precision computation and interpretation of errors in numerical methods.
CO2	Solving Linear equations and Interpolation
CO3	Solving Differentiation, Integration and differential equation using numerical methods
CO4	Learning Basic Statistical techniques
CO5	Learn Sampling, Time Series and Forecasting, different types of test and charts for solving problems of national/ international interest.

Course Code	ECS 501
Course Name	Computer Graphics

COs	Description
CO1	Understand the basics of computer graphics, different graphics systems and global applications of computer graphics.
CO2	Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis.
CO3	Use of geometric transformations on graphics objects and their application in composite form.
CO4	Extract scene with different clipping methods and its transformation to graphics display device.
CO5	Explore projections and visible surface detection techniques for display of 3D scene on 2D screen. Render projected objects to naturalize the scene in 2D view and use of illumination models for this.

Course Code	ECS 502 N
Course Name	Python Programming

COs	Description
CO1	Understanding the basic concept of python programming language.
CO2	Understanding the object oriented programming concepts using Python
CO3	Understanding the important aspects related with string, lists and

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	dictionary in python
CO4	Understanding various modules used in python, Applying the technical skill for designing user defined functions in python
CO5	Implementing local database and GUI applications.

Course Code	ECS 503
Course Name	Computer Networks

COs	Description
CO1	Study the basic taxonomy and global terminology of the computer networking and enumerate the layers of OSI model and TCP/IP model.
CO2	To learn about various techniques and protocols used in data link layer and Medium access Sub layer.
CO3	To learn about various concepts of Network layer.
CO4	To understand various protocols working on transport Layer
CO5	To understand the functioning and Working of Protocols on Presentation and Application Layer.

Course Code	ECS 504
Course Name	Theory of Computation

COs	Description
CO1	To use basic concepts of formal languages of finite automata techniques
CO2	To Design Finite Automata's for different Regular Expressions and global Languages
CO3	To learn about various concepts of Network layer.
CO4	To solve various problems of applying normal form techniques, push down automata and Turing Machines
CO5	Learn different types of problems like travelling salesman, Hamiltonian path

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECS 603
Course Name	Compiler Design

COs	Description
CO1	Ability to design, develop, and implement a compiler for any global language
CO2	Able to use LEX and YACC tools for developing a scanner and a parser
CO3	Able to design and implement LL and LR parsers
CO4	Able to design algorithms to perform code optimization in order to improve the performance of a program in terms of space and time complexity
CO5	Ability to design algorithms to generate machine code

Course Code	ECS 605(1)
Course Name	Software Project Management

COs	Description
CO1	Identify project planning objectives, along with various cost/effort estimation models
CO2	Organize & schedule project activities to compute critical path for risk analysis.
CO3	Monitor and control project activities.
CO4	Formulate testing objectives and test plan to ensure software quality as per global standards under SEI-CMM.
CO5	Configure changes and manage risks using project management tools.

Course Code	ECS- 605(2)
Course Name	Cyber Security

COs	Description
CO1	Protect and defend computer systems and networks from national/ international cyber attacks.
CO2	Diagnose and investigate cyber security events or crimes related to computer systems and digital evidence.
CO3	Effectively communicate in a professional setting to address information security issues.
CO4	Communication orally and in writing, proposed information security solutions to technical and non-technical decision-makers.

Sanjeev Dawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Apply business principles to analyze and interpret data for planning, decision-making, and problem solving in an information security environment

Course Code	ECS605 (3)
Course Name	Mobile Computing

COs	Description
CO1	Impart knowledge of global mobile and wireless computing systems and techniques.
CO2	Understand the knowledge of wireless network
CO3	Understand the concepts of mobile discovery process.
CO4	Understand the concepts routing protocols.
CO5	Understand the working of mobile tracking in wireless network

Course Code	ECS- 605(4)
Course Name	Dot Net Framework for Application Development

COs	Description
CO1	Evaluate C# and the .NET framework namespace contents.
CO2	Develop the console and GUI applications using C# .Net also manage cookies and sessions as state management techniques.
CO3	Set up various navigation techniques for integrating web pages within the site.
CO4	Create the dynamic web page using ASP.NET Controls which interact with databases.
CO5	Explain global concepts related to Web Services, WCF and WPF in project development.

Course Code	ECS- 605(5)
Course Name	Soft and Evolutionary Computing

COs	Description
CO1	Learn about soft computing techniques and their applications
CO2	Analyze various neural network architectures
CO3	Understand perceptrons and counter propagation networks.
CO4	Define the fuzzy systems and its applications in global scenario.
CO5	Analyze the genetic algorithms and their applications

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECS 606(1)
Course Name	Multimedia Technology

COs	Description
CO1	Identify the essential features of graphics/image data types, file formats, and color models in images and video.
CO2	Explain the technical details of multimedia data representations. Perform a comparative analysis of the major methods and algorithms for multimedia data compression.
CO3	Explain the technical details of global multimedia compression standards. Also write code and develop a multimedia application using JAI and JMF.
CO4	Explain the principles and technical details of several wired and wireless networking protocols. Configure and manage multimedia content delivery platforms.
CO5	Identify the essential issues of quality of service in multimedia networking. Also explain technical aspects of popular multimedia web applications, including VoD and VoIP.

Course Code	ECS 606(2)
Course Name	Organizational Behavior

COs	Description
CO1	Demonstrate the applicability of the concept of organizational behavior to understand the behavior of people in any national/ international organization.
CO2	Demonstrate the applicability of analyzing the complexities associated with management of individual behavior in the organization.
CO3	Analyze the complexities associated with management of the group behavior in the organization.
CO4	Demonstrate how the organizational behavior can integrate in understanding the motivation (why) behind behavior of people in the organization.
CO5	To accept and embrace in working with different people from different cultural and diverse background in the workplace.

Course Code	ECS 606(3)
Course Name	Managerial Economics

COs	Description
CO1	Apply the knowledge of the mechanics of supply and demand to explain working of markets.
CO2	Describe how changes in demand and supply affect national/international

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	markets
CO3	Understand the choices made by a rational consumer
CO4	Explain relationships between production and costs
CO5	Define key characteristics and consequences of different forms of markets

Course Code	ECS 606(4)
Course Name	Data Compression

COs	Description
CO1	Students will able to understand important of data compression.
CO2	Student will be able to develop a reasonably sophisticated data compression application that can be used in local/global environment.
CO3	Student is able to select methods and techniques appropriate for the task
CO4	Understand the most common formats for image, sound and video;
CO5	Distinguish the basic techniques of lossless compression.

Course Code	ECS 606(5)
Course Name	Software Quality Engineering

COs	Description
CO1	Describe software testing and quality assurance model.
CO2	Recognize the suitable testing technique and quality assurance model for a defined scenario.
CO3	Apply the identified model and compile the finding of software quality assurance cycle.
CO4	Students can compute test coverage and yield, according to global criteria.
CO5	Design and implement Test Plans and Procedures.

Course Code	ECS701 (1)
Course Name	Distributed Computing

COs	Description
CO1	Acquire the theoretical and conceptual foundations of distributed computing.
CO2	Conceptualize the ideas of distributed operating systems and its issues.
CO3	Understand the issues involved in distributed resource environment

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Realize the importance of transaction and how to recovery the system from deadlocks.
CO5	Explore the principles of fault tolerance, its protocols that can be used in global environment.

Course Code	ECS 701(2)
Course Name	Web Search and Mining

COs	Description
CO1	Learn about how to process data present on World Wide Web.
CO2	Learn about various types of global information retrieval tool and their working.
CO3	Learn about how to process data present on World Wide Web for skill development.
CO4	Learn about various types of information retrieval tool and their working for skill development.
CO5	Able to design and implement clusters of data set helping in skill development as well as employment.

Course Code	ECS 701(3)
Course Name	TCP/IP & Web Technology

COs	Description
CO1	Summarize basic principles of IPv4 and its Addressing mechanisms
CO2	Understand UDP Services and Applications in Transport Layer
CO3	Discuss various Flow, Error and Congestion control mechanisms of TCP.
CO4	Have a Good grounding of Web Application Terminologies, Internet Tools, E – Commerce and other global web services.
CO5	Design and implement dynamic websites with good aesthetic sense of designing and latest technical know-how's.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECS 701(4)
Course Name	Quantum Computing

COs	Description
CO1	The basic principles of quantum computing.
CO2	The fundamental differences between conventional computing and quantum computing.
CO3	Several basic quantum computing algorithms.
CO4	Global problems that can be expected to be solved well by quantum computers
CO5	Ability to design algorithms to generate machine code for error correction.

Course Code	ECS 701(5)
Course Name	Software Reusability

COs	Description
CO1	Identify and describe the different approaches and techniques to the software reuse development.
CO2	Determine and apply the knowledge acquired on software reuse techniques.
CO3	Apply the design patterns in creating an object oriented design.
CO4	Use design patterns for real world situations of national/international interest.
CO5	List consequences of applying each pattern.

Course Code	ECS 702
Course Name	Digital Image Processing

COs	Description
CO1	Understand the scope, introduction of image processing system and image transforms with their properties.
CO2	Understand enhancement of Images.
CO3	Learn different causes for image degradation and overview of gloabal image restoration techniques.

Sanjeev Bhanot
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the image morphology and Image segmentation.
CO5	Learn different feature extraction techniques for image analysis and recognition

Course Code	ECS703
Course Name	Data Mining and Warehousing

COs	Description
CO1	Understand the basic principles, concepts and applications of data mining and form of Data Preprocessing.
CO2	Study and analysis of various Databases techniques & Concept Description.
CO3	Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining.
CO4	Understand the basic principles, concepts and applications of data warehousing using Multi Dimensional Data model and draw the functional block diagram of 3 Tier Architecture.
CO5	Design data warehouse with dimensional modeling and apply OLAP operations to solve problems of national interest.

Course Code	ECS704 (1)
Course Name	Introduction to Bioinformatics

COs	Description
CO1	Extract information from different types of bioinformatics data (gene, protein, disease, etc.), including their biological characteristics and relationships
CO2	Employ different data representation models and global formats used for bioinformatics data representation, including markup languages such as SBML and Cell ML, and ontologies such as GO ontology
CO3	Apply the different approaches used for data integration and data management, including data warehouse and wrapper approaches
CO4	Analyze processed data with the support of analytical and visualization tool
CO5	Interact with non-bioinformatics professionals, such as biologists and biomedical researchers, to better understand their bioinformatics needs for improved support and service delivery

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECS704 (2)
Course Name	Advance Web Applications

COs	Description
CO1	Understand how server-side programming works on the web.
CO2	PHP Basic syntax for variable types and calculations.
CO3	Creating conditional structures.
CO4	Storing data in arrays.
CO5	Using PHP built-in functions and creating custom function for creating global web applications

Course Code	ECS704 (3)
Course Name	Advanced Java and J2ee

COs	Description
CO1	Understand OOPs concepts, Java programming constructs and JVM and byte codes
CO2	Able to write Simple java programs using global/ local variables, Classes, Inheritance, Exception handling and applets
CO3	Develop programs using thread concepts and swings
CO4	Develop simple Java applications with JDBC connectivity
CO5	Demonstrate the advanced J2EE concepts using Servelets, Java RMI and EJB

Course Code	ECS704 (4)
Course Name	Introduction to Software Testing

COs	Description
CO1	List a range of different software testing techniques and strategies and be able to apply specific (automated) unit testing method to the projects.
CO2	Distinguish characteristics of structural testing methods.
CO3	Demonstrate the integration testing which aims to uncover interaction and compatibility problems as early as possible.
CO4	Discuss about the global functional and system testing methods.
CO5	Demonstrate various issues for object oriented testing.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECS 704(5)
Course Name	Mobile Application Development

COs	Description
CO1	Student understands the working of Android OS Practically.
CO2	Student will be able to develop Android user interfaces
CO3	Student will be able to develop, deploy and maintain the Android Applications
CO4	Discuss about the function of loader for loading data.
CO5	Demonstrate various global issues related with security.

Course Code	ECS-705
Course Name	Cryptography and Network Security

COs	Description
CO1	Understand cryptographic and network security concepts and Principles
CO2	Basic knowledge of Algebric structure
CO3	To learn message digest algorithm
CO4	Learn Key Management and distribution techniques
CO5	Learn IP Security Architecture and security protocol to safeguard from global threats.

Course Code	ECS801 (1)
Course Name	Basic of Research & Development

COs	Description
CO1	Understand basic concept of research methods, including key terms, classifications and systematic applications to the research data and design of a research project.
CO2	Analyze past literature for in-depth understanding on how the identified problem could be addressed, what are the different theories, design, methods have been followed and developed skills on a conceptual framework in the existing literature.
CO3	Generate ideas and identify core problem and distil into a research based on the scope and objectives of the study, and/or relate the problem with major theory, concepts.
CO4	Evident, analyze, and support the association of variables attributed in the

Sanjeev Rawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	conceptual model with theory and outcomes of the relevant published articles in national/ International journals , and evaluate with primary tools and other approaches that may be employed to interpret the results of the current study.
CO5	To develop an understanding of various research designs and techniques.

Course Code	ECS801 (2)
Course Name	Parallel Computing
COs	**Description**
CO1	To introduce the major concepts and ideas in parallel computing and its applications in global environment.
CO2	To help understand various models of parallelism (e.g., shared versus distributed memory models) and their strengths and limitations
CO3	To give descriptive idea of performance Measurement.
CO4	To make understand Parallel Processors & Processor organization.
CO5	To give basic knowledge of Parallel Programming, Scheduling and Parallelization.

Course Code	ECS 801(3)
Course Name	Management and Entrepreneurship for it Industry
COs	**Description**
CO1	Define management, organization, entrepreneur, planning, staffing, ERP
CO2	Outline the importance of entrepreneurship in national interest.
CO3	Utilize the resources available effectively through ERP
CO4	Make use of IPRs and institutional support in entrepreneurship
CO5	Define many case studies for skill development.

Course Code	ECS 801(4)
Course Name	Software Architecture and Design Patterns
COs	**Description**
CO1	Design and implement codes with higher performance and lower complexity
CO2	Demonstrate global coding standards needed to keep code flexible

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Illustrate design principles and be able to assess the quality of a design with respect to these principles.
CO4	Explain principles in the design of object oriented systems.
CO5	Understand a range of design patterns.

Course Code	ECS 801(5)
Course Name	Internet of Things Technology

COs	Description
CO1	Interpret the impact and challenges posed by IoT networks leading to new architectural models.
CO2	Compare and contrast the deployment of smart objects and the technologies to connect them to global network.
CO3	Appraise the role of IoT protocols for efficient network communication.
CO4	Elaborate the need for Data Analytics and Security in IoT.
CO5	Illustrate different sensor technologies for sensing real world entities and identify them.

Course Code	ECS802 (1)
Course Name	Wireless & Sensor Networks

COs	Description
CO1	Understand and explain global wireless sensor node architectures.
CO2	Be able to carry out simple analysis and planning of WSNs.
CO3	Demonstrate knowledge of MAC protocols developed for WSN.
CO4	Demonstrate knowledge of routing protocols developed for WSN.
CO5	Understand and explain mobile data-centric networking principles.

Course Code	ECS 802(2)
Course Name	Human Computer Interaction

COs	Description
CO1	Understand fundamental design and evaluation methodologies of human computer interaction.
CO2	Demonstrate knowledge of human computer interaction design concepts and related methodologies.
CO3	Apply global theories and concepts associated with effective work design to real-world application.

Sanjeev Sharma
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Achieve adequate perspectives of windows applications.
CO5	Student can grow up their skills through the recent research trends related to speech recognition digitization and generation – image and video displays etc.

Course Code	ECS 802(3)
Course Name	Cloud Computing and its Applications

COs	Description
CO1	Reduces implementation and maintenance costs
CO2	How to provide Flexible and scalable infrastructures that can be used in global scenarios.
CO3	Increased availability of high-performance applications to small/ medium-sized businesses
CO4	Analyze various cloud programming models and apply them to solve problems on the cloud.
CO5	Discuss system, network and storage virtualization and outline their role in enabling the cloud computing system model.

Course Code	ECS 802(4)
Course Name	Multi-Core Architecture and Programming

COs	Description
CO1	Explain the concepts of high-performance computer architecture and the impact of concepts on expected performance
CO2	Analyse a problem to define the requirements to target high-performance computer architecture
CO3	Develop and evaluate techniques for the creation of efficient multicore CPU and GPU programs by applying high performance programming principles and technical skills
CO4	Evaluate the performance and identify strengths and weaknesses of potential solutions targeting high-performance architecture
CO5	Explain the concepts of high-performance computer architecture and the impact of concepts on expected performance in global scenario.

Course Code	ECS 802(5)
Course Name	Computer Vision and Robotics

COs	Description
CO1	Implement fundamental image processing techniques required for computer vision

Sanjiv Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Perform shape analysis in accordance with global standards
CO3	Implement boundary tracking techniques
CO4	Apply chain codes and other region descriptors
CO5	Apply Hough Transform for line, circle, and ellipse detections

Course Code	ECS-804
Course Name	Big Data and Analytics

COs	Description
CO1	Student must be Able to understand the building blocks of Big Data
CO2	Student must be able to Interpret business models and scientific computing paradigms
CO3	Student must be able to apply software tools for big data analytics.
CO4	Achieve adequate perspectives of big data analytics in various global applications like recommender systems, social media applications etc
CO5	Student must be know the recent research trends related to Hadoop File System, Map Reduce and Google File System etc.

PROGRAMME NAME – M. Tech. (Computer Science and Engineering)

Course Code	MCS101
Course Name	Advanced Distributed System

COs	Description
CO1	To learn fundamentals of distributed systems
CO2	Understand the concepts and issues related to Distributed Deadlock Detection.
CO3	Studied about security of distributed systems
CO4	Studied the Transactions and Concurrency Control.
CO5	Design and develop the programs that are globally accepted for distributed environment

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD.

Course Code	MCS 102 (1)
Course Name	Advanced Algorithms

COs	Description
CO1	Describe analysis techniques for algorithms.
CO2	Identify appropriate data structure and design techniques for different problems
CO3	Identify appropriate algorithm to be applied for the various global application like geometric modelling, robotics, networking, etc.
CO4	Appreciate the role of probability
CO5	Learn and Analyze Computational Geometry, Complexity Classes, Reductions and Polynomial-Time Approximation,

Course Code	MCS 102 (2)
Course Name	Advanced Graph Theory

COs	Description
CO1	Formulate complex problems using appropriate graph-theoretic terminology.
CO2	Appreciate the role of graph theory in other areas of mathematics.
CO3	Apply sophisticated mathematical methods in the setting of graph theory
CO4	Apply topological sorting for finding the path in game theory.
CO5	Formulate the optimization algorithm and isomorphism algorithm that can be used for national/ international interest.

Course Code	MCS 102 (3)
Course Name	Embedded System

COs	Description
CO1	Compare embedded system design models using different processor technologies.
CO2	Describe and compare the various types of peripherals used in embedded systems.
CO3	Analyze a given embedded system design and identify its performance critical points
CO4	To Select the embedded architecture which is most suitable for different applications working in national/ international environment.
CO5	To Study performance evaluation and optimization methods

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCS 103
Course Name	Advanced Computer Architecture

COs	Description
CO1	To learn computer structures.
CO2	Understand the concepts of arithmetic algorithms for solving ALU operations.
CO3	Studied about instruction level parallelism and hazards in typical processor pipeline.
CO4	Be aware of the superscalar architectures, multi-core architecture and their advantages over other global architectures.
CO5	Studied the memory mapping techniques.

Course Code	MCS 104 N
Course Name	Soft Computing

COs	Description
CO1	Ability to analyze and appreciate the Neural Networks.
CO2	Ability to design Fuzzy Logic.
CO3	Ability to understand Fuzzy Arithmetic.
CO4	Ability to appreciate the importance of the Neuro-Fuzzy Systems.
CO5	Students would understand the efficiency of the Genetic Algorithm and its various applications in solving some Global issues.

Course Code	MCS 201
Course Name	Advanced Computer Network

COs	Description
CO1	Demonstrate the understanding of advance data communication technologies.
CO2	Demonstrate the understanding of WAN Technology typically ATM.
CO3	Demonstrate the understanding of packet switching protocols such as X.25, X.75.
CO4	Explore the issues of advance internet routing protocols and also QoS

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	based protocols.
CO5	Analyze and use various network simulators available in global market.

Course Code	MCS 202N
Course Name	Computer Vision and Image Processing
COs	**Description**
CO1	Demonstrate the understanding of digital Image processing and image transformation.
CO2	To learn the Image Enhancement.
CO3	Studied the Colour Image Processing, morphology and segmentation.
CO4	Explore the Registration techniques.
CO5	Learn and Analyze and use various Pattern Recognition approach and its applications in solving some national/ international problems.

Course Code	MCS 203 N
Course Name	Cloud Computing
COs	**Description**
CO1	Explain the core concepts of the cloud computing paradigm: how and why this paradigm shift came about, the characteristics, advantages and challenges brought about by the various models and services in cloud computing
CO2	Apply the fundamental concepts in data centers to understand the trade-offs in power, efficiency and cost.
CO3	Identify resource management fundamentals, i.e. resource abstraction, sharing and sandboxing and outline their role in managing infrastructure in cloud computing.
CO4	Analyze various cloud programming models and apply them to solve global problems on the cloud.
CO5	Learn and Analyze the cloud security.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCS 204 (1)
Course Name	Clusters and Grid Computing

COs	Description
CO1	To understand the cluster and grid computers.
CO2	To understand task scheduling and resource allocation in cluster and grid environment.
CO3	To understand middleware architecture in Cluster and Grid Environment
CO4	To understand the cluster and grid computing platform as an alternative to traditional supercomputer in global scenario.
CO5	Understand how the distributed computing environments known as Grids can be built from lower level services.

Course Code	MCS 204 (2)
Course Name	Sensor Network

COs	Description
CO1	Design wireless sensor network system for different applications under consideration
CO2	Understand the global hardware details of different types of sensors and select right type of sensor for various applications.
CO3	Understand radio standards and communication protocols to be used for wireless sensor network based systems and application.
CO4	Use operating systems and programming languages for wireless sensor nodes, performance of wireless sensor networks systems and platforms.
CO5	Design and develop security architecture for an organization, Design operational and strategic cyber security strategies and policies.

Course Code	MCS 204 (3)
Course Name	System Security

COs	Description
CO1	Ability to apply the knowledge of the Security Techniques.
CO2	Studied Global Networking Threats.
CO3	Ability to Designing the Secure Networks.
CO4	Apply the Options of Network Security Platform.
CO5	Ability to know Network Security Management.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCS 302 (1)
Course Name	Data Mining and Warehousing

COs	Description
CO1	Understand the functionality of the various data mining and data warehousing component
CO2	Understand the strengths and limitations of various data mining and data warehousing models
CO3	Explain the analyzing techniques of various data Analyze
CO4	Describe different methodologies used in data mining and data warehousing.
CO5	Compare different approaches of data ware housing and data mining with various applications in global scenario.

Course Code	MCS 301 (2)
Course Name	Research Methodology

COs	Description
CO1	Develop the ability to apply the methods while working on a research project work
CO2	Describe the appropriate statistical methods required for a particular research design
CO3	Choose the appropriate research design and develop appropriate research hypothesis for a research project
CO4	Develop a appropriate globally accepted framework for research studies
CO5	Ability to write research report and check plagiarism.

Course Code	MCS 301 (3))
Course Name	Artificial Intelligence and Neural Networks

COs	Description
CO1	Develop an understanding of modern concepts in AI and where they can be used.
CO2	Design, implement and apply novel AI techniques based on emerging real-world requirements
CO3	Grasping the use of neural nets for pattern recognition problems
CO4	Acquaintance with Kohonen self-organizing maps, Adaptive Resonance Theory and back propagation in multilayer neural nets.
CO5	Know how to use a neural network for solving some global problems.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCS 302(1)
Course Name	Human Resource Management

COs	Description
CO1	To develop the understanding of the concept of human resource management
CO2	To understand its relevance in organizations.
CO3	To develop necessary skill set for application of various HR issues.
CO4	To analyse the strategic issues and strategies required to select and develop manpower resources for national and international industry
CO5	Understand Changing face of the Indian work force.

Course Code	MCS 302 (2)
Course Name	Digital Forensic

COs	Description
CO1	Ability to apply the knowledge of Transform Methods.
CO2	Studied the Biometrics.
CO3	Ability to Introduction to information hiding.
CO4	Apply to implement the Steganographic Techniques.
CO5	Ability to know the global Watermarking and Copyright Protection.

Course Code	MCS 302(3)
Course Name	Bioinformatics

COs	Description
CO1	Extract information from different types of bioinformatics data (gene, protein, disease, etc.), including their biological characteristics and relationships
CO2	Employ different data representation models and formats used for bioinformatics data representation, including markup languages such as SBML and Cell ML, and ontologies such as GO ontology
CO3	Apply the different global approaches used for data integration and data management, including data warehouse and wrapper approaches
CO4	Analyze processed data with the support of analytical and visualization tool
CO5	Interact with non-bioinformatics professionals, such as biologists and biomedical researchers, to better understand their bioinformatics needs for improved support and service delivery.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – Bachelor of Computer Applications (B.C.A.)

PROGRAMME NAME – B.C.A.

Course Code	BCACC-111
Course Name	Fundamentals of Computer Science

COs	Description
CO1	Understand the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer system for skill development and employability.
CO2	Understand Word Processing and use different Text creation and Manipulation using Spread Sheet, Word for global use system for skill development and employability.
CO3	Understand Basic Concepts of Computer networks system for skill development and employability.
CO4	Understand Basic Concepts of Programming and Design programs connecting decision structures, loops and functions system for skill development and employability.
CO5	Use different data structures and create / manipulate basic data files and developing applications for real world problems system for skill development and employability.

Course Code	BCACC-112
Course Name	Problem Solving Using C

COs	Description
CO1	Understanding the concept of algorithm and flowchart and how it works for Skill Development system for skill development and employability.
CO2	Recognize of the basic terminology used in C programming system for skill development and employability.
CO3	To understand the basic concept of Array and Function and how it is useful to create programs system for skill development and employability.
CO4	To understand the dynamic behaviour of memory by the use of pointers and to be familiar with the concept of structure and union system for skill development and employability.
CO5	To be familiar with the basic concepts of file handling and implement this concept for creating projects in C language for global use system for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCACC-113
Course Name	Computer Organization

COs	Description
CO1	Understand the general concepts in digital logic design, including logic elements, and their use in combinational and sequential logic circuit design for skill development, employability and entrepreneurship development.
CO2	Understand the Register Transfer and Micro-operations, digital representation of data in a computer system for skill development, employability and entrepreneurship development.
CO3	Understand the general concepts of Central Processing and its operations for Skill Development at National Level for skill development, employability and entrepreneurship development.
CO4	Understand computer arithmetic formulate and solve problems, understand the performance requirements of Input-Output Organization systems for skill development, employability and entrepreneurship development.
CO5	Understand the basic architecture of processing, memory and I/O organization in a computer system for skill development, employability and entrepreneurship development.

Course Code	BCAPL-114
Course Name	Computer Organization Lab

COs	Description
CO1	Have a thorough understanding of the fundamental concepts and techniques used in digital electronics high-level constructs that are more easily understood by humans for skill development, employability and entrepreneurship development.
CO2	Understand and examine the structure of various number systems and its application in digital design for skill development, employability and entrepreneurship development.
CO3	The ability to understand, analyze and design various combinational and sequential circuits for Skill Development for global level for skill development, employability and entrepreneurship development.
CO4	Ability to identify basic requirements for a design application and propose a cost effective solution for skill development, employability and entrepreneurship development.
CO5	The ability to identify and prevent various hazards and timing problems in a digital design & to Develop skill to build, and troubleshoot digital circuits for skill development, employability and entrepreneurship development.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCAPL-115
Course Name	C Programming Lab

COs	Description
CO1	Understand the logic for a given problem. Write the algorithm of a given problem & Draw a flow chart of a given problem for globel level. Also recognize and understand the syntax and construction of C programming code global level for skill development, employability and entrepreneurship development.
CO2	Gain experience of procedural language programming for skill development, employability and entrepreneurship development.
CO3	Know the steps involved in compiling, linking and debugging C code for skill development, employability and entrepreneurship development.
CO4	Understand using header files. Learn the methods of iteration or looping and branching for skill development, employability and entrepreneurship development.
CO5	Make use of different data-structures like arrays, pointers, structures and files for skill development, employability and entrepreneurship development.

Course Code	BCADS-116
Course Name	E1: internet Basics & HTML

COs	Description
CO1	Students are able to understand the basics of Internet and basic services provided by Internet for skill development, employability and entrepreneurship development.
CO2	Students will be able to understand basic principles involved in developing a web site at global level for skill development, employability and entrepreneurship development.
CO3	Students will be able to write and understands HTML and CSS Tags for skill development, employability and entrepreneurship development .
CO4	Students will be able to write a server-side/Client Side java application called Java Scripts to catch form data sent from client, process it and store it on database for skill development, employability and entrepreneurship development.
CO5	Students will be able to design GUI web pages using Photoshop and Dreamweaver for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCADS-117
Course Name	E2: Algorithm & Logic Development

COs	Description
CO1	Implement the basic data structures and solve problems using fundamental algorithms and Offers Students an opportunity to apply skills in a laboratory environment for skill development, employability and entrepreneurship development.
CO2	To understand the concept of designing an algorithm Design and Data Structure for skill development, employability and entrepreneurship development.
CO3	Implementation of List, Stacks and Queues in various fields in real world (global level) for skill development, employability and entrepreneurship development.
CO4	Implement and Understand the Trees and Graphs: Definitions and Concepts, and its Operations for skill development, employability and entrepreneurship development.
CO5	Implement various search and sorting techniques. Also Analyze, evaluate and choose appropriate data Structure and algorithmic technique to solve real-world problems for skill development, employability and entrepreneurship development.

Course Code	EHU – 101
Course Name	E2: Algorithm & Logic Development

COs	Description
CO1	Understood the core values that shape the ethical behavior of an engineer for employability global level for skill development, employability and entrepreneurship development.
CO2	Exposed awareness on professional ethics and human values. These issues will help to sensitize students to be broader towards the social, cultural, economic and human issues, involved in social changes for skill development, employability and entrepreneurship development.
CO3	Known their role in technological development & making engineering
CO4	Understood the technology students aware of the various issues concerning man and society for skill development, employability and entrepreneurship development.
CO5	Understood to understand the nature of the individual and the relationship between the self and the community for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCAGE-102
Course Name	Mathematics-I

COs	Description
CO1	Familiar with the matrix and its types and perform the matrix operations of addition, multiplication, transposition, inverse, system of simultaneous linear equations in matrix form for skill development, employability and entrepreneurship development.
CO2	Develop the ability to understand the Leibnitz's theorem, Euler's theorem and Jacobian for skill development, employability and entrepreneurship development.
CO3	Develop the ability to perform the basic definite integral problem and understand the order, degree and various standard forms of differential equations and also determine solutions to first and higher order linear differential equations for skill development, employability and entrepreneurship development.
CO4	Familiar with the basic knowledge of vector and their products and develop the ability to understand the divergence, curl of the vector for skill development, employability and entrepreneurship development.
CO5	Explain the basic concepts of coordinate geometry for high level for skill development, employability and entrepreneurship development.

Course Code	TPSD101/TPSD201
Course Name	Professional Skill Development

COs	Description
CO1	Use grammar in their own writing in English correctly for skill development, employability and entrepreneurship development.
CO2	Increase understanding and recall of what read and listen is including facts and main idea for skill development, employability and entrepreneurship development.
CO3	Enhance competencies in writing paragraph, gist or abstract/précis of the passage in own words/ language for skill development, employability and entrepreneurship development.
CO4	And in writing resumes, bio-data, letters and applications of different kinds at global level/National level for skill development, employability and entrepreneurship development.
CO5	Have all the four skills of English language for skill development for skill development, employability and entrepreneurship development.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCAPL-101
Course Name	Office Automation Lab

COs	Description
CO1	Use Microsoft Office Programs to Create Personal, Academic for skill development, employability and entrepreneurship development.
CO2	Business Documents Using Current Professional and/or Industry Standards for skill development, employability and entrepreneurship development.
CO3	Perform Calculations in Microsoft Excel Using Formulas and Built-in Functions for skill development, employability and entrepreneurship development.
CO4	Prepare Datasheet and Graphs to Describe and analyze the Data in Microsoft Excel for global level data management for skill development, employability and entrepreneurship development.
CO5	Create Effective Presentation Using Various Features of MS Power Point for skill development, employability and entrepreneurship development.

Course Code	BCACC-211
Course Name	Mathematics-II

COs	Description
CO1	Describe the basic differences between the rational and the real numbers for skill development for skill development, employability and entrepreneurship development.
CO2	Familiar with the basic concepts of limit and continuity for skill development, employability and entrepreneurship development.
CO3	Develop the ability to understand the indeterminate forms of limit evaluate the limits for skill development, employability and entrepreneurship development.
CO4	Evaluate the maxima and minima problems defined the Problem at global level maths.
CO5	Familiar with different type of mean value theorems and able to apply these theorems for skill development, employability and entrepreneurship development.

Course Code	BCACC-212
Course Name	Object Oriented Programming Using C++

COs	Description
CO1	Identify importance of object-oriented programming and difference between structured for skill development, employability and entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Oriented and object-oriented programming features for skill development, employability and entrepreneurship development.
CO3	Understand the relative merits of C++ as an object-oriented programming language for skill for skill development, employability and entrepreneurship development.
CO4	Development and Employability at National and global level.
CO5	Understand how to apply the major object-oriented concepts to implement object oriented for skill development, employability and entrepreneurship development.

Course Code	BCACC-213
Course Name	Data Structure Using C/C++

COs	Description
CO1	Distinguish between procedures and object-oriented programming for skill development, employability and entrepreneurship development.
CO2	Use and implement appropriate data structure for the required problems using a programming language such as C/C++ for skill development, employability and entrepreneurship development.
CO3	Analyze step by step and develop algorithms to solve real world problems at high(global level) level Programming for skill development, employability and entrepreneurship development.
CO4	Implementing various data structures viz. Stacks, Queues, Linked Lists, Trees and Graphs for skill development, employability and entrepreneurship development.
CO5	Understand various searching & sorting techniques for skill development, employability and entrepreneurship development.

Course Code	BCACC-214
Course Name	C++ Lab

COs	Description
CO1	Creating simple programs using classes and objects in C++for skill development, employability and entrepreneurship development.
CO2	Implement Object Oriented Programming Concepts in C++ for skill development, employability and entrepreneurship development.
CO3	Develop applications using stream I/O and file I/O for skill development, employability and entrepreneurship development.
CO4	Implement simple graphical user interfaces for skill development, employability and entrepreneurship development.
CO5	Implement Object Oriented Programs using templates and exceptional handling concepts at global level for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCACC-215
Course Name	Data Structure Lab

COs	Description
CO1	Design and analyze the time and space efficiency of the data structure for skill development, employability and entrepreneurship development.
CO2	Capable to identity the appropriate data structure for given problem for skill development, employability and entrepreneurship development.
CO3	Have practical knowledge on the applications of data structures for skill development, employability and entrepreneurship development.
CO4	Be able to design and analyze the time and space efficiency of the data structure for skill development, employability and entrepreneurship development.
CO5	Be capable to identity the appropriate data structure for given problem and practical for effective high level Programming for skill development, employability and entrepreneurship development.

Course Code	BCACC-216
Course Name	E1: Internet of Things

COs	Description
CO1	To identify the vision of IoT and its future roadmap for skill development, employability and entrepreneurship development.
CO2	To Understand IoT Market perspective for skill development, employability and entrepreneurship development.
CO3	To help implementing Data and Knowledge Management and use of Devices in IoT Technology for skill development, employability and entrepreneurship development.
CO4	To classify Real World IoT Design Constraints, Industrial Automation in IoT for skill development, employability and entrepreneurship development.
CO5	To Understand State of the Art - IoT Architecture at global level for skill development, employability and entrepreneurship development.

Course Code	BCACC-217
Course Name	E2: Big Data Analytics

COs	Description
CO1	Apply Identify Big Data and its Business Implications for skill development, employability and entrepreneurship development .
CO2	Able to list the components of Hadoop and Hadoop Eco-System for skill development, employability and entrepreneurship development.
CO3	Apply Access and Process Data on Distributed File System for skill

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development, employability and entrepreneurship development .
CO4	Able to manage Job Execution in Hadoop Environment for skill development, employability and entrepreneurship development.
CO5	Develop Big Data Solutions at global level using Hadoop and the practical enhancement of visualization for skill development, employability and entrepreneurship development.

Course Code	BCACC-218
Course Name	E3: Artificial Intelligence

COs	Description
CO1	Compare AI with human intelligence and traditional information processing and discuss its Strengths and limitations as well as its application to complex and human-centered problems for skill development, employability and entrepreneurship development.
CO2	Discuss the core concepts and algorithms of advanced AI, including informed searching, CSP, logic, uncertain knowledge and reasoning, dynamic Bayesian networks, graphical models, decision making, multiagent, inductive learning, statistical learning, reinforcement learning, deep learning, natural language processing, robotics, and so on for skill development, employability and entrepreneurship development.
CO3	Apply the basic principles, models, and algorithms of AI to recognize, model, and solve for skill development, employability and entrepreneurship development.
CO4	Analyze the structures and algorithms of a selection of techniques related to searching, reasoning, machine learning, and language processing for skill development, employability and entrepreneurship development.
CO5	Design AI functions and components involved in intelligent systems such as computer games, expert systems, semantic web, information retrieval, machine translation, mobile robots, decision support systems, and intelligent tutoring systems at global level for skill development, employability and entrepreneurship development.

Course Code	BCAGE-201
Course Name	Environmental Science

COs	Description
CO1	Understand the issues and challenges related to environmental and ecosystem due to some human activities for skill development, employability and entrepreneurship development.
CO2	Understand key concepts from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies for skill development, employability and entrepreneurship development.
CO3	Reflect critically about their roles and identities as citizens, consumers

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and environmental actors in a complex, interconnected world for skill development, employability and entrepreneurship development.
CO4	Appreciate concepts and methods from ecological and physical sciences and their application in environmental problem solving for skill development, employability and entrepreneurship development.
CO5	Appreciate the ethical, cross-cultural, and historical context of environmental issues at global level for skill development, employability and entrepreneurship development.

Course Code	**BCAGE-202**
Course Name	**Organizational Behavior**

COs	**Description**
CO1	Demonstrate the applicability of the concept of organizational behavior to understand the behavior of people in the organization for skill development, employability and entrepreneurship development.
CO2	Demonstrate the applicability of analyzing the complexities associated with management of individual behavior in the organization for skill development, employability and entrepreneurship development.
CO3	Analyze the complexities associated with management of the group behavior in the Organization for skill development, employability and entrepreneurship development.
CO4	Demonstrate how the organizational behavior can integrate in understanding the motivation (why) behind behavior of people in the organization at global level for skill development, employability and entrepreneurship development.
CO5	Demonstrate the applicability of the concept Organizational Culture: Concept, Characteristics, Elements of Culture for skill development, employability and entrepreneurship development.

Course Code	**BCAGE-203**
Course Name	**Business Data Processing**

COs	**Description**
CO1	Describe the fundamentals of information technology concepts – hardware, software, security, and privacy for skill development, employability and entrepreneurship development.
CO2	Demonstrate proper file management techniques to manipulate electronic files and folders in local, network, and online environments for skill development, employability and entrepreneurship development.
CO3	Create business documents with word processing software using spelling and grammar Check, format and layout, tables, citations, graphics, and mail merge for skill development at global level for skill development, employability and entrepreneurship development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Create business documents and analyze data with spreadsheet software using (1) tables, Sorting, filtering, charts and graphics, pivot tables, macros; (2) statistical, financial, Logical and look-up functions and formulas; and (3) add-ins for skill development, employability and entrepreneurship development.
CO5	Create business multimedia presentations with presentation software using templates, Lists, groups, themes, colors, clip art, pictures, tables, transitions, animation, video, charts, and views for skill development, employability and entrepreneurship development..

Course Code	**BCAPL-201**
Course Name	**Business Data Processing Lab**
COs	**Description**
CO1	Work with word, spreadsheets and data analysis software for business modeling & Demonstrate proper file management techniques to manipulate electronic files and folders in local, network, and online environments at global level for skill development, employability and entrepreneurship development.
CO2	Create business documents with word processing software using spelling and grammar check, format and layout, tables, citations, graphics, and mail merge for skill development, employability and entrepreneurship development.
CO3	Create business documents and analyze data with spreadsheet software using tables, sorting, filtering, charts and graphics, pivot tables, macros; for skill development, employability and entrepreneurship development.
CO4	Create business documents and analyze data with spreadsheet software using statistical, financial, logical for skill development, employability and entrepreneurship development.
CO5	Create business documents and analyze data with spreadsheet software using add-ins for skill development, employability and entrepreneurship development.

Course Code	**BCACC-311**
Course Name	**Operating System**
COs	**Description**
CO1	Able to explain basic concept, functions and types of operating system skill development, employability and entrepreneurship development.
CO2	Understand CPU scheduling and able to solve process synchronization problems at local machine skill development, employability and entrepreneurship development.
CO3	Analyze the concepts of deadlock in operating systems and apply the deadlock handling techniques in multiprogramming system for skill development, employability and entrepreneurship development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Be able to manage files and directory, recovery and manage disk spaces, also correlate basic concepts file system of operating system with an existing operating system for skill development, employability and entrepreneurship development.
CO5	Able to describe paging and segmentation methods suitable for virtual memory for skill development, employability and entrepreneurship development.

Course Code	BCACC-312
Course Name	Database Management System

COs	Description
CO1	Describe the fundamental elements of relational database management systems for skill development, employability and entrepreneurship development.
CO2	Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL for skill development, employability and entrepreneurship development.
CO3	Improve the database design by normalization for skill development, employability and entrepreneurship development.
CO4	Design ER-models to represent simple database application scenarios, Convert the ER- model to relational tables, populate relational database and formulate SQL queries on data for effective global level problem for skill development, employability and entrepreneurship development.
CO5	Familiar with basic database storage structures and access techniques: file and page organizations, indexing methods, and hashing for skill development, employability and entrepreneurship development.

Course Code	BCACC-313
Course Name	Net Programming Using C#

COs	Description
CO1	Understand the list the major elements of the .NET frame work and explain how C# fits into the .NET platform for skill development, employability. and entrepreneurship development.
CO2	Analyze the basic structure of a C# application for skill development, employability and entrepreneurship development.
CO3	Debug, compile, and run a simple application such Inheritance & polymorphism for skill development, employability and entrepreneurship development.
CO4	Develop programs using C# on .NET for web applications (global level web sites) for skill development, employability and entrepreneurship development.
CO5	Design and develop Web based applications on .NET at global level web

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	pages for skill development, employability and entrepreneurship development.

Course Code	BCACC-314
Course Name	DBMS Lab

COs	Description
CO1	Describe the fundamental elements of relational database management systems for skill development, employability and entrepreneurship development.
CO2	Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL for skill development, employability and entrepreneurship development.
CO3	Design ER-models to represent simple database application scenarios for skill development, employability and entrepreneurship development.
CO4	Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data local/central level sql problems for skill development, employability and entrepreneurship development.
CO5	Improve the database design by normalization for skill development, employability and entrepreneurship development.

Course Code	BCACC-315
Course Name	Net Programming Lab

COs	Description
CO1	List the major elements of the .NET frame work for skill development, employability and entrepreneurship development.
CO2	Explain how C# fits into the .NET platform for skill development, employability and entrepreneurship development.
CO3	Analyze the basic structure of a C# application for skill development, employability and entrepreneurship development.
CO4	Debug, compile, and run a simple application for skill development, employability and entrepreneurship development.
CO5	Develop programs using C# on .NET and Design and develop Web based applications on global level web pages for skill development, employability and entrepreneurship development.

Course Code	BCACC-316
Course Name	E1: Hardware & PC Maintenance

COs	Description
CO1	Perform all the functions with Electrical and Electronic Components related to Computer and Networking system drawing following safety precautions for skill development, employability and entrepreneurship development .

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Assemble and repair Desktop Computer with all its hardware components, and Install different Operating System and all other application software for skill development, employability and entrepreneurship development.
CO3	Customize Operating System and maintenance of system application software. Assemble and repair Laptop and its hardware components for skill development, employability and entrepreneurship development.
CO4	Perform the operations of office package (word, excel, power point).
CO5	Install Printer, Scanner and troubleshoot their faults. Also set up and configure Networking System using various network devices for local level networking system for skill development, employability and entrepreneurship development.

Course Code	BCACC-317
Course Name	E2: Desktop Publishing

COs	Description
CO1	Install and setup operating system and related software in a computer following safety precautions for skill development, employability and entrepreneurship development.
CO2	Create, format and edit different publication using publication software Adobe PageMaker. Create, edit, format and develop publication using Quark Xpress application software. & Install and setup scanner and scan the documents and images. Also Create, format, edit and develop images using Adobe Photoshop software for skill development, employability and entrepreneurship development.
CO3	Create, format, edit text file, document file and BMP file by using different Accessories of Windows for skill development, employability and entrepreneurship development.
CO4	Introduce the Networking concept including sharing of different resources, use of Internet, accessing/ browsing, downloading and e-mailing for any local Organization for skill development, employability and entrepreneurship development.
CO5	Create, edit, format and enhance document using word processing application Software for skill development, employability and entrepreneurship development.

Course Code	BCAGE-301
Course Name	Entrepreneurship

COs	Description
CO1	Have the ability to discern distinct entrepreneurial traits for skill development, employability and entrepreneurship development.
CO2	Know the parameters to assess opportunities and constraints for new business ideas for skill development, employability and entrepreneurship

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development.
CO3	Understand the systematic process to select and screen a business idea for skill development, employability and entrepreneurship development.
CO4	Design strategies for successful implementation of ideas for skill development, employability and entrepreneurship development.
CO5	Write a business plan Local/ global level for skill development, employability and entrepreneurship development.

Course Code	BCAGE-302
Course Name	**Disaster Management**
COs	**Description**
CO1	Students will learn different disasters and measures to reduce the risk due to these Disasters for skill development, employability and entrepreneurship development.
CO2	Students will learn about Geological Disasters- Earthquakes, Landslides, Avalanches, Volcanic eruptions for skill development, employability and entrepreneurship development.
CO3	Students will learn institutional frame work for disaster management at national as well as global level for skill development, employability and entrepreneurship development.
CO4	Students will learn different factors affecting mitigation measures, prediction for skill development, employability and entrepreneurship development.
CO5	Students will learn about Geological Disasters- Earthquakes, Landslides, and Avalanches, Volcanic eruptions for skill development, employability and entrepreneurship development.

Course Code	BCAGE-303
Course Name	**Discrete Mathematics**
COs	**Description**
CO1	Write an argument using logical notation and determine if the argument is or is not valid for skill development, employability and entrepreneurship development.
CO2	Demonstrate the ability to write and evaluate a proof or outline the basic structure and give examples of each proof technique described for skill development, employability and entrepreneurship development.
CO3	Understand the basic principles of sets and operations in sets for skill development, employability and entrepreneurship development.
CO4	Apply counting principles to determine probabilities for skill development, employability and entrepreneurship development.
CO5	Demonstrate an understanding of relations and functions and be able to

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	determine their relationship with Programming for skill development, employability and entrepreneurship development.

Course Code	BCAPL-301
Course Name	Desktop Publishing Lab

COs	Description
CO1	Install and setup operating system and related software in a computer following safety Precautions for skill development, employability and entrepreneurship development.
CO2	Understand the basic principles of sets and operations in sets for skill development, employability and entrepreneurship development.
CO3	Create, format, edit text file, document file and BMP file by using different Accessories of Windows for skill development, employability and entrepreneurship development.
CO4	Demonstrate an understanding of relations and functions and be able to determine their properties & demonstrate different traversal methods for trees and graphs for skill development, employability and entrepreneurship development.
CO5	Create, edit, format and enhance document using word processing application software for local / global level for skill development, employability and entrepreneurship development.

Course Code	BCACC-411
Course Name	Computer Graphics and Animation

COs	Description
CO1	Be able to create interactive graphics applications for skill development, employability at global level for skill development, employability and entrepreneurship development.
CO2	Have a knowledge and understanding of geometrical transformations and 2D/ 3D Viewing for skill development, employability and entrepreneurship development.
CO3	Have a knowledge and understanding of the Three–dimensional Representation and Transformation concepts for skill development, employability and entrepreneurship development.
CO4	Have a knowledge and understanding of techniques for representing 3D geometrical Objects for skill development, employability and entrepreneurship development.
CO5	Have a knowledge and understanding of the structure of an interactive computer graphics System for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCACC-412
Course Name	Java Programming

COs	Description
CO1	Identify classes, objects, members of a class and relationships among them needed for a specific problem for skill development, employability and entrepreneurship development.
CO2	Write Java programs to implement error handling techniques using exception handling for skill development, employability and entrepreneurship development.
CO3	Use of Java in a variety of technologies and on different platforms for skill development, employability and entrepreneurship development.
CO4	Write Java application programs using OOP principles and proper program structuring at Effective level Programming for skill development, employability and entrepreneurship development.
CO5	Demonstrate the concepts of polymorphism and inheritance for skill development, employability and entrepreneurship development.

Course Code	BCACC-413
Course Name	E1: Data Mining

COs	Description
CO1	Understand the functionality of the various data mining and data warehousing Component for skill development, employability and entrepreneurship development.
CO2	Appreciate the strengths and limitations of various data mining and data warehousing models for skill development, employability and entrepreneurship development.
CO3	Describe different methodologies used in data mining and data ware housing for skill development, employability and entrepreneurship development.
CO4	Compare different approaches of data warehousing for skill development, employability and entrepreneurship development.
CO5	Understand the functionality of the data mining with various technologies for National and International Data Mining for skill development, employability and entrepreneurship development.

Course Code	BCACC-414
Course Name	E2: Computer Oriented Neumarical Analysis

COs	Description
CO1	Apply numerical methods to find our solution of algebraic equations using different under different conditions, and numerical solution of system of algebraic equations .methods for skill development, employability and

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	entrepreneurship development
CO2	Apply various interpolation methods and finite difference concepts on different type of Problems for skill development, employability and entrepreneurship development.
CO3	Develop the ability to understand concepts of curve fitting and regression analysis and application at global level programming problems for skill development, employability and entrepreneurship development.
CO4	Familiar with the matrix and its types and perform the matrix operations of addition, multiplication, transposition, inverse and develop the ability to solve linear systems using various methods for skill development, employability and entrepreneurship development.
CO5	Understand the concept of ordinary differential equation and able to solve such problems using Euler Method, Runge – Kutta methods, Predictor- corrector methods and others methods for skill development, employability and entrepreneurship development.

Course Code	BCACC-415
Course Name	E3: Business Statistics & Mathematics
COs	**Description**
CO1	Develop ability to understand of set and groups and their properties and develop ability to understand of functions and their properties and demonstrate an understanding of relations and be able to determine their properties for skill development, employability and entrepreneurship development.
CO2	Apply the concept of vector for evaluating directional derivatives, tangent and normal planes, line, surface and volume integrals for skill development, employability and entrepreneurship development.
CO3	Familiar with different types of chart, frequency distribution interval and ratio for skill development, employability and entrepreneurship development.
CO4	Familiar the basic concepts of mean, median and mode also to understand application of these concepts and its application at local globel level for skill development, employability and entrepreneurship development.
CO5	Understand the concept of probability and probability rules and the basic concept of Baye's Theorem for skill development, employability and entrepreneurship development.

Course Code	BCACC-416
Course Name	Computer Graphics and Animation Lab
COs	**Description**
CO1	Be able to create interactive graphics applications for skill development, employability and entrepreneurship development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Have a knowledge and understanding of geometrical transformations and 3D viewing for skill development, employability and entrepreneurship development.
CO3	Have a knowledge and understanding of techniques for representing 3D geometrical objects.
CO4	Have a knowledge and understanding of the structure of an interactive computer graphics System for skill development, employability and entrepreneurship development.
CO5	Student will be able to overall design of simple graphics and animation for local/global level graphics design for skill development, employability and entrepreneurship development.

Course Code	**BCACC-417**
Course Name	**Java Programming Lab**

COs	**Description**
CO1	Identify classes, objects, members of a class and relationships among them needed for a specific problem for skill development, employability and entrepreneurship development.
CO2	Use of Java in a variety of technologies and on different platforms for skill development, employability and entrepreneurship development.
CO3	Write Java application programs using OOP principles and proper program structuring for skill development, employability and entrepreneurship development.
CO4	Demonstrate the concepts of polymorphism and inheritance for skill development, employability and entrepreneurship development.
CO5	Write Java programs to implement error handling techniques using exception handling for local/global level for skill development, employability and entrepreneurship development.

Course Code	**BCADS-418**
Course Name	**E1: Fundamentals of ICT**

COs	**Description**
CO1	Understand the literature of social networks and their properties. Explain which network is suitable for whom for skill development, employability and entrepreneurship development.
CO2	Develop skills to use various social networking sites like twitter, flickr, etc. for skill development, employability and entrepreneurship development.
CO3	Learn few GOI digital initiatives in higher education for skill development, employability and entrepreneurship development.
CO4	Apply skills to use online forums, docs, spreadsheets, etc for communication, collaboration and research at global level for skill

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development, employability and entrepreneurship development.
CO5	Get acquainted with internet threats and security mechanisms for skill development, employability and entrepreneurship development.

Course Code	**BCADS-419**
Course Name	**E2:E-Commerce**

COs	Description
CO1	Demonstrate an understanding of the foundations and importance of E-commerce for skill development, employability and entrepreneurship development.
CO2	Analyze the impact of E-commerce on business models and strategy for skill development, employability and entrepreneurship development.
CO3	Describe the infrastructure for E-commerce, Website Maintenance Online Promotion tools & techniques for skill development, employability and entrepreneurship development.
CO4	Analyze the Introduction of EDI, EDI layered Architecture systems for skill development, employability and entrepreneurship development.
CO5	Recognize and discuss global level E-commerce issues and Electronic Payment Systems: E-cash for skill development, employability and entrepreneurship development.

Course Code	**BCAGE-401**
Course Name	**Analytical Skills**

COs	Description
CO1	Understand the functionality of the various data mining and data warehousing component for skill development, employability and entrepreneurship development.
CO2	Appreciate the strengths and limitations of various data mining and data warehousing models for skill development, employability and entrepreneurship development.
CO3	Describe different methodologies used in data mining and data ware housing for skill development, employability and entrepreneurship development.
CO4	Compare different approaches of data warehousing and data mining with various technologies at local level/global level for skill development, employability and entrepreneurship development.
CO5	Describe different methodologies the Aggregation, Historical information, Query Facility, OLAP function and Tools for skill development, employability and entrepreneurship development.

Sanjeev Bajaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCAGE-402
Course Name	Information Security & Cyber Law

COs	Description
CO1	Determine and evaluate Security Systems Development Life Cycle for skill development, employability and entrepreneurship development.
CO2	Determine and analyze software vulnerabilities and security solutions to reduce the risk of exploitation for skill development, employability and entrepreneurship development.
CO3	Measure the performance and troubleshoot cyber security systems for skill development, employability and entrepreneurship development.
CO4	Implement cyber security solutions and use of cyber security at local/global level, information assurance, and Cyber /computer forensics software/tools for skill development, employability and entrepreneurship development.
CO5	Design and develop security architecture for an organization. Design operational and strategic cyber security strategies and policies for skill development, employability and entrepreneurship development.

Course Code	BCAGE-403
Course Name	System Analysis & Design

COs	Description
CO1	Solve a wide range of problems related to the analysis, design and construction of information systems and Elements of Systems Analysis for skill development, employability and entrepreneurship development.
CO2	Understand the Introduction to planning and System Analysis design.
CO3	Plan and undertake a major individual project, prepare and deliver coherent and structured verbal and written technical reports for skill development, employability and entrepreneurship development.
CO4	Understand that the successful systems analyst needs to have a broad understanding of organizations, organizational culture, organizational change, organizational operations, and business processes for skill development, employability and entrepreneurship development.
CO5	Understand that IT strategy must be conceived in an interaction with overall organizational strategy for local /global level organization for skill development, employability and entrepreneurship development.

Course Code	BCAPL-401
Course Name	ICT Based Lab

COs	Description
CO1	ICT based projects will be identified for each subject which will enable

Sanjeev Sharma
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	the students to use ICT for learning the core subject in a better way for skill development, employability and entrepreneurship development..
CO2	These projects can be used by teachers for formative assessment of the core subjects and also by ICT teachers to assess the ICT skills for skill development, employability and entrepreneurship development.
CO3	These projects will be designed based on the subject specific tools appropriate for the level of the students for skill development, employability and entrepreneurship development.
CO4	By this course student will be able to develop project which will be more beneficial to digital society at Local/National Level for skill development, employability and entrepreneurship development.
CO5	Student will understand the social legal and ethical use of ITC and can implement this in their project for skill development, employability and entrepreneurship development.

Course Code	BCACC-511
Course Name	Software Engineering

COs	Description
CO1	Able to learn Basic knowledge and understanding of the analysis and design of complex systems for skill development, employability and entrepreneurship development.
CO2	Ability to apply software engineering principles and techniques for skill development, employability and entrepreneurship development.
CO3	Ability to develop, maintain and evaluate Global-scale software systems.
CO4	To produce efficient, reliable, robust and cost-effective local /Global software solutions for skill development, employability and entrepreneurship development.
CO5	Ability to perform independent research and analysis for skill development, employability and entrepreneurship development.

Course Code	BCACC-512
Course Name	Data Communication & Networks

COs	Description
CO1	Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies for skill development, employability and entrepreneurship development.
CO2	Have a basic knowledge of the use of cryptography and network security for skill development, employability and entrepreneurship development.
CO3	Specify and identify deficiencies in existing protocols, and then go onto formulate new and better protocols for skill development, employability and entrepreneurship development.
CO4	Analyze, specify and design the topological and routing strategies for an IP based networking infrastructure at Local Level for skill development,

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability and entrepreneurship development.
CO5	Have a working knowledge of datagram and internet socket programming for skill development, employability and entrepreneurship development.

Course Code	BCACC-513
Course Name	Management Information System

COs	Description
CO1	Understand the importance of determining information system requirements for all management levels by describing the differences between various types of information systems for skill development, employability and entrepreneurship development.
CO2	Describe how information systems are developed for skill development, employability and entrepreneurship development.
CO3	Understand how to perform planning and control process in an organization for skill development, employability and entrepreneurship development.
CO4	Able to know various business applications of information system for skill development, employability and entrepreneurship development.
CO5	Apply the understanding of how various information systems like DBMS work together to accomplish the information objectives of an local leval organization for skill development, employability and entrepreneurship development.

Course Code	BCACC-514
Course Name	Web Technology

COs	Description
CO1	Review the current topics in Web or World Wide Web & Internet technologies and describe the basic concepts for website and internet implementation for skill development, employability and entrepreneurship development.
CO2	Comprehend the technologies for Hypertext Mark-up Language (HTML), XML and CSS specify design rules in constructing web pages and sites for skill development, employability and entrepreneurship development.
CO3	Effectively deal with programming issues relating to VB Script, JavaScript, Java, ASP, Front Page and AJAX for skill development, employability and entrepreneurship development.
CO4	Create and Design websites with JSP, ASP and ASP.NET. Figure out the various security hazards on the Internet and need of security measures for skill development, employability and entrepreneurship development.
CO5	Create and Design websites with PHP, PHP-ODBC and Information Architecture document for a web site and construct a local /global web site that conforms to the web standards of today for skill development, employability and entrepreneurship development.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCACC-515
Course Name	Python Programming

COs	Description
CO1	This course is a foundation for the development of more advanced mathematical concepts for skill development, employability and entrepreneurship development.
CO2	To use appropriate set, function, or relation models for analysis of practical examples and interpretation of the associated operations and terminology in context for skill development, employability and entrepreneurship development.
CO3	To formulate problems precisely, solve the problems, apply formal proof techniques, and explain their reasoning clearly for skill development, employability and entrepreneurship development.
CO4	This course is a foundation for the development of Object Oriented Programming using python for skill development, employability and entrepreneurship development.
CO5	To develop the ability to write local /global database applications in Python for skill development, employability and entrepreneurship development.

Course Code	BCADS-516
Course Name	Android Application Development

COs	Description
CO1	Demonstrate their understanding of the fundamentals of Android operating systems for skill development, employability and entrepreneurship development.
CO2	Demonstrate their skills of using Android software development tools for skill development, employability and entrepreneurship development.
CO3	Demonstrate their ability to develop software with reasonable complexity on mobile platform for skill development, employability and entrepreneurship development.
CO4	Demonstrate their ability to deploy local /global software to mobile devices for skill development, employability and entrepreneurship development.
CO5	Demonstrate their ability to debug programs running on mobile devices for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCADS-517
Course Name	Machine Learning

COs	Description
CO1	Basics on what is a learning machine for skill development, employability and entrepreneurship development.
CO2	Basic mathematics behind learning algorithms for skill development, employability and entrepreneurship development.
CO3	Different types of leaning using Support Vector Machines for skill development, employability and entrepreneurship development.
CO4	Understand how to evaluate models generated from data for skill development, employability and entrepreneurship development.
CO5	Apply the algorithms to a global real-world problem, optimize the models learned and report on the expected accuracy that can be achieved by applying the local /global level models for skill development, employability and entrepreneurship development.

Course Code	BCAPL-518
Course Name	Mini Project Work Based on 514

COs	Description
CO1	Develop an appreciation for what is involved in learning models from DATA for skill development, employability and entrepreneurship development.
CO2	To make the student confident in designing a system based on System Analysis & Software Engineering course, using PHP and My SQL for skill development, employability and entrepreneurship development.
CO3	Understand a wide variety of PROJECTS for skill development, employability and entrepreneurship development.
CO4	These projects will be designed based on the subject specific tools appropriate for the level of the students for skill development, employability and entrepreneurship development.
CO5	To make the student confident in designing a local /global level system based on Machine learning, IoT and all new emerging technologies for skill development, employability and entrepreneurship development.

Course Code	BCAPL-519
Course Name	Python Programming Lab

COs	Description
CO1	Install and run the python language software for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	To develop proficiency in creating applications using python Programming Language for skill development, employability and entrepreneurship development.
CO3	Understand the concepts of file I/O, Array, Function for skill development, employability and entrepreneurship development.
CO4	To be able to understand different library function available in Python Language for skill development, employability and entrepreneurship development.
CO5	Student will be able to design simple local /global level application by the use of Python Programming Language for skill development, employability and entrepreneurship development.

Course Code	**BCAPL-501**
Course Name	**AAD Lab**

COs	Description
CO1	Demonstrate their understanding of the fundamentals of Android operating systems for skill development and employability.
CO2	Demonstrate their skills of using Android software development tools for skill development and employability.
CO3	Demonstrate their ability to develop software with reasonable complexity on mobile platform for skill development and employability.
CO4	Demonstrate their ability to deploy software to mobile devices for skill development and employability.
CO5	Demonstrate their ability to debug programs running on mobile devices *for* local /global level for skill development, employability and entrepreneurship development.

Course Code	**BCAPL-502**
Course Name	**Machine Learning Lab (ML Lab)**

COs	Description
CO1	Develop an appreciation for what is involved in learning models from data for skill development and employability.
CO2	Understand a wide variety of learning algorithms for skill development and employability.
CO3	Understand how to evaluate models generated from data for skill development and employability.
CO4	Apply the algorithms to a real-world problem, optimize the models learned for skill development and employability.
CO5	Develop report on the expected accuracy that can be achieved by applying the models for skill development and employability

Sanjeev Dawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCACC-611
Course Name	E-Commerce

COs	Description
CO1	Design and implement an e-commerce application with a shopping cart for skill development, employability and entrepreneurship development.
CO2	Integrate user-cantered design guidelines in developing user-friendly websites for skill development, employability and entrepreneurship development.
CO3	Analyze real business cases regarding their e-business strategies and transformation processes and choices for skill development, employability and entrepreneurship development.
CO4	To understand the basic concept of online consumer for skill development, employability and entrepreneurship development.
CO5	To be able to understand and develop online portal, inline auction system at local /global level for skill development, employability and entrepreneurship development.

Course Code	BCACC-612
Course Name	Client Server Computing

COs	Description
CO1	Comprehend the basic concepts of the client-server model for skill development, employability and entrepreneurship development.
CO2	Understand how Client-Server systems work for skill development, employability and entrepreneurship development.
CO3	Differentiate between two-tier and three-tier architectures for skill development, employability and entrepreneurship development.
CO4	Improve the performance and reliability of Client Server based systems for skill development, employability and entrepreneurship development.
CO5	Identify security and local /global level ethical issues in Client Server Computing for skill development, employability and entrepreneurship development.

Course Code	BCACC-613
Course Name	Programming in PHP

COs	Description
CO1	Write PHP scripts to handle HTML forms for skill development, employability and entrepreneurship development.
CO2	Write regular expressions including modifiers, operators, and met

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	characters for skill development, employability and entrepreneurship development.
CO3	Create PHP programs that use various PHP library functions, and that manipulate files and directories for skill development, employability and entrepreneurship development.
CO4	Analyze and solve various database tasks using the PHP language for skill development, employability and entrepreneurship development.
CO5	Analyze and solve common local /global level Web application tasks by writing PHP programs for skill development, employability and entrepreneurship development.

Course Code	**BCACC-614**
Course Name	**E1: Cloud Computing**

COs	Description
CO1	Understand the fundamental principles of distributed computing for skill development, employability and entrepreneurship development.
CO2	Understand how the distributed computing environments known as Grids can be built from lower level services for skill development, employability and entrepreneurship development.
CO3	Understand the importance of virtualization in distributed computing and how this has enabled the development of Cloud Computing for skill development, employability and entrepreneurship development.
CO4	Analyze the performance of Cloud Computing for skill development, employability and entrepreneurship development.
CO5	Understand the concept of local /global level Cloud Security; learn the Concept of Cloud Infrastructure Model for skill development, employability and entrepreneurship development.

Course Code	**BCACC-615**
Course Name	**E2: Enterprise Resource Planning**

COs	Description
CO1	Understand basics of ERP applications by using features of ERP tools for skill development and employability.
CO2	Understand the Importance of ERP in future, Business Process Reengineering for skill development and employability.
CO3	Understand the process of local /global level ERP Marketplace and Marketplace Dynamics for skill development and employability.
CO4	Understand the Implementation process of ERP Implementation Basics for skill development and employability.
CO5	Know important software that can be learn ERP & E-Commerce, Future Directives for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCACC-616
Course Name	E3: Digital Image Processing

COs	Description
CO1	Analyze general terminology of digital image processing for skill development and employability.
CO2	Examine various types of images, intensity transformations and spatial filtering for skill development and employability.
CO3	Develop Fourier transform for image processing in frequency domain for skill development and employability.
CO4	Evaluate the methodologies for image segmentation, restoration etc for skill development and employability.
CO5	Implement image process and analysis algorithms and image processing algorithms in local /global level practical applications for skill development and employability.

Course Code	BCAPL-601
Course Name	Project Work

COs	Description
CO1	Develop an appreciation for what is involved in learning models from DATA for skill development and employability.
CO2	To make the student confident in designing a system based on System Analysis & Software Engineering course, using PHP and My SQL and Python Programming for skill development and employability.
CO3	Understand a wide variety of PROJECTS for skill development and employability.
CO4	These projects will be designed based on the subject specific tools appropriate for the level of the students for skill development and employability.
CO5	To make the student confident in designing local /global level a system based on Machine learning, IoT ,Deep learning and all new emerging technologies for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – Master of Computer Applications (MCA)

Course Code	MCAFC-11
Course Name	Programming in C

COs	Description
CO1	To gain knowledge of basic C programming and Install and run the C language software for skill development and employability.
CO2	To gain knowledge of C Statements for skill development.
CO3	To develop proficiency in creating applications using C Programming Language and Arrays for skill development and employability.
CO4	Understand the concepts of file I/O, Function for skill development and employability.
CO5	Understand the concepts of Structure, Union & Pointer using appropriate C libraries at local level Programming for skill development and employability.

Course Code	MCACC-12
Course Name	Operating System

COs	Description
CO1	Describe the general architecture of computers for skill development and employability.
CO2	Describe, contrast and compare differing structures for operating systems for skill development and employability.
CO3	Understand and analyze theory and implementation of: processes, resource control (concurrency etc.), physical and virtual memory, scheduling, I/O and files for skill development and employability.
CO4	Storage management and Disk structure management for skill development and employability.
CO5	To understand the Security & Case Study at local /global level about the operating system for skill development and employability.

Course Code	MCACC-13
Course Name	Data Structure using C

COs	Description
CO1	Identify, understand and apply different number systems and codes for skill development and employability.
CO2	Understand the digital representation of data in a computer system for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the general concepts in digital logic design, including logic elements, and their use in combinational and sequential logic circuit design for skill development and employability.
CO4	Understand computer arithmetic formulate and solve problems, understand the performance requirements of local level systems for skill development and employability.
CO5	To Understand the Memory Organization and Memory Hierarchy for skill development and employability.

Course Code	MCACC-14
Course Name	**Computer Organization & Architecture**
COs	**Description**
CO1	After studying this course the students would gain enough knowledge Have a thorough understanding of the fundamental concepts and techniques used in digital electronics for skill development and employability.
CO2	To understand and examine the structure of various number systems and its application in digital design for skill development and employability.
CO3	The ability to understand, analyze and design local /global level various combinational and sequential circuits for skill development and employability.
CO4	Code conversion circuits – Binary to Gray & Vice-Versa for skill development and employability.
CO5	Design of Sequential Counter with irregular sequences for skill development and employability.

Course Code	MCAAE-01
Course Name	**Office Automation Software Lab**
COs	**Description**
CO1	To perform documentation for skill development and employability.
CO2	To perform accounting operations for skill development and employability.
CO3	To perform presentation skills for skill development and employability.
CO4	Creating local /global level project abstract Features to be covered different functions for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCAP-11
Course Name	Computer Organization & Architecture Lab

COs	Description
CO1	After studying this course the students would gain enough knowledge Have a thorough understanding of the fundamental concepts and techniques used in digital electronics for skill development, employability and entrepreneurship development.
CO2	To understand and examine the structure of various number systems and its application in digital design for skill development, employability and entrepreneurship development. .
CO3	The ability to understand, analyze and local /global level design various combinational and sequential circuits for skill development, employability and entrepreneurship development. .
CO4	Code conversion circuits – Binary to Gray & Vice-Versa for skill development, employability and entrepreneurship development. .
CO5	Design of Sequential Counter with irregular sequences for skill development, employability and entrepreneurship development. .

Course Code	MCAP-12
Course Name	Data Structure Lab

COs	Description
CO1	Learn the basic types for data structure, implementation and application for skill development, employability and entrepreneurship development. .
CO2	Know the strength and weakness of different data structures for skill development, employability and entrepreneurship development. .
CO3	Use the appropriate data structure in context of solution of given problem for skill development, employability and entrepreneurship development. .
CO4	Develop local /global level programming skills which require solving given problem for skill development, employability and entrepreneurship development. .
CO5	Learn the Matrix representation of graphs for skill development, employability and entrepreneurship development. .

Course Code	TPSD301/401
Course Name	Professional Skill Development-II

COs	Description
CO1	Develop knowledge and abilities to make correct use of the grammar in own writing English for skill development, employability and entrepreneurship development.
CO2	Build vocabulary and enhance the ability to correct the sentences for skill

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development, employability and entrepreneurship development.
CO3	Develop adequate Soft Skills required for the workplace for skill development, employability and entrepreneurship development.
CO4	Compete successfully in the local /global level business environment for skill development, employability and entrepreneurship development.
CO5	Participate confidently in Group Discussions, Debate etc. Attend job interviews and to be successful in them. Also, Orient the students towards grooming as a professional for skill development, employability and entrepreneurship development.

Course Code	MTB103T
Course Name	Bioinformatics
COs	**Description**
CO1	Bioinformatics tools for sequence alignment and gene prediction for skill development, employability and entrepreneurship development.
CO2	Algorithm and Matrices to solve the biological problem for skill development, employability and entrepreneurship development.
CO3	Able to visualize the 3D structure of protein molecules for skill development, employability and entrepreneurship development.
CO4	Designing of new drug molecules for skill development, employability and entrepreneurship development.
CO5	Getting the local /global level information about ADME or QSAR for skill development, employability.

Course Code	MBA 101
Course Name	Management Concepts &Organizational Behavior
COs	**Description**
CO1	Understand the basic concepts, evolution and thoughts related to management for skill development, employability and entrepreneurship development.
CO2	Demonstrate the roles, skills and functions of management starting from Planning till controlling for skill development, employability and entrepreneurship development.
CO3	Describe the general history of organizational theory and practice and frame how organizational behavior has developed from these into a discrete field, for skill development, employability and entrepreneurship development.
CO4	Analyze the behavior of individuals and groups in organizations in terms of organizational behavior theories, models and concepts for skill development, employability.
CO5	Apply the same to local /global level real life management situations for skill development, employability and entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MGET-01(4)
Course Name	Foundation of Mathematics

COs	Description
CO1	Develop ability to understand of set and groups and their properties and develop ability to understand of functions and their properties and demonstrate an understanding of relations and be able to determine their properties for skill development, employability and entrepreneurship development.
CO2	Apply the concept of vector for evaluating directional derivatives, tangent and normal planes, line, and surface and volume integrals for skill development, employability and entrepreneurship development.
CO3	Familiar with different type of graphs and trees and demonstrate different traversal methods for trees and graphs for skill development, employability and entrepreneurship development.
CO4	Familiar with the matrix and its types and perform the matrix operations of addition, multiplication, transposition, inverse, system of simultaneous linear equations in matrix form for skill development, employability and entrepreneurship development.
CO5	Develop the ability to use the Cay ley Hamilton theorem and Linear dependency and Independency of vector at local /global level for skill development, employability and entrepreneurship development.

Course Code	MCACC -21
Course Name	Computer Network

COs	Description
CO1	Recognize the technological trends of Computer Networking for skill development, employability and entrepreneurship development.
CO2	Discuss the key technological components of the Network for skill development, employability and entrepreneurship development.
CO3	Evaluate the challenges in building networks and solutions to those
CO4	To Understand the Transport Layer for skill development.
CO5	To Understand the Application Layer, Cryptography and Network, local /global level Security and multimedia and compression Techniques for skill development, employability and entrepreneurship development.

Course Code	MCACC-22
Course Name	Object Oriented Programming using Java

COs	Description
CO1	Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs for skill development,

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability and entrepreneurship development.
CO2	Read and make elementary modifications to Java programs that solve real-world problems for skill development, employability and entrepreneurship development.
CO3	Validate input in a Java program for skill development, employability and entrepreneurship development.
CO4	Identify and fix defects and common local /global level security issues in code for ,skill development, employability and entrepreneurship development.
CO5	Learn about Java Servlets, basics and Introduction to Java Server pages for skill development, employability and entrepreneurship development.

Course Code	MCACC-23
Course Name	Software Engineering
COs	**Description**
CO1	Basic knowledge and understanding of the analysis and design of complex systems for skill development, employability and entrepreneurship development.
CO2	Ability to apply software engineering principles and techniques for skill development, employability and entrepreneurship development.
CO3	Ability to develop, maintain and evaluate large-scale software systems for skill development, employability and entrepreneurship development.
CO4	To produce efficient, reliable, robust and cost-effective software solutions for skill development, employability and entrepreneurship development.
CO5	Ability to perform independent local /global level research and analysis and Hardware Reliability & Software Reliability for skill development, employability and entrepreneurship development.

Course Code	MCACC-24
Course Name	Database Management Systems
COs	**Description**
CO1	Master the basic concepts and appreciate the applications of database systems for skill development, employability and entrepreneurship development.
CO2	Master the basics of SQL and construct queries using SQL for skill development, employability and entrepreneurship development.
CO3	Be familiar with the relational database theory, and be able to write relational algebra expressions for queries for skill development, employability and entrepreneurship development.
CO4	Master the basics of local /global level query evaluation techniques and query optimization for skill development, employability and entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Be familiar with the basic issues of transaction processing and concurrency control and Database Migration for skill development, employability and entrepreneurship development.

Course Code	Course Code: MDSET-01(1)
Course Name	Computer Graphics & Animation
COs	**Description**
CO1	Understand the basic objectives and scope of computer graphics for skill development, employability and entrepreneurship development.
CO2	Identify computer graphics applications common graphics APIs for skill development, employability and entrepreneurship development.
CO3	Understand the basic structures of 2D and 3D graphics systems. for skill development, employability and entrepreneurship development.
CO4	Construct local /global level transforms including translation, rotation, scaling, shearing, and reflection for skill development, employability and entrepreneurship development.
CO5	To Understand the 3D Graphics for skill development, employability and entrepreneurship development.

Course Code	MDSET-01(2)
Course Name	Net Framework using C#
COs	**Description**
CO1	Use an integrated development environment to write, compile, run, and test simple object-oriented C# programs for skill development, employability and entrepreneurship development.
CO2	Read and make elementary modifications to C# programs that solve real-world problems for skill development, employability.
CO3	Validate input in a C# program for skill development, employability.
CO4	Identify and fix defects and local /global level common security issues in code for skill development, employability and entrepreneurship development.
CO5	Document a local /global level C# program using .Net for skill development, employability and entrepreneurship development.

Course Code	MDSET-01(3)
Course Name	Software Testing & Quality Assurance
COs	**Description**
CO1	Estimate cost of a T&QA project and manage budgets for skill development, employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Prepare test plans and schedules for a T&QA project for skill development, employability.
CO3	Develop T&QA project staffing requirements for skill development, employability.
CO4	Effectively local /global level manage a T&QA project for skill development, employability.
CO5	To understand the Software Quality Assurance for skill development, employability.

Course Code	MDSET-01(4)
Course Name	**Computer Based Numeric & Statistical Techniques**

COs	Description
CO1	Apply various interpolation methods and finite difference concepts.
CO2	Work out numerical differentiation and integration whenever and wherever routine methods are not applicable for skill development, employability.
CO3	Apply numerical methods to find our solution of algebraic equations using different methods under different Conditions, and numerical solution of system of algebraic equations for skill development, employability.
CO4	Develop the local /global level ability to understand concepts of curve fitting and regression analysis for skill development, employability.
CO5	Familiar with test of significance and different type of test like chi-square test, F-test, student's t test for skill development, employability.

Course Code	MCAP-21
Course Name	**Java Programming Lab**

COs	Description
CO1	Understanding of OOP concepts and basics of Java programming (Console and GUI based) for skill development, employability.
CO2	The skills to apply OOP and Java programming in problem solving for skill development, employability.
CO3	Should have the ability to extend his/her local /global level knowledge of Java programming further on his/her own for skill development, employability.
CO4	To implements a stack ADT that converts infix expression into postfix expression for skill development, employability.
CO5	To learn about handle the mouse events and keyboard events for skill development, employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCAP-22
Course Name	Database Management Systems Lab

COs	Description
CO1	Apply the basic concepts of Database Systems and Applications for skill development, employability.
CO2	Use the basics of SQL and construct queries using SQL in database creation and interaction for skill development, employability.
CO3	Design a local /global level commercial relational database system (Oracle, MySQL) by writing SQL using the system for skill development, employability.
CO4	Analyze and Select storage and recovery techniques of database system.
CO5	Practicing on Triggers - creation of trigger, Insertion using trigger, Deletion using trigger, Updating using trigger for skill development, employability.

Course Code	MCACC-31
Course Name	Data Science

COs	Description
CO1	Explain the roles and stages of data science projects for skill development, employability.
CO2	Describe the data structures provided by numpy library for arrays and vectorized computation for skill development, employability.
CO3	Explain data structures provided by pandas library for data analysis for skill development, employability.
CO4	Perform data wrangling, cleaning and transformation using python for skill development, employability.
CO5	Use matplotlib for plotting and visualizing the local /global level datasets and Demonstrate data aggregation and time series analysis using python programming Language for skill development, employability.

Course Code	MCACC-32
Course Name	Python Programming

COs	Description
CO1	To gain knowledge of basic python programming for skill development, employability.
CO2	Install and run the python language software for skill development, employability.
CO3	To develop proficiency in creating applications using python Programming Language for skill development, employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the concepts of file I/O, Array, Function for skill development, employability.
CO5	To Understand the local level File Handling and Graphics Programming for skill development, employability.

Course Code	MCACC-33
Course Name	**Formal Language & Automata Theory**

COs	Description
CO1	Acquire a fundamental understanding of the core concepts in automata theory and formal languages for skill development, employability.
CO2	An ability to design local /global level grammars and automata (recognizers) for different language classes for skill development, employability.
CO3	Ability to identify formal language classes and prove language membership properties for skill development, employability.
CO4	Ability to prove and disprove theorems establishing key properties of formal languages and automata for skill development, employability.
CO5	To understand the Turing machines (TM) for skill development, employability.

Course Code	MDSET-02(1)
Course Name	**Mobile Computing**

COs	Description
CO1	Explain the principles and theories of mobile computing technologies for skill development, employability.
CO2	Describe infrastructures and technologies of mobile computing technologies for skill development, employability.
CO3	List applications in different domains that mobile computing offers to the public, employees, and local /global level businesses for skill development, employability.
CO4	Describe the possible future of mobile computing technologies and applications for skill development, employability.
CO5	Effectively communicate course work through written and oral presentations for skill development, employability.

Course Code	MDSET-02(2)
Course Name	**Natural Language Processing**

COs	Description
CO1	Understand approaches to syntax and semantics in NLP for skill development, employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand approaches to discourse, generation, dialogue and summarization within NLP for skill development, employability.
CO3	Understand current methods for statistical approaches to machine translation for skill development, employability.
CO4	Understand machine learning techniques used in NLP, including hidden Markov models and probabilistic context-free grammars, clustering and unsupervised methods, log-linear and discriminative models, and the EM algorithm as applied within NLP for skill development, employability.
CO5	To Understand the Context and World Knowledge for skill development, employability.

Course Code	MDSET-02(3)
Course Name	Internet of Things

COs	Description
CO1	Describe what IoT is and how it works today for skill development, employability.
CO2	Recognize the factors that contributed to the emergence of IoT for skill development, employability.
CO3	Design and program IoT devices 4. Use real IoT protocols for communication for skill development, employability.
CO4	Secure the elements of an IoT device and local /global level Design an IoT device to work with a Cloud Computing infrastructure, Describe what IoT is and how it works today for skill development, employability.
CO5	Transfer IoT data to the cloud and in between cloud providers and Developing IoTs Introduction to Python for skill development, employability.

Course Code	MDSET-02(4)
Course Name	Client Server Computing

COs	Description
CO1	Understand fundamental concepts of Web Services including: Client Server systems, system models of distributed systems, networks that distributed systems run on, communication protocols between processes in distributed systems, Middleware, local /global level Enterprise Application integration, and Web Services Security for skill development, employability
CO2	To Compile and execute actual programs using sockets, Java RMI, Java Beans, and Web Services for skill development, employability.
CO3	To understand the Client/Server Network connectivity and communication interface technology for skill development, employability.
CO4	To understand the Data Storage, magnetic disk, magnetic tape, CD-ROM, WORM, Optical disk for skill development, employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	To learn the Client/Server System Development and raining, Training advantages of GUI Application for skill development, employability.

Course Code	MDSET-03(1)
Course Name	Cloud Computing
COs	**Description**
CO1	Explain the core issues of cloud computing such as security, privacy, and interoperability for skill development, employability.
CO2	Choose the appropriate technologies, algorithms, and approaches for the related issues for skill development, employability.
CO3	Identify problems, and explain, analyze, and evaluate various cloud computing solutions for skill development, employability.
CO4	Provide the appropriate local /global level cloud computing solutions and recommendations according to the applications used for skill development, employability.
CO5	Attempt to generate new ideas and innovations in cloud computing for skill development, employability.

Course Code	MDSET-03(2)
Course Name	Digital Image Processing
COs	**Description**
CO1	Understand the Introduction to Digital Image Processing and need for image transforms different types of image transforms and their properties for skill development, employability.
CO2	Develop any local /global level image processing application for skill development, employability.
CO3	Understand the rapid advances in Machine vision and Image Restoration for skill development, employability.
CO4	Learn different techniques employed for the enhancement of images and Introduction to Image Compression for skill development, employability.
CO5	Learn different causes for image degradation and overview of image restoration techniques. Understand the need for image compression and to learn the spatial and frequency domain techniques of image compression for skill development, employability.

Course Code	MDSET-03(3)
Course Name	Big Data
COs	**Description**
CO1	Understand the key issues in big data management and its associated applications in intelligent business and scientific computing for skill

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development, employability.
CO2	Acquire fundamental enabling techniques and scalable algorithms like Hadoop, Map Reduce and NO SQL in local /global level big data analytics for skill development, employability.
CO3	Interpret business models and scientific computing paradigms, and apply software tools for big data analytics for skill development, employability.
CO4	Achieve adequate perspectives of big data analytics in various applications like recommender systems, social media applications etc for skill development, employability.
CO5	To understand the Schema Design, Advance Indexing - PIG, Zookeeper - how it helps in monitoring a cluster, HBase uses Zookeeper and how to Build Applications with Zookeeper for skill development, employability

Course Code	MDSET-03(4)
Course Name	Deep Learning

COs	Description
CO1	Explain the fundamental principles, theory and approaches for learning with deep neural networks for skill development, employability.
CO2	Explain the main variants of deep learning and their typical applications
CO3	Analyze the key concepts, issues and practices when training and modeling with local /global level deep architectures for skill development, employability.
CO4	Analyze the learning tasks at local /global level deep Learning for skill development, employability.
CO5	Apply deep learning in the context of other ML approaches for skill development, employability.

Course Code	MCAP-31
Course Name	Python Programming Lab

COs	Description
CO1	To gain knowledge of basic python programming for skill development, employability
CO2	Install and run the python language software for skill development, employability.
CO3	To develop proficiency in creating local /global level applications using python Programming Language Understand the concepts of file I/O, Array, Function for skill development, employability.
CO4	To understand the different types of list in python for skill development, employability.
CO5	To create empty numpy arrays in python for skill development, employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCACC-41
Course Name	Web Technology

COs	Description
CO1	History and development of the World Wide Web and associated technologies for skill development, employability.
CO2	The client-server architecture of the World Wide Web and its communication protocol HTTP/HTTPS for skill development, employability.
CO3	Formats and languages used in modern web-pages: HTML, XHTML, CSS, XML, XSLT, JavaScript, DOM for skill development, employability.
CO4	Programming web pages with JavaScript/DOM (client) for skill development, employability.
CO5	Good design, universal design, local /global level multi platform web applications for skill development, employability.

Course Code	MDSET-04(1)
Course Name	Cryptography and Network Security

COs	Description
CO1	Classify the symmetric encryption techniques for skill development, employability.
CO2	Illustrate various Public key cryptographic techniques for skill development, employability.
CO3	Evaluate the authentication and hash algorithms for skill development, employability.
CO4	Discuss local /global level authentication applications for skill development, employability.
CO5	Summarize the intrusion detection and its solutions to overcome the attacks and Basic concepts of system level security for skill development, employability.

Course Code	MDSET-04(2)
Course Name	Blockchain Architecture

COs	Description
CO1	Understand the structure of a blockchain and why/when it is better than a simple distributed database; for skill development, employability and entrepreneurship development.
CO2	Analyze the incentive structure in a blockchain based system and critically assess its functions, benefits and vulnerabilities; for skill development, employability and entrepreneurship development.
CO3	Evaluate the setting where a blockchain based structure may be applied, its potential and its limitations, Understand what constitutes a "smart"

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	contract, what are its legal implications and what it can and cannot do, now and in the near future for skill development, employability and entrepreneurship development.
CO4	Analyze to what extent smart and self-executing contracts can benefit automation, governance, transparency and the local./global level Internet of Things (IOT) for skill development, employability and entrepreneurship development.
CO5	To analysis the public distribution system social welfare systems Blockchain Cryptography, Privacy and Security on Blockchain for skill development, employability and entrepreneurship development.

Course Code	MDSET-04(3)
Course Name	Digital Marketing
COs	**Description**
CO1	Understanding digital marketing along with technical acumen will be an added tool as a problem solver and solution provider for skill development, employability and entrepreneurship development.
CO2	As an analyst he can assist and advice the marketer to take right decision. Will be helpful to work as a consultant for any company or organization for skill development, employability and entrepreneurship development.
CO3	Understanding Building E-mail List and Signup Forms for skill development, employability and entrepreneurship development.
CO4	To understand the local /global level digital Marketing and Introduction and Significance Google Analytics Interface for skill development, employability and entrepreneurship development.
CO5	To understand the Facebook Advertising Account and Twitter Advertising, Twitter Campaigns for skill development, employability and entrepreneurship development.

Course Code	MDSET-04(4)
Course Name	Privacy & Security in Online Social Media
COs	**Description**
CO1	Discuss authentication applications for skill development, employability and entrepreneurship development.
CO2	Summarize the intrusion detection and its solutions to overcome the attacks for skill development, employability and entrepreneurship development.
CO3	Basic concepts of system level security for skill development, employability and entrepreneurship development
CO4	Learning the local /global level Cyber Security and hackers or other cyber criminals for skill development, employability and entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Discuss the local /global level Privacy Issues and privacy policies and their specifications, privacy policy languages, privacy in different domains- medical, financial, etc for skill development, employability and entrepreneurship development.

Course Code	**MCAP-41**
Course Name	**Major Project**

COs	Description
CO1	Develop an appreciation for what is involved in learning models from DATA for skill development, employability and entrepreneurship development.
CO2	To make the student confident in designing a system based on System Analysis & Software Engineering course, using PHP and My SQL for skill development, employability and entrepreneurship development.
CO3	Understand a wide variety of PROJECTS for skill development, employability and entrepreneurship development.
CO4	These projects will be local /global level designed based on the subject specific tools appropriate for the level of the students for skill development, employability and entrepreneurship development.
CO5	To make the student confident in designing a system based on Machine learning, Deep Learning for skill development, employability and entrepreneurship development.

Course Code	**MBCT01PCT**
Course Name	**Discrete Mathematics**

COs	Description
CO1	Develop ability to understand of set and groups and their properties for skill development, employability and entrepreneurship development.
CO2	Develop ability to understand of functions and their properties and demonstrate an understanding of relations and be able to determine their properties for skill development, employability and entrepreneurship development.
CO3	Familiar with the basic concepts of propositions, connectives and normal forms and write an argument using logical notation and determine if the argument is or is not valid for skill development, employability and entrepreneurship development.
CO4	Evaluate Boolean functions and simplify expressions using the properties of Boolean algebra for skill development, employability and entrepreneurship development.
CO5	Familiar with different type of local /global graphs and trees and demonstrate different traversal methods for trees and Graphs for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBCT01PCT
Course Name	Information And Communication Technology

COs	Description
CO1	To develop ICT capability in finding, selecting and using information for skill development, employability and entrepreneurship development.
CO2	To use ICT for effective and appropriate communication for skill development, employability and entrepreneurship development.
CO3	To monitor and control events both real and imaginary for skill development, employability and entrepreneurship development.
CO4	To understand the local /global level Information Technology Application for skill development, employability and entrepreneurship development.
CO5	Discuss the Information Technology Projects in India for skill development, employability and entrepreneurship development.

Course Code	MBC03PCT
Course Name	Introduction To Computer System & Hardware

COs	Description
CO1	Demonstrate the knowledge of the basic structure, components, features and generations of computers for skill development, employability and entrepreneurship development.
CO2	Describe the concept of computer languages, language translators and construct algorithms to solve problems using programming concepts for skill development, employability and entrepreneurship development.
CO3	Demonstrate architecture, functioning & services of the Internet and basics of multimedia for skill development, employability and entrepreneurship development
CO4	To understand the local /global level Green computing, Big data analytics, Grid computing for skill development, employability and entrepreneurship development.
CO5	learning with Emerging Technologies for skill development, employability and entrepreneurship development.

Course Code	MBC04PCT
Course Name	Management Information System

COs	Description
CO1	To enable the students to use information to assess the impact of the Internet and Internet technology on electronic commerce and electronic business and understand the specific threats and vulner abilities of computer systems for skill development, employability and entrepreneurship development.
CO2	To provide the theoretical models used in database management systems to

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	answer business questions for skill development, employability and entrepreneurship development.
CO3	To understand the Concepts of planning & control of the system for skill development, employability and entrepreneurship development.
CO4	To understand the local /global level Internet & electronic commerce with its applications for skill development, employability and entrepreneurship development.
CO5	To understand the different management systems and its applications for skill development, employability and entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

SCHOOL OF AGRICULTURAL SCIENCES AND ENGINEERING

PROGRAMME NAME – B.SC. (HONS.) AGRICULTURE

Course Code	AG-101
Course Name	Fundamentals of Agronomy

COs	Description
CO1	Understand the basic concepts of field and crop management starting from field preparation, seed sowing, till harvesting and threshing of crop for local & national.
CO2	Define the importance of water in agriculture and ways to improve water use efficiency for local level.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement for local level.
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage.
CO5	Understand the concept of plant growth and development.
CO6	Apply the knowledge of agronomy to improve the efficiency of all the resources used.

Course Code	AG-102
Course Name	Fundamentals of Genetics

COs	Description
CO1	Students will be taught Mendelian genetics, their principles and gene interaction and significance of mitosis and meiosis and cell division for national and international.
CO2	The process of genetic inheritance (the transmission of characteristics or qualities from parents to offspring).
CO3	The chief outcome of genetics; Genetic manipulation is a process of transferring (Genes) characters that are desirable from one plant to another plant for local.
CO4	They learn about chromosomal aberration and structure of chromosomes and mutation and its methods of inducing mutations.
CO5	The students will gain a basic understanding of nature, structure, replication of genetic materials.
CO6	Students will be gain protein synthesis, transcription, translation and gene structure for National.

Course Code	AG-103
Course Name	Fundamentals of Soil Science

COs	Description
CO1	Students will gain knowledge on concepts and principles of Soil Science for national.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Comprehensive knowledge on rocks and minerals, their composition and the types of soils formed from different parent materials.
CO3	Understand the role of soil forming factors and processes in soil formation for international.
CO4	Understand various soil physical, chemical and biological properties and their impact on plant growth for national level.
CO5	The knowledge gained in this course will be useful in understanding the behavior of soils in crop production and management for local.

Course Code	AG-104
Course Name	Fundamentals of Horticulture
COs	**Description**
CO1	Define horticulture and it branches.
CO2	Understand classification, soil and climate requirement of horticultural crops for local level.
CO3	Understand the various propagation methods, structures, techniques of orchard establishment & training and pruning methods for national level.
CO4	Better understanding of Juvenility and flower bud differentiation, unfruitfulness, pollination, pollinizers and pollinators, fertilization and parthenocarpy for national level.
CO5	Understand the use and application of plant bio regulators, irrigation and fertilizers in horticultural crops.

Course Code	AG-105
Course Name	Rural Sociology & Educational Psychology
COs	**Description**
CO1	Acquisition of knowledge on basic concepts of rural sociology and educational psychology and its practical applications for local level.
CO2	Understanding the Social Structure and Social Stratification and Social groups: their types and characteristics
CO3	Knowledge on the concepts of Migration and the impact it has created in society for national level.
CO4	Understanding the characteristics of rural society, social institutions, culture, social values and relevance in Agricultural Extension for national level.
CO5	Knowledge on Teaching–Learning Process and Basic principles of Human behaviour and Personality for local level.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	AG-106
Course Name	Introduction to Forestry

COs	Description
CO1	Define forestry and various terms related to forestry.
CO2	Understand forest classification, silviculture and features of Indian Forest Policies for local level.
CO3	Understand the various objectives and methods of forest regeneration for national level,
CO4	Understand classification and various tending operations.
CO5	Estimate the quantity of timber by applying forest menstruation.
CO6	Understand about agroforestry, its importance, different systems.
CO7	Understand the cultivation practices of tree species for local level.

Course Code	AG-107
Course Name	Introductory Animal Husbandry

COs	Description
CO1	Understand the importance of livestock in single and mixed farming and its contribution to economy for local level.
CO2	Become familiar with cattle and buffalo breeds, breeding methods & systems, care and management of them at different ages and purposes.
CO3	Get knowledge of maintenance of livestock records, milking methods and clean milk production for national level.
CO4	Study of Feeds and feeding, Conservation of fodder, Housing for dairy animals.
CO5	Introduce with breeds of pigs, general aspects of breeding, care of piglets, sow and boar for national level.
CO6	Introduce with breeds of goats and sheep, raising of kids and lambs at global level and national level.
CO7	Get knowledge of animal diseases of cattle, buffalo, goat, sheep and swine for national level and international level.

Course Code	AG-108
Course Name	Comprehension & Communication Skills in English

COs	Description
CO1	Increase understanding and recall of what is being read and listen including facts and main idea.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Build vocabulary and enhance the ability to correct the sentences at global level.
CO3	Use grammar in their own writing in English correctly.
CO4	Enhance competencies in writing paragraph, report, proposal, and gist or abstract/ précis of the passage in their own words/ language at national level and international level.
CO5	Write resumes, Curriculum Vitae, bio-data, letters and applications of different kinds and to attend job interviews confidently.

Course Code	AG-109
Course Name	Agricultural Heritage
COs	**Description**
CO1	familiar with the Indian agriculture heritage and ancient agricultural practices
CO2	Understand the relevance of heritage to present day agriculture and journey of Indian agriculture and its development from past to modern era for national and international level.
CO3	Know the techniques of plant protection through indigenous traditional methods
CO4	To understand Importance of agriculture and agricultural resources available in India and international level.
CO5	Understand the Indian agricultural concern and future prospects.

Course Code	AG-110A
Course Name	Introductory Biology
COs	**Description**
CO1	Understand the fundamental of biology
CO2	Understand the system of binominal nomenclature and classification of living beings at global level.
CO3	Know about the body's basic unit cell and its division at national level.
CO4	Understand the morphology of the plants and role of animal in agriculture.

Course Code	AG-111A
Course Name	Elementary Mathematics
COs	**Description**
CO1	Remember terminologies and formulae of Coordinate Geometry
CO2	Understand and interpret the concepts of Coordinate Geometry

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Compare and analyze the methods in Coordinate Geometry for national and international level.
CO4	Predict and evaluate the problems in Coordinate Geometry at global level

Course Code	AG-201
Course Name	**Fundamentals of Crop Physiology**

COs	Description
CO1	Define plant cell and its physiological functions.
CO2	Understand different physiological functions in a cell such as photosynthesis, respiration, osmosis, diffusion, fatty acid synthesis and breakdown at global level.
CO3	Understand the physiological roles and commercial use of Plant Growth Regulators in agriculture at national level and international level
CO4	Understand the methods and formulas used for growth analysis in crops.
CO5	Apply the knowledge of plant physiology to have better understanding science behind agronomic practices in different crops.

Course Code	AG-202
Course Name	**Fundamentals of Plant Biochemistry**

COs	Description
CO1	Understand the significance of Biochemistry
CO2	Describe the chemistry of carbohydrates, lipids, proteins and amino acids for national level & international level
CO3	Describe the classification and structural organization of proteins
CO4	Describe the mechanism of enzyme action and identify the classes of enzymes and factors affecting action at global level.
CO5	Describe the catabolic reactions of carbohydrates, lipids and amino acids
	Identify the class and functions of secondary metabolites

Course Code	AG-203
Course Name	**Fundamentals of Entomology-I (Insect Morphology & Taxonomy)**

COs	Description
CO1	Thorough knowledge on insects Collection and preservation
CO2	Developing skill to identify insects at local level.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Knowledge on physiological systems in insect through dissections
CO4	Knowledge on the students on morphology of Insects at national level.

Course Code	AG-204
Course Name	**Fundamentals of Agricultural Economies**
COs	**Description**
CO1	Introduce the students to the evolution of economic thought over a period of time, the background of emanation of thoughts and approaches as acts of balancing and counter balancing events and criticisms at local level and national level.
CO2	A comprehensive way to know and appreciate the contributions of the Galaxy of Economists.
CO3	Provide an overview o micro economic theory and its applications
CO4	Learning the consumer behavior consisting of consumer's utility maximization problem and demand theory at national level.
CO5	Gaining Knowledge on fundamental concepts and models in the theory of production and costs and sets out to provide a basic understanding of price and or output determination under different types of market structures including factor markets.

Course Code	AG-205
Course Name	**Principles of Organic Farming**
COs	**Description**
CO1	Understand the how to conserve the soil against chemicals at national level
CO2	Understand the how to take qualitative and quantitative crop production.
CO3	Understand the how to conserves the farm resources at global level
CO4	Awareness will come about the ongoing government schemes.
CO5	Understand the better utilization of farm wastes at local level

Course Code	AG-206
Course Name	**Fundamentals of Plant Pathology**
COs	**Description**
CO1	Students will know the introduction, history, concept and terms of Plant Pathology at national level and international level.
CO2	Students will know the disease and important plant pathogenic organism

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Students will know the fungi and abiotic causes at global level
CO4	Students will know the bacteria and viruses at local and national level.
CO5	Students will know the phanerogamic plant parasites and Epidemiology.

Course Code	AG-207
Course Name	Production Technology for Vegetable and Spices

COs	Description
CO1	To know importance of vegetable and spice crops at local and national level.
CO2	Lay out types of vegetable gardening with special reference to kitchen gardening
CO3	To know more about origin, area, climate, soil, improved varieties and cultivation practices of important vegetables and spices at global level.
CO4	Diagnose and control physiological disorders and diseases of important vegetable and spices at local and national level.
CO5	Understand the seed production and extraction of vegetables and spice at local to national and global level.

Course Code	AG-208
Course Name	Fundamentals of Agricultural Extension Education

COs	Description
CO1	Understanding the fundamentals of extension education, extension systems in India and international level.
CO2	Insight in to programme planning and rural development efforts, extension administration.
CO3	Knowledge on different extension methods and approaches used for transfer of agricultural technology for national and international levels.
CO4	Provide an opportunity to visit different organizations involved in extension activities and rural development work.
CO5	Acquaintance on practical skills in preparation of different extension teaching methods at global level.
	Knowledge on the concepts of adoption, diffusion and innovation and understanding the principles involved in agricultural journalism.

Sanjiv Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	AG-209
Course Name	Dairy Processing and Safety Issues

COs	Description
CO1	Understand the basic science and composition of milk, sources of milk and its healthy importance at local level.
CO2	Understand different thermal treatment used to enhance the shelf life of milk food at national level.
CO3	Understand the cooling and chilling of milk and making different value added products derived from milk.
CO4	Understand the evaporated milk, condensed milk, flavored milk, paneer and different water tests
CO5	Understand the Food safety management, HACCP, ISO Series, TQM-Concept

Course Code	AG-210
Course Name	Human Value and Ethics

COs	Description
CO1	The student will understand the importance of values and ethics in their personal lives and professional careers.
CO2	The students will learn the rights and responsibilities as an employee, team member and a global citizen at national level.

Course Code	BAG-307
Course Name	Crop Production Technology -I (*Kharif*)

COs	Description
CO1	In the course study the students will be able to know about Soil and climatic requirements, varieties, cultural practices and yield of Kharif crops at national, international and global levels.
CO2	Student will able to understand the preparation field for rising crop at local level.
CO3	Student will able to understand the package and practices of Rabi crops .
CO4	Constraints in production of oilseeds and pulses maybe identified through course content.
CO5	Students will able to understand the marketing of agricultural produces.
	Analysis of comparative benefits of the different kharif crops.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-308
Course Name	Fundamentals of Plant Breeding

COs	Description
CO1	Students will able to understand the historiological development, achievements and future prospects of Plant breeding
CO2	Students will understand about the different plant breeding methods uses in crop improvement.
CO3	Students will be learning to emasculation and pollination techniques in self, cross and asexual propagated crops at national level.
CO4	Students will gain the knowledge of hybridization, Wide hybridization, Polyploidy and mutation breeding-methods uses in crop improvement program.
CO5	Students will able to understand the breeding for biotic and abiotic stresses.

Course Code	BAG-309
Course Name	Fundamentals of Entomology

COs	Description
CO1	On successful completion of this course a student will be able to: Understand the basics of insect ecology and integrated pest management practices at global level.
CO2	Reflect on the importance of agriculture sector in Indian economy, agricultural intensification and the development of the need for integrated approaches to crop protection local and national level.
CO3	Characterize the major components of pest management strategies and compare their relative merits for different pests and crops.
CO4	Critically reflect on use of newer technology, emerging trends and advances in insects/ pest management at international and global level.

Course Code	BAG-310
Course Name	Geoinformatics, Nano-Technology and Precision Farming

COs	Description
CO1	Knowledge about geo-informatics system and precision farming at local, national and international level for local national and international level.
CO2	Importance of remote sensing in agriculture.
CO3	Role of GPS in agriculture at local and national level.
CO4	Knowledge about crop simulation models at national and international level.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Benefits of nanotechnology in nutrient management.

Course Code	BAG-311
Course Name	Agricultural Microbiology
COs	**Description**
CO1	Learners will gain detailed idea on various micro-organisms
CO2	Its harmful or beneficial effects on Agriculture
CO3	How to use them in a safer way for creating a better agriculture
CO4	System like using as Biofertilizer, bio pesticide, Silage production
CO5	Plant disease management etc. at local level

Course Code	BAG-312
Course Name	Agriculture Cooperation and Business Management
COs	**Description**
CO1	Explain on agricultural finance and credit at local level
CO2	Comprehend the role of sources involved in farm financing.
CO3	Assess financial statements and project reports at local and national level.
CO4	Describe the functionalities of co-operatives involved in farmers' service
CO5	Clarify the role of national level cooperatives at local level
CO6	Analyze the functions of a financial institute

Course Code	BAG-313
Course Name	Environmental Science
COs	**Description**
CO1	Understand the issues and challenges related to environmental and ecosystem due to some human activities at national, international and global level
CO2	Understand key concepts from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions.
CO3	Appreciate concepts and methods from ecological and physical sciences and their application in environmental problem solving.
CO4	Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	systems international and global level
CO5	Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.

Course Code	BAG-407
Course Name	Crop Production Technology – II (*Rabi*)
COs	**Description**
CO1	In the course study the students will be able to know about Soil and climatic requirements, varieties, cultural practices and yield of Rabi crops at national, international and global level
CO2	Student will able to understand the preparation field for rising crop.
CO3	Student will able to understand the package and practices of Rabi crops.
CO4	Constraints in production of oilseeds and pulses maybe identified through course content.
CO5	Students will able to understand the marketing of agricultural produces.
CO6	Analysis of comparative benefits of the different Rabi crops.

Course Code	BAG-408
Course Name	Crop Improvement
COs	**Description**
CO1	In this course students learn importance of wild relative to produce new varieties of crop, and gene preservation method for further use to improve kharif crops at national, international and global level
CO2	Students learn to apply breeding method to self-pollinated and cross pollinated crops.
CO3	Students learn to apply to breeding methods for conventional and modern innovative approaches.
CO4	It becomes necessary to increase the crop variety to produce abiotic and biotic stress and quality at local, national, international level
CO5	Students of learn to hybrid seed production technology in Maize, Rice, Sorghum, Pearl millet and Pigeon pea

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-409
Course Name	Manures, Fertilizers and Soil Fertility Management

COs	Description
CO1	Understand the role of manures and integrated nutrient management approach in soil fertility.
CO2	Gained knowledge about chemical fertilizers and their classification.
CO3	Imparts knowledge on essential nutrients and their deficiency symptom on plant parts at national, international and global level.
CO4	Knowledge about the techniques of soil fertility evaluation

Course Code	BAG-410
Course Name	Production Technology of Vegetables and Spices

COs	Description
CO1	Students' outcome with the scope of growing vegetables in India.
CO2	Students learn the role of vegetables and spice in human nutrition.
CO3	Students learn to develop suitability of growing vegetables in different types of garden and soil less cultivation of vegetables at national, international and global level.
CO4	Students can be able to manage the production of vegetables and spices with knowledge of scientific cultivation.

Course Code	BAG-411
Course Name	Fundamentals of Plant Biochemistry and Biotechnology

COs	Description
CO1	Understand the basic knowledge of biochemistry, its importance and uses in agriculture at national, international and global level.

Course Code	BAG-412
Course Name	Rural Sociology and Educational Psychology

COs	Description
CO1	Acquisition of knowledge on basic concepts of rural sociology and educational psychology and its practical applications
CO2	Understanding the Social Structure and Social Stratification and Social groups: their types and characteristics at international and global level
CO3	Knowledge on the concepts of Migration and the impact it has created in society at local, national, level.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understanding the characteristics of rural society, social institutions, culture, social values and relevance in Agricultural Extension.
CO5	Knowledge on Teaching–Learning Process and Basic principles of Human behavior and Personality.

Course Code	BAG-413
Course Name	Statistical Methods
COs	**Description**
CO1	Understand basic theoretical and applied principles of statistics needed to enter in agriculture.
CO2	Demonstrate an understanding of the basic concepts of probability and random variables.
CO3	Understand and interpret the concepts of descriptive statistics from the obtained data at national, international and global level.
CO4	Communicate key statistical concepts to non- statisticians.
CO5	Gain proficiency in using statistical software for data analysis at national, international and global level.

Course Code	BAG-507
Course Name	Diseases of Field & Horticultural Crops and their Management-I
COs	**Description**
CO1	The students will be know the diseases of Rice
CO2	The students will be know the diseases of groundnut
CO3	The students will be know the diseases of horticultural crops like guava at national, international and global level
CO4	The students will be know the diseases of Cruciferous
CO5	The students will be know the diseases of okra

Course Code	BAG-508
Course Name	Production Technology for Ornamental Crops, MAP and Landscaping
COs	**Description**
CO1	Understand the importance of floriculture, landscaping and medicinal and aromatic plants at national, international and global level
CO2	Understand the scientific production of technology of commercial flowers under protected and open condition
CO3	Get knowledge about the scientific production of medicinal and

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	aromatic crops at commercial level
CO4	Understand the post-harvest management of flowers and medicinal plants at national, international and global level

Course Code	BAG-509
Course Name	**Principles of Seed Technology**

COs	Description
CO1	The students will able to understand the classes of seed and its production technology.
CO2	Understand the improved seed, supply of good quality seeds of improved varieties.
CO3	How to increase the farm income by producing high yielding disease free quality seed, production of hybrid seed of different crop and decrease the cost of cultivation also.
CO4	Student learns practical knowledge to estimates of genetic purity, physical purity, and viability test and germination percentage of different crop.
CO5	Students will be learning Seed marketing, Role of WTO and OECD in seed marketing. and Seed drying, seed treatment, Seed storage and Measures for pest and disease control during storage.
CO6	Students will be learning Seed marketing, Role of WTO and OECD in seed marketing. and Seed drying, seed treatment, Seed storage and Measures for pest and disease control during storage.
CO7	Students will be learning Private and public sectors and their production and marketing strategies at local national level

Course Code	BAG-510
Course Name	**Livestock and Poultry Management**

COs	Description
CO1	Through this course the students will exposed to importance of biological macromolecules and understanding on the role of bio-molecules and their functions. at local national, international and global level
CO2	This course teaches the students approaches to manipulate and improve plant yield, throws light on transgenic plants.
CO3	They are introduced to the Concepts and applications of plant biotechnology.
CO4	These students will be able to understand the relationship between science and society and will be able to give justification for biotechnological manipulation of plants for human use.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-501
Course Name	Human values and professional ethics

COs	Description
CO1	After completing this course student will be able to understand human values at local national, international and global level
CO2	Inculcate ethics in professional life.
CO3	Understand codes of ethics
CO4	Understand Safety and risk assessment of safety respect for authority professional rights discrimination
CO5	Understand Multinational corporations computer ethics Sample code of Ethics like ASME, ASCE, IEEE.

Course Code	BAG-607
Course Name	Rainfed Agriculture and Watershed Management

COs	Description
CO1	Problems and prospects of rainfed agriculture in India characteristics of the plants, Mechanism of crop adaptation under moisture deficit condition.
CO2	History of rainfed agriculture & watershed in India. at local national, international and global level
CO3	Rain fed agriculture is used to describe farming practices that rely on rainfall for water.
CO4	Student will be able to understand objective, principles and component of watershed management.
CO5	Conservation of soil by adopting new techniques of soil conservation will help in obtaining higher production of rainfed crops.

Course Code	BAG-608
Course Name	Insect Ecology and Integrated Pest Management

COs	Description
CO1	Understand the basics of insect ecology and integrated pest management practices at local national, international and global level
CO2	Reflect on the importance of agriculture sector in Indian economy, agricultural intensification and the development of the need for integrated approaches to crop protection.
CO3	Characterize the major components of pest management strategies and compare their relative merits for different pests and crops.
CO4	Critically reflect on use of newer technology, emerging trends and advances in insects/ pest management.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Adoption of apiculture, sericulture and lac culture techniques for the entrepreneurship development.

Course Code	BAG-609
Course Name	Diseases of Field & Horticultural Crops & Their Management-II

COs	Description
CO1	The students will be know the diseases of Rice
CO2	The students will be know the diseases of groundnut
CO3	The students will be know the diseases of horticultural crops like guava at local national, international and global level
CO4	The students will be know the diseases of Cruciferous
CO5	The students will be know the diseases of okra

Course Code	BAG-610
Course Name	Protected Cultivation and Secondary Agriculture

COs	Description
CO1	Understand the greenhouse and its technology at local national, international and global level
CO2	Know about the Planning and design of different greenhouses
CO3	Understand the technology involved under the greenhouses
CO4	Understand the mechanism of different machinery of post harvest management
CO5	Familiar with the Material handling equipment for post harvest management

Course Code	BAG-611(A)
Course Name	Mushroom Cultivation

COs	Description
CO1	Students will know history, nutritional value, Medicinal value, cultivation methods, insect pest and their management, Consumption of mushrooms, income generation and employment creation.
CO2	Students will learn pure culture of mushrooms and their nutritional requirements at local national, level
CO3	Know about the methods of spawn production,
CO4	Learn about the spawning, methods of spawning, spawn run phase, cropping
CO5	Different methods of processing, canning and dehydration.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-611(B)
Course Name	Agri – Informatics and IPR

COs	Description
CO1	Explain importance of ICT in agriculture.
CO2	Use of agriculture related database to develop analytics.
CO3	Develop interactive apps to provide services.
CO4	Develop decision making process to support agricultural activities.
CO5	Develop database of all aspects of agriculture.
CO6	Explain the importance of IPR in agriculture.
CO7	Categorize types of IPR and licensing procedure at; international and global level.
CO8	Gained expertise on process of application for IPR for an agricultural produce.
CO9	Explain the importance of biodiversity and obtaining the IPR.

Course Code	BAG-611(C)
Course Name	Food Safety and Standards

COs	Description
CO1	Impart the knowledge of food safety issues, surveillance and monitoring techniques, Food Labeling as well as sanitation and food allergy
CO2	Know the principles of Food Safety and Quality
CO3	Apply preventive measures and control methods to minimize the hazards at local national, international and global level
CO4	Know the requirements of FSSAI
CO5	Learn the principles of HACCP and to develop procedures and approaches to identify food safety hazards in food processing
CO6	Gain the knowledge about the Food Labeling and sanitation of food industries.

Course Code	BAG-611(D)
Course Name	Baby Corn Production Techniques

COs	Description
CO1	On successful completion of this course a student will be able to: Understand the basics of about baby corn for development of skills.
CO2	Understand all about the production of baby corn for development of skill and employability. at local national, international and global level

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand all about the post harvest management of baby corn for skill development and employability. at local national, international and global level
CO4	Understand about the uses and value addition in baby corn products for skill development and employability.
CO5	Understand the marketing of products for skill development, entrepreneurship and employability. at local national, international and global level

Course Code	BAG-611(E)
Course Name	Piggery Science
COs	**Description**
CO1	To understand the science underlying the genetics, reproduction, nutrition, environment & health of pigs at local national, international and global level.
CO2	To understand how these inputs can be manipulated to improve the efficiency of a pork production enterprise.
CO3	To understand how these inputs fit together into a complete enterprise that can be analyzed:
CO4	To understand the impact of contemporary issues (e.g. animal welfare, antibiotic use & effluent pollution of the local environment) on the pork enterprise at local national level
CO5	To understand the Maintenance of Cleanliness & Hygiene Common diseases, symptoms Vaccination & disease prevention Waste Management.

Course Code	BAG-611(F)
Course Name	Administration and Supervision in Extension education
COs	**Description**
CO1	Student learning to administrative scope, functions, philosophy and general objectives of different types of systems.
CO2	Student how to administration and leadership. and management principles, administrative and supervisory responsibilities.
CO3	Demonstrate professionalism by managing time and media to meet deadlines and elevate the quality of works produced.
CO4	To impart better education with values and transformation of knowledge from class room to common man at local national, international and global level.
CO5	Inculcate critical thinking to carry out scientific investigation objectively without being biased with preconceived notions.

Sanjeev Dhand
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-611(G)
Course Name	Fundamental of Cytogenetics

COs	Description
CO1	Evolution of various chromosomal aberrations (structural and numerical), their applications in alien gene transfer and hybrid seed development.
CO2	pollen culture in haploid development and development of diploid inbreds or hybrids or doubled isogenic lines from haploids that has got important applications in plant breeding at local national, international and global level.
CO3	With cytogenetic tools such as FISH and GISH (Genomic In Situ Hybridization) techniques, that rely on "painted chromosomes" approach, the behavior of individual genomes, individual chromosomes, or chromosomal fragments in natural and artificial hybrids (particularly allopolyploids) can be analyzed at local national, international and global level.
CO4	Another important application of plant Cytogenetics is in validation of physical maps and guiding efficient choice of bacterial artificial chromosomes for sequencing of genomes using chromosome walking and chromosome jumping.
CO5	Students gain to knowledge of structure, replication, function, RNA: structure, types and function.

Course Code	BAG-611(H)
Course Name	Environmental Genetics

COs	Description
CO1	Comprehensive, detailed understanding of the chemical basis of heredity at local national, level.
CO2	Comprehensive and detailed understanding of genetic methodology and how quantification of heritable traits in families and populations provides insight into cellular and molecular mechanisms.
CO3	Understanding of how genetic concepts affect broad societal issues including health and disease, food and natural resources, environmental sustainability, etc. at international and global level
CO4	Insight into the mathematical, statistical, and computational basis of genetic analyses that use genome-scale data sets in systems biology settings.
CO5	Understanding the role of genetic technologies in industries related to biotechnology, pharmaceuticals, energy, and other fields.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-611(I)
Course Name	Agricultural Finance and Business Managements

COs	Description
CO1	Define Agricultural business, finance, credit, marketing, planning, farm records and accounts.
CO2	Explain the components and various sectors of Agricultural management and management decisions.
CO3	List and explain the types of production and planning, advantages and guiding principles of production planning.
CO4	Identify the types of Agricultural business management and organisations and list their characteristics, advantages and disadvantages.
CO5	Calculate and explain the implications of the common financial ratios to agricultural business management

Course Code	BAG-611(J)
Course Name	Storage Pest Management of Tobacco

COs	Description
CO1	On successful completion of this course a student will be able to: Understand the basics of insect and identification for development of skills.
CO2	Understand all about the cigarette beetle for development of skill and employability.
CO3	Understand all about the tobacco moth for skill development and employability.
CO4	Control masseurs for tobacco stored insect pests for skill development and employability.
CO5	Control by chamber fumigation of stored insect pest of tobacco for skill development, entrepreneurship and employability.

Course Code	BAG-611(K)
Course Name	Forest Protection

COs	Description
CO1	Students will demonstrate understanding of the complex interactions of humans and forest ecosystems in a global context.
CO2	Students will be able to exhibit forest menstruation skills, techniques for ecological measurements, and other quantitative and analytical skills for data collection, analysis, and interpretation of forest ecology and management at global level.
CO3	Students will be able to independently locate and apply relevant

Sanjeev Dawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	forest ecology and management literature to assigned problems or research and management issues.
CO4	Students will be able to interpret a wide range of scientific and popular literature related to forest ecology and management and apply this information to problem-solving analysis in the conservation and management of forest ecosystems. at local national, international and global level
CO5	Students will be able to prepare analyses and present both written and verbal technical reports of forest conservation, ecology, and management as appropriate for either scientific or popular audiences.

Course Code	BAG-611(L)
Course Name	Health and Disease Management of Poultry
COs	**Description**
CO1	Have advanced knowledge in poultry embryology, anatomy, physiology, immunology, genetics, and behavior.
CO2	Master basic principles of poultry production methods, housing, bio security and economics of poultry health sciences.
CO3	Have knowledge and insight in the pathogenesis, epidemiology, diagnostics, prevention and treatment of infectious and non-infectious poultry diseases. at local national, international and global level
CO4	Developed critical thinking skills and insights in hot topics in poultry production such as responsible use of antimicrobials, sustainability in livestock production, animal welfare, and public perception of poultry production.
CO5	Have knowledge of guidelines to maintain and assure food quality and food safety of poultry products.

Course Code	BAG-611(M)
Course Name	Fisheries Science
COs	**Description**
CO1	To understand the detailed knowledge on major fisheries of India.
CO2	To understand the clear understanding on demersal and deep sea fisheries.
CO3	To understand the knowledge on shell fish and seaweed resources of India. at local national, international and global level
CO4	Understand the basic nutritional requirements of fishes; recognize different prescription diets on the animals basic indications for use.
CO5	Distinguish between the main stages of embryonic & larval development & behavioral changes that occur across the breeding period

Sanjeev Dorand
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-611(N)
Course Name	Management of Waste Land

COs	Description
CO1	Definition, sources- point and non- point, soil poilutants effect on soil.
CO2	students will be able to learn basic concepts of solid waste management, beginning from source generation to waste disposal in a system of municipality organizational structure.
CO3	Student learning to Strategies for soil conservation, conservation of arable restoration of terminated soil, wasteland reclamation, reassures for soil pollution.
CO4	Student learning to Bio rernediation conservation at national and international level. at local national, international and global level
CO5	Student learning to Quality of irrigation water; management of brackish water for irrigation; characterization of brackish waters; relationship in water use and quality.

Course Code	BAG-611(O)
Course Name	Commercial production of organic Inputs

COs	Description
CO1	Initiative from Government for organic produce.
CO2	Role of NGOs in producing organic products.
CO3	Selection of crops and varieties for organic produce
CO4	Certification of organic produce. at local national, international and global level
CO5	About knowledge operational structure of NPOP;

Course Code	BAG-611(P)
Course Name	Management of Beneficial Insects

COs	Description
CO1	Students understand Importance of beneficial Insects, seasonal management, bee enemies and diseases.
CO2	Students understand bee pasturage, bee foraging and communication
CO3	Students understand Types of silkworm, voltinism and biology of silkworm. Mulberry/castor cultivation, mulberry varieties and methods of harvesting and preservation of leaves.
CO4	Students understand Species of lac insect, morphology, biology, host plant, lac production. at local national, international and global level

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Students understand Identification of major parasitoids and predators commonly being used in biological control and techniques.

Course Code	BAG-611(Q)
Course Name	Introduction of Nanotechnology in Agriculture
COs	**Description**
CO1	Explain the fundamental principles of nanotechnology and their application to biomedical engineering.
CO2	Apply engineering and physics concepts to the nano-scale and non-continuum domain. at local national, international and global level
CO3	Identify and compare state-of-the-art nanofabrication methods and perform a critical analysis of the research literature.
CO4	Design processing conditions to engineer functional nonmaterials.
CO5	Evaluate current constraints, such as regulatory, ethical, political, social and economical, encountered when solving problems in living systems. at local national, international and global level

Course Code	BAG-611(R)
Course Name	Applied Agribusiness Economics
COs	**Description**
CO1	Understanding the scope and methodology of econometric analysis.
CO2	Nature and scope of data for econometric analysis.
CO3	Standing the method of Ordinary Least Square.
CO4	Understanding the assumption of OLS method. at local national, international and global level
CO5	Estimation of regression models and hypothesis testing.

Course Code	BAG-611(S)
Course Name	International Trade for Agriculture Product
COs	**Description**
CO1	Main provisions of the WTO AoA on market access
CO2	Key concerns in the agriculture negotiations of the Doha Round
CO3	Significance of non-tariff measures (NTMs) for international trade and the WTO agreements that deal with such measures
CO4	Trends in RTAs and their provisions on policy areas relevant to agricultural trade at local national, international and global level
CO5	Main provisions of the WTO AoA on market access

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-611(T)
Course Name	Management of Agro Chemical Industry

COs	Description
CO1	Synthesis of new lead molecules as pesticides
CO2	Development of the methods for Agrochemical residue analysis
CO3	Development of new Bio pesticides
CO4	Rearing of Bio control agents for Insect Pest Management Micronutrient Research at local national, international and global level
CO5	Students learning to Business management including market and planning of financial budget at local national, international and global level

Course Code	BAG-704
Course Name	Farming Systems, Sustainable Agriculture and Organic Farming

COs	Description
CO1	Need of sustainable agriculture and problems in sustainability.
CO2	Roll of IFS in Indian agriculture.
CO3	Importance of cropping system and pattern in agriculture.
CO4	Knowledge about organic crop cultivation. at local national, international and global level
CO5	Controls of insect, pest, disease and weed management organically.

Course Code	BAG-705
Course Name	Post-Harvest Management and Value Addition of Fruits and Vegetables

COs	Description
CO1	Understand the physical, chemical, and mechanical properties of food and their handling and storage. at local national, international and global level
CO2	Determine the porosity and roundness of fruits and vegetables.
CO3	Understand maturity indices of fruits and vegetables.
CO4	Understand the concept of quality in relation to fruit and vegetable based products.
CO5	Understand the processing and preservation of fruits and vegetables using various techniques. at local national, international and global level

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-706(A)
Course Name	Agricultural Journalism

COs	Description
CO1	Able to understand and differentiate between newspaper journalism and agricultural journalism.
CO2	Pragmatically approach reporting issues relevant agriculture in newspapers/magazine.
CO3	Ability to write an issue-based article, edit, proofread and publish.
CO4	Develop interest in agricultural journalism at local national, international and global level
CO5	Acquire knowledge on agricultural journalism
CO6	Analyze the various types of agricultural stories 4. Analyze the readability of different news stories published in newspapers and magazines
CO7	Develop skills in Copy reading, headline and title writing, proofreading and lay outing.

Course Code	BAG-706(B)
Course Name	Fundamentals of Soil and Water Conservation Techniques

COs	Description
CO1	On straight knowledge of various surveying methods.
CO2	Conduct a chain survey and compass survey at local national, international and global level
CO3	Conduct leveling survey and be able to do RL calculations.
CO4	Demonstrate knowledge of properties of various building materials.
CO5	Design the field channels, Regime Channels, border irrigation, drip and sprinkler irrigation system and fundamentals of check basin and furrow irrigation.
CO6	Understand the importance of soil & water conservation (SWC) measures for the control of soil erosion and thereby enhancing agricultural productivity
CO7	Compute various design components of terraces, bunds etc at local national, level
CO8	Select appropriate soil and water conservation measures at a location
CO9	Apply the knowledge on engineering for design of SWC projects in watersheds

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-706(C)
Course Name	Micro – Irrigation Techniques

COs	Description
CO1	In the field channels, Regime Channels, border irrigation, drip and sprinkler irrigation system and fundamentals of check basin and furrow irrigation.
CO2	To provide a sound theoretical knowledge applied to water resources and agricultural engineering at local national, international and global level.
CO3	The students will able to understand the requirements of crop water.
CO4	The Students will understand the importance of water quality for beneficial uses, especially irrigation and its management.
CO5	To develop innovative capacity of students for increasing agricultural production with scarce water resources available.

Course Code	BAG-706(D)
Course Name	Production Technology of Vegetable for Processing

COs	Description
CO1	Understand the basic concepts of Bulb and tuber crops for skill development at local national, international and global level .
CO2	Assessing site and plants adaptability for Cole crops to provide employability and entrepreneurship.
CO3	Appreciate the scope and scenario of vegetable crops in India knowledge for better employability in industry.
CO4	Understand Acquire knowledge about the production technology and post-harvest handling of vegetable crops for provide employability and entrepreneurship.
CO5	Understand the Calculate the economics of vegetable production in India for skill development at local national, international and global level

Course Code	BAG-706(E)
Course Name	General Awareness in Agriculture

COs	Description
CO1	Understand the basic concepts of Entrepreneurship Development: Assessing overall business environment in the Indian economy for skill development.
CO2	Globalization and the emerging business / entrepreneurial

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	environment to provide employability and entrepreneurship.
CO3	Social Responsibility of Business. Social auditing. Project Preparation and Appraisal. CB ratio NPV and IRR knowledge for better employability in industry. at local national, level
CO4	Understand Acquire knowledge about the Contract farming and joint ventures, public-private partnerships. Overview of agri inputs industries for provide employability and entrepreneurship.
CO5	Understand the Result Based Management (RBM), Six zigma for skill development. at local national, international and global level

Course Code	BAG-706(F)
Course Name	Theory and Practice of Training

COs	Description
CO1	Understand the basic concepts of Entrepreneurship Development: Assessing overall business environment in the Indian economy for skill development. at local national, international and global level
CO2	Globalization and the emerging business / entrepreneurial environment to provide employability and entrepreneurship.
CO3	Social Responsibility of Business. Social auditing. Project Preparation and Appraisal. CB ratio NPV and IRR knowledge for better employability in industry. at local national, international and global level
CO4	Understand Acquire knowledge about the Contract farming and joint ventures, public-private partnerships. Overview of agri inputs industry for provide employability and entrepreneurship.
CO5	Understand the Result Based Management (RBM), Six zigma for skill development.

Course Code	BAG-706(G)
Course Name	Soil Chemistry

COs	Description
CO1	Understand the basic concepts of Soil as a source of plant nutrients for skill development.
CO2	Fertilizer and insecticides and their effect on soil water and air to provide employability and entrepreneurship. at local national, international and global level
CO3	CB ratio NPV and IRR knowledge for better employability in industry.
CO4	Understand Acquire knowledge about the Contract farming and joint ventures, public-private partnerships. Overview of agri inputs industry for provide employability and entrepreneurship.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Understand the Result Based Nutrient cycles, N, P, K and S. Source, method and scheduling for skill development. at local national, international and global level

Course Code	BAG-706(H)
Course Name	Cytology

COs	Description
CO1	Understand the basic concepts of field and crop management starting from field preparation, seed sowing, till harvesting and threshing of crop for skill development. at local national, international and global level
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry. at local national, level
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship.
CO5	Understand the concept of plant growth and development for skill development. at local national, international and global level

Course Code	BAG-706(I)
Course Name	Stored Grain Pest Management of Spices

COs	Description
CO1	Understand the basic concepts management strategies of insect pests of cereal crop for skill development. at local national, international and global level
CO2	Biology, nature and symptoms of damage and management strategies of insect pests to provide employability and entrepreneurship.
CO3	Understand the cucurbitaceous vegetables knowledge for better employability in industry.
CO4	Understand the importance stored grain pests – Introduction. Causes of storage losses for provide employability and entrepreneurship.
CO5	Understand the Preventive and curative methods of management for skill development. at local national, international and global level

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-706(J)
Course Name	Forest Ecology, Biodiversity and Conservation

COs	Description
CO1	Understand the basic concepts of field and crop management starting from field preparation, seed sowing, till harvesting and threshing of crop for skill development. at local national, international and global level
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry.
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship. at local national, international and global level
CO5	Understand the concept of plant growth and development for skill development.

Course Code	BAG-706(K)
Course Name	Lac Cultivation

COs	Description
CO1	Understand the basic concepts of field and crop management starting from field preparation, seed sowing, till harvesting and threshing of crop for skill development. at local national, international and global level
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry.
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship. at local national, international and global level
CO5	Understand the concept of plant growth and development for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-706(L)
Course Name	Elementary Nematology and Mushroom Cultivation

COs	Description
CO1	Understand the basic concepts of field and crop management starting from field preparation, seed sowing, till harvesting and threshing of crop for skill development. at local national, international and global level
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry.
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship.
CO5	Understand the concept of plant growth and development for skill development. at local national, international and global level

Course Code	BAG-706(M)
Course Name	Mass Production of bioagents & biopesticides

COs	Description
CO1	Students will gain knowledge on concepts and different media.
CO2	Students will gain knowledge about Equipments, machinery and tools used for Biopesticides and bioagents production.
CO3	Students will gain knowledge about Isolation of bioagents. at local national, international and global level
CO4	Students able to understand of Quality control of Biopesticides and bioagents
CO5	Student will be know about the mass production tech of Biopesticides and bioagents at local national, international and global level

Course Code	BAG-706(N)
Course Name	Tea Husbandry

COs	Description
CO1	On successful completion of this course a student will be able to: Understand the origin and distribution for development of skills.
CO2	Understand all about Soil and climatic requirement for tea cultivation for development of skill and employability.
CO3	Understand all about Propagation and features of mother bush in tea maintenance of tea plantation for skill development and

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability. at local national, international and global level
CO4	Understand about Purpose of shade trees for skill development and employability.
CO5	Understand permanent and temporary shade trees for skill development, entrepreneurship and employability. at local national, international and global level

Course Code	BAG-706(O)
Course Name	Germplasm charactersion and evaluation
COs	**Description**
CO1	Understand the basic concepts of field and crop management starting from field preparation, seed sowing, till harvesting and threshing of crop for skill development. at local national, international and global level
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry. at local national, international and global level
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship.
CO5	Understand the concept of plant growth and development for skill development.

Course Code	BAG-706(P)
Course Name	Organic Crop Production System
COs	**Description**
CO1	Understand the basic concepts of field and crop management starting from field preparation, seed sowing, till harvesting and threshing of crop for skill development. at local national, level at local national, international and global level
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry.
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship. at local national,

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	international and global level
CO5	Understand the concept of plant growth and development for skill development.

Course Code	BAG-706(Q)
Course Name	Farm System Suitable for Organic Management

COs	Description
CO1	Understand the basic concepts of field and crop management starting from field preparation, seed sowing, till harvesting and threshing of crop for skill development. at local national, international and global level
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry. at local national, international and global level
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship.
CO5	Understand the concept of plant growth and development for skill development.

Course Code	BAG-706(R)
Course Name	ICTs for Agricultural Extension

COs	Description
CO1	Students will gain knowledge on introduction, concepts and application in extension education. at local national, international and global level
CO2	Students will gain knowledge about ICTs projects, case studies in India and developing world.
CO3	Students will gain knowledge about ICT Extension approaches-pre-requisites and information.
CO4	Students able to understand about different communication tech.
CO5	Students will be understands about Introduction, concept, process for setting VRC. at local national, international and global level

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-706(S)
Course Name	Organizational Behavior and Development

COs	Description
CO1	On successful completion of this course a student will be able to: Understand the nature and scope of management for development of skills.
CO2	Understand all about Staffing – selection process, directing – training for development of skill and employability. at local national, international and global level
CO3	Understand all about the Nature, scope and significance of organizational behavior for skill development and employability.
CO4	Understand about the motivation and types of motivation for skill development and employability. at local national, international and global level
CO5	Understand the Organizational culture or climate-concept, dimensions, ethos, determinants, organizational conflicts for skill development, entrepreneurship and employability.

Course Code	BAG-706(T)
Course Name	Risk Management and Climate Change Adoption

COs	Description
CO1	Understand the basic concepts of Introduction, Global Warming and Climatic Variability for skill development. at local national, international and global level
CO2	Global warming, effect of climate change on spatio-temporal patterns of temperature and rainfall to provide employability and entrepreneurship.
CO3	Understand the Impact Assessment and Mitigation: Sensors for recording climatic parameters knowledge for better employability in industry. at local national, international and global level
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship. at local national, international and global level
CO5	Understand the concept of Impact of climate changes on invasive insect, disease, weed, fruit yield for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-805(A)
Course Name	Agrochemicals

COs	Description
CO1	Understand the role of agrochemical in Agriculture. at local national, international and global level
CO2	Acquire knowledge on herbicide and fungicide. at local national, international and global level
CO3	Knowledge about importance of fertilizes.
CO4	Explain the classification of fertilizers.
CO5	Effect of agrochemicals and fertilizers on human health and animal health.

Course Code	BAG-805(B)
Course Name	Biopesticides and Biofertilizers

COs	Description
CO1	Infer the importance of bio pesticide in sustainable Agriculture.
CO2	Knowledge about methods of quality control and Techniques of bio pesticides. at local national, international and global level
CO3	To educate about concept and classification of bio-concepts.
CO4	Role of bio-fertilizers in quality parameters of various agricultural products and key role of bio-fertilizer in maintain soil health.
CO5	Comprehend the types of bio fertilizers and their characteristics features at local national, international and global level

Course Code	BAG-805(C)
Course Name	Agro Waste Management

COs	Description
CO1	Understand the scientific principles of the use of biodegradable waste and agricultural by-products from agriculture
CO2	Understand the basic information on waste management status in India.
CO3	Apply acquired knowledge both theoretical and practically to generate market for agriculture by-product waste utilization at local national, international and global level.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-805(D)
Course Name	Vermicompost Production Technology

COs	Description
CO1	Understand the basic concepts of vermicomposting for skill development.
CO2	Understand the Importance of earthworms for vermicomposting to provide employability and entrepreneurship at local national, international and global level.
CO3	Understand the Science of earthworm for better employability in industry.
CO4	Understand the commercial production of earthworms and compost for provide employability and entrepreneurship.
CO5	Understand the problem solution and economics for skill development at local national, international and global level.

Course Code	BAG-805(E)
Course Name	Hatchery Management

COs	Description
CO1	Understand the basic concepts of Poultry housing systems for skill development.
CO2	Management of chicks, growing, laying and breeding flocks o provide employability and entrepreneurship.
CO3	Understand the Procuring, care and pre-incubation storage of hatching eggs - knowledge for better employability in industry.
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship.
CO5	Understand the concept of Embryonic development and factors affecting fertility for skill development at local national, international and global level.

Course Code	BAG-805(F)
Course Name	Methods of Extension Research & Evaluation

COs	Description
CO1	On successful completion of this course a student will be able to: Understand the advances in extension research and evaluation for development of skills.
CO2	Understand all about the identification of research problems in extension for development of skill and employability.
CO3	Understand the hypothesis and variables in extension research and

Sanjeev Bhardwaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	evaluation for skill development and employability.
CO4	Understand about the research design for extension research and evaluation for skill development and employability.
CO5	Understand the sampling techniques in extension research for skill development, entrepreneurship and employability at local national, international and global level.

Course Code	BAG-805(G)
Course Name	Introduction of Sericulture

COs	Description
CO1	Understand the basic concepts of sericulture for skill development.
CO2	Understand the Types of silkworms in India to provide employability and entrepreneurship.
CO3	Understand the Host plants and their cultivation knowledge for better employability in industry at local national, international and global level.
CO4	Understand the importance and Use of biotechnology in sericulture for provide employability and entrepreneurship.
CO5	Understand the Recent advances in sericulture research for skill development.

Course Code	BAG-805(H)
Course Name	Genetic Engineering

COs	Description
CO1	Understand the basic concepts of Genetic engineering-principles and methods for skill development at international and global level.
CO2	Understand the Identification and isolation of genes to provide employability and entrepreneurship.
CO3	Understand the Separation and isolation of nucleic acids and proteins, sequencing knowledge for better employability in industry.
CO4	Understand the importance of Enzymes of molecular cloning - exo and endo nucleases, restriction enzymes, classes of restriction enzymes, mode of action for provide employability and entrepreneurship at local national, international and global level.
CO5	Understand the concept of DNA polymerases for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-805(I)
Course Name	Bio floc Farming

COs	Description
CO1	Understand the basic concepts and an overview of global aquaculture production for skill development at local national, international and global level.
CO2	Define the Biofloc technology: Principles of biofloc to provide employability and entrepreneurship.
CO3	Understand the Minimal water exchange aquaculture systems: Principles of closed system farming, knowledge for better employability in industry at local national, international and global level.
CO4	Understand the Aquaponics: Principles, Components and design of different aquaponics systems, Components in aquaponics, for provide employability and entrepreneurship.
CO5	Understand the concept of Running water systems: Flow-through system, Raceways (IPR), IMTA, for skill development at local national, international and global level.

Course Code	BAG-805(J)
Course Name	Pesticides and plant protection equipment

COs	Description
CO1	Understand the History, principles and scope of insect toxicology for skill development at local national, international and global level.
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Bio-accumulation and susceptibility of biological materials to insecticides. Insecticidal poisoning – symptoms and treatment.
CO4	Understand the Importance of fungicides in plant disease management for provide employability and entrepreneurship.
CO5	Understand the concept of plant growth and development for skill development at local national, international and global level.

Course Code	BAG-805(K)
Course Name	ECONOMIC ENTOMOLOGY

COs	Description
CO1	Attain a solid foundation in insect biology, including general entomology, basic systematics, morphology, physiology, and

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	biodiversity. at local national, international and global level
CO2	Understand evolution and biodiversity generation through macro- and micro-evolutionary processes, including how these processes have formed and diversified insects.
CO3	Develop the ability to read and interpret scientific papers in entomology, and critically assess content.
CO4	Attain skills in written and verbal scientific communication.
CO5	Develop the ability to design and perform a scientific study on insects, and to analyze results. at local national, international and global level

Course Code	BAG-805(L)
Course Name	Silkworm Cocoon Production Technology

COs	Description
CO1	Learn about parasitology. at local national, international and global level
CO2	Learn detail the classification and general characteristics of pathogenic/ medically important parasites.
CO3	Establish the relationship between a parasite and the host and their effects.
CO4	Students can differentiate the parasitic Protozoan, Trematodes Cestodes, and Nematodes. at local national, international and global level
CO5	Learn the various types of parasites and hosts.

Course Code	BAG-805(M)
Course Name	Agriculture Chemistry

COs	Description
CO1	At the end of the course the student will have the basic knowledge and operational capacity.
CO2	The understanding of the major functional and molecular processes in plants (at cellular and organism level), with particular attention.
CO3	The aspects of the soil-plant-atmosphere system, as well as the tools to assess.
CO4	In terms of physical-chemical and biological soil fertility.
CO5	Implement strategies to maintain or improve it in relation to the objectives of production and / or environmental goals.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-805(N)
Course Name	General Climatology

COs	Description
CO1	Understands complex atmospheric phenomena and climate formation processes at local national, international and global level
CO2	Possess a knowledge about actual problems of climatology discussed in the world literature on the subject
CO3	The area of education in the natural sciences. General academic profile. at local national, international and global level
CO4	Understands of needs for continuous education for all life
CO5	Get skills of statistical and climatological analysis of meteorological measurements and presents results in the form of a report or a research article at local national, international and global level

Course Code	BAG-805(O)
Course Name	Organic Certification, Standards and Regulation

COs	Description
CO1	To prepare cropping schemes and design and evaluate cropping system and workout input requirements for crops.
CO2	To understand interaction between different farm enterprises.
CO3	To prepare integrated farming system models for different eco systems.
CO4	To gain knowledge about drought mitigation strategies
CO5	To evaluate different resource management techniques in conservation agriculture. at local national, international and global level

Course Code	BAG-805(P)
Course Name	Fundamentals of Plant Prorogations

COs	Description
CO1	Identify plant structures and how they are involved in propagation
CO2	Apply the best treatments and storage conditions for successful seed germination at local national, international and global level
CO3	Demonstrate the procedures for a successful graft
CO4	Select the correct propagation method for plants based on their characteristics
CO5	Apply the principles and techniques of plant propagation to the commercial horticulture industry at local national, international and global level

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-805(Q)
Course Name	Seed Quality Testing

COs	Description
CO1	Students are able to know the basic principles involved in seed planting value, germination percentage and seed testing
CO2	Learned the methods of seed production, seed certification, seed legislation, seed act and seed processing at local national, international and global level
CO3	Know the agencies and their functions in the seed production and management at National and state level.
CO4	Learned the basics of maintenance breeding, seed priming and seed cost-benefit ratio. at local national, international and global level
CO5	Students know and can practice the production of hybrid seeds in the important crops of India.

Course Code	BAG-805(R)
Course Name	Indian Economy, History and Contemporary: Issues

COs	Description
CO1	Understand agriculture as the foundation of economic growth and development. at local national, international and global level
CO2	Gain knowledge of the causes of regional variations in productivity and production, social and economic inequality, size of land holdings and lack of quality inputs etc.
CO3	To Gain knowledge about market structure, law of variable proportions and cost concept. at local national, international and global level
CO4	Students will aware about recent economic affairs such as demonetization, universal basic income, cashless economy, skill and training development schemes, make in India etc
CO5	Study role of modern economy its function, types of bank, agricultural and public finance. at local national, international and global level

Course Code	BAG-805(S)
Course Name	Computer Application in Agribusiness and Economies

COs	Description
CO1	Demonstrate a basic understanding of computer hardware and software, how to assess hardware, solve problems using computer software, doing business online, and the inner workings of the Internet. at local national, international and global level
CO2	Describe the features and functions of the major categories of

Sanjeev Bhargava
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	applications software (word processing, database, spreadsheet, presentation) at local national, international and global level
CO3	Create and format text in various communication forms to create presentation application of excel in business and how to work with databases.
CO4	Students will get knowledge of market activities and behavior: production, distribution, selling, purchasing etc.
CO5	Understand the technology in agriculture production, yield gap analysis for skill development

Course Code	BAG-805(T)
Course Name	Environmental Economics
COs	**Description**
CO1	To study about, the economics of pollution control, market-based instruments, environmental cost-benefit analysis.
CO2	Understand the environment and the economy, global environmental problems. at local national, international and global level
CO3	Gain knowledge about environmental management and public private partnership.
CO4	Be able to use economic techniques to analyse environmental problems and to assess environmental policies.
CO5	Have a detailed understanding of the discipline of environmental economics, including its key principles and methods. at local national, international and global level

Course Code	BAG-806
Course Name	Dairy Technology
COs	**Description**
CO1	The students will gain knowledge about Dairy and Food process engineering at local national, international and global level
CO2	Understand the process of manufacturing of dairy products and thermal processing of food.
CO3	The Students will understand the importance of quality control and food preservation and packaging.
CO4	The students gain a good knowledge on the various processes and equipments used in the processing of milk and milk products.
CO5	The student will discover the biotechnological approaches in the field of dairy. at local national, international and global level

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAG-807
Course Name	Farm Machinery and Power

COs	Description
CO1	The students will be able to understand the different components of IC engine
CO2	Familiar with different type of primary and secondary tillage implements.
CO3	The students will be able to understand the mechanization and various equipments used in the farm for different field operations
CO4	Familiar with sowing and planting equipment. Calibration of seed drill. at local national, international and global level

PROGRAMME NAME – B.TECH. (AGRICULTURAL ENGINEERING)

Course Code	TEMA – 102
Course Name	Elementary Mathematics – I

COs	Description
CO1	Understand the concept of partial fraction, logarithms, functions and limits of continuity.
CO2	Know the concept of matrices and determinant in field of engineering.
CO3	Understand the concept of calculus.
CO4	Get familiar with the analytical geometry including straight line and integration. at local national, international and global level
CO5	Know the concept of differential equations and its applications in the field of engineering.

Course Code	TEPH-101/TEPH201
Course Name	Engineering Physics-I

COs	Description
CO1	Learn relativistic Mechanics, Frame of reference, Lorentz transformation equation. at local national, international and global level
CO2	Understand Statistical Mechanics, Maxwell- Boltzmann statistics and its applications. at local national, international and global level
CO3	Study Time Dependent & Time Independent Schrodinger Equation and applications of these equations.
CO4	Attain basic knowledge on different types of LASERs and their applications. at local national, international and global level
CO5	Gain knowledge of optical fibre, propagation and their applications.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-107
Course Name	Elementary Biology-I

COs	Description
CO1	Define cell biology and gain some basic concept of functioning of various specific systems of humans, plants and animals.
CO2	Learn the basic concepts of biology and its importance in analyzing the principles of human development at local national, international and global level.
CO3	Develop the knowledge of classification of living organisms, systematic and binomial system of nomenclature.
CO4	Demonstrate medical implications of developmental biology
CO5	Concept of alleles and genes and cell cycle at local national, international and global level.

Course Code	TEPH-101
Course Name	Engineering Physics-I

COs	Description
CO1	Learn Frame of reference, Lorentz transformation equation
CO2	Study Bose -Einstein statistics and Fermi – Dirac statistics Understand De-Broglie Hypothesis, Davisson –Germer Experiment
CO3	Study time Dependent &Time Independent Schrodinger Equation and applications of these equations. at local national, international and global level
CO4	Gain knowledge of optical fiber.
CO5	Attain basic knowledge on different types of LASERs and their applications. at local national, international and global level

Course Code	TECH-101/201
Course Name	Engineering Chemistry

COs	Description
CO1	Demonstrate knowledge of science behind common impurities in water and methods to treat them and also different methods to remove hardness of water.
CO2	Students will also be able to understand and relate electrochemistry and corrosion.
CO3	To analyze the basic knowledge of various types of Fuels, their properties and Industrial Applications ALONG WITH THE determination OF the calorific value of fuels.
CO4	Apply the science for understanding corrosion and its prevention.

Sanjeev Bajpai
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Demonstrate knowledge .of superconducting and organic electronic materials. at local national, international and global level

Course Code	TEME–101/201
Course Name	Engineering Mechanics
COs	**Description**
CO1	Recognize different force systems, moments and couple.
CO2	To draw Free Body Diagram and label the reactions on it.
CO3	Apply equilibrium equations in statics.
CO4	Understand Newton's law in motion, and recognize different kinds of particle motions.
CO5	Introduction, Plane Motion of Rigid Body Impulse and Momentum, D'Alembert's Principles and Dynamic Equilibrium
Course Code	**TEEC 101/201**
Course Name	**Electronics Engineering**
COs	**Description**
CO1	Understand the basic of semi conductor technology.
CO2	Define the purpose of different diodes used in several applications
CO3	Develop understanding and impact of resistance regions at local national, international and global level
CO4	Discuss how basic communication occurs over wireless medium
CO5	Discuss the benefits of transistors over conventional vacuum tubes at local national, international and global level

Course Code	TECS-101/201
Course Name	Computer Fundamentals and Programming
COs	**Description**
CO1	Understanding the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming at local national, international and global level
CO2	Write, compile and debug programs in C language and use different data types for writing the programs.
CO3	Design programs connecting decision structures, loops and functions.
CO4	Explain the difference between call by value and call by address.
CO5	Understand the dynamic behavior of memory by the use of pointers at local national, international and global level.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEMA–202
Course Name	Elementary Mathematics-II

COs	Description
CO1	Remember equations, inequalities, and systems of equations to represent situations and find solutions via symbolic, numeric and graphic methods.
CO2	Understand and calculate probabilities by applying probability laws and theoretical results.
CO3	Compare and analyze the methods by using coordinates to represent and work with ***vectors***. at local national, international and global level
CO4	Understand the concepts & advance topics related to three dimensional geometry and study the applications of conics.
CO5	Understand the concepts Direction cosines / ratios of a line joining two points, Cartesian and vector equation of a line, Coplanar and skew lines, Shortest distance between two lines,

Course Code	TEBT-209
Course Name	Elementary Biology-II

COs	Description
CO1	Define the science of microbiology, its development and importance in human welfare. at local national, international and global level
CO2	Acquire knowledge about the organizational and functional aspects of cell and cell organelles.
CO3	Learn about the interactions of the cells with outside environment.
CO4	Learn about the classical genetics and transmission of characters.
CO5	Learn about cellular respiration Phosphorylation ATP Electron Transport System at local national, international and global level

Course Code	TEPH-201
Course Name	Engineering Physics-II

COs	Description
CO1	Understand Gauss law, Ampere's Law, Maxwell's equations and their applications. at local national, international and global level
CO2	Study of Propagation of plane electromagnetic waves in free space. at local national, international and global level
CO3	Understand Dielectric and magnetic properties of the materials.
CO4	Explain Intrinsic and extrinsic semi conductors.
CO5	Construction, Operation and characteristics of diodes. at local national, international and global level

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TECE-201/101
Course Name	Environmental Science

COs	Description
CO1	Understand the issues and challenges related to environmental and ecosystem due to some human activities. at local national, international and global level
CO2	Understand key concepts from economic, political, and social analysis as they pertain to the design and evaluation of environmental policies and institutions. at local national, international and global level
CO3	Appreciate concepts and methods from ecological and physical sciences and their application in environmental problem solving.
CO4	Appreciate the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems.
CO5	Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world.

Course Code	TPSD-201
Course Name	Professional Skill development-I

COs	Description
CO1	Write paragraph, gist or abstract/précis of the passage in own words/ language and resume, bio-data, letters and applications of different kinds.
CO2	Use targeted grammatical structures meaningfully and appropriately in oral and written production.
CO3	Enhance competences in the four modes of literacy: writing, speaking, reading& listening. at local national, international and global level
CO4	Understand and recall of what read and listen is including facts and main idea.
CO5	Understand Bio-Data. Writing of Letters and Applications Letters of Claims and Complaints, Letters of Adjustment.

Course Code	TEEE-101 /201
Course Name	Electrical Engineering

COs	Description
CO1	Predict the behavior of any electrical and magnetic circuits.
CO2	Formulate and solve complex AC, DC circuits.
CO3	Identify the type of electrical machine used for that particular application.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Realize the requirement of transformers in transmission and distribution of electric power and other applications. at local national, international and global level
CO5	Function on multi-disciplinary teams.

Course Code	TEBT-102/ TEBT-202
Course Name	Introduction to Biotechnology
COs	**Description**
CO1	Understand basic concepts in components of cell, structure and biochemical functions.
CO2	Acquire basic concepts of nucleic acids and its structures at local national, international and global level
CO3	Search and retrieve information from genomic and proteomic databases (e.g. Gen Bank, Swiss-Prot), and to analyze their search results using software available on the internet (e.g. BLAST, Clustal W).
CO4	Learn the theory of genome sequencing and other predictions.
CO5	Introduction Genome Sequencing Projects SNP's and comparative genomics

Course Code	EAG302
Course Name	Principles of Soil Science, Agronomy & Horticulture Crops
COs	**Description**
CO1	The layout and planting methods of horticultural crops.
CO2	The different types of soil and organic matters.
CO3	The different types of equipment for tillage operations at local national, international and global level
CO4	About the essential plants nutrients. at local national, international and global level
CO5	About the Harvesting, grading and packaging Extraction and storage of vegetables seeds

Course Code	EME 308
Course Name	Fluid Mechanics and Open Channel Hydraulics
COs	**Description**
CO1	Understand stress-strain relationship in fluids, classify their behavior and also establish force balance in static systems.
CO2	To apply Bernoulli principle and compute pressure drop in flow

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	systems of different configurations.
CO3	To describe function of flow measuring devices and apply Bernoulli equation to determine the performance of these devices.
CO4	To measure the fluid pressure using various types of pressure measuring devices.
CO5	To understand the Rayleigh's method and Buckingham's 'Pi' theorem dimensional analysis, dimensionless numbers Hydraulic pumps

Course Code	ECE306
Course Name	Surveying Practices

COs	Description
CO1	Apply the principle and knowledge of surveying for civil Engineering Applications Calculation of areas,
CO2	Drawing plans and contour maps using different measuring equipment.
CO3	Use and operate measurement related traditional and modern instruments. at local national, international and global level
CO4	To understand Principles of traversing by compass and theodolite, computations of traverse coordinates
CO5	To understand GPS Overview Satellite Constellation Equipment Segment Principle of Position Determination via Satellite Generated Ranging Signals

Course Code	EME306
Course Name	Heat & Mass Transfer

COs	Description
CO1	Understand the basic laws of heat transfer.
CO2	Analyze problems involving steady state heat conduction in simple geometries.
CO3	Understand the fundamentals of convective heat transfer process.
CO4	Evaluate heat transfer coefficients for natural convection and forced convection inside ducts.
CO5	Calculate radiation heat transfer between black body surfaces & heat exchange between gray body surfaces at local national, international and global level

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EMA–303
Course Name	Analytical Mathematics

COs	Description
CO1	Apply Numerical analysis which has enormous applications in the field of Science and engineering.
CO2	Understand numerical integration and differentiation, numerical solution of ordinary differential equations.
CO3	Know the use of Laplace transform solving Boundary Value problems.
CO4	Evaluate the problems of Laplace transform and its applications in engineering. at local national, international and global level
CO5	Understand simultaneous differential equations. Laplace transform

Course Code	ECR-301/ECR-401/MCA-301
Course Name	Professional Skill Development - II

COs	Description
CO1	Apply the comprehensive set of skills and knowledge for life success.
CO2	Understand the communication process, its benefits and challenges
CO3	Learn to effectively lead others on a project or in an organization
CO4	Develop and articulate respect for the diversity of talents, ways of knowing and learning. at local national, international and global level
CO5	Understand the corporate Fit: Dressing and Grooming Basic Etiquette

Course Code	EEE306
Course Name	Electrical Machines & Power Utilization

COs	Description
CO1	Acquire knowledge about the fundamental principles and classification of alternating current, magnetic circuit & electromagnetic machines.
CO2	Acquire knowledge about the constructional details and principle of operation of transformer DC & AC machines.
CO3	Acquire knowledge about the working of DC machines, induction machine and generators.
CO4	Acquire knowledge about testing and applications of Single phase & polyphaser induction motor.
CO5	Acquire knowledge about the constructional details, principle of operation, testing and applications of transformers. at local national, international and global level

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EAG404
Course Name	Farm Machinery and Equipment-I
COs	**Description**
CO1	The students will be able to understand the mechanization and various equipment used in the farm for different field operations.
CO2	Familiar with farm mechanization, and able to identify the major functional components and forces acting on various tillage implements. Hitching systems,
CO3	Machinery used for various tillage operations and analyze the measurement of draft and power requirement of tillage machineries.
CO4	Understand and evaluate the Calibration of seed-drills and planters. Familiar with plant protection equipments. Evaluate the calibration of sprayers.
CO5	Understand o steels and alloys for agricultural application, Heat treatment processes, Properties of materials at local national, international and global level

Course Code	EAG405
Course Name	Soil Mechanics
COs	**Description**
CO1	At the end of the course, the students will be able to: Compute various engineering properties of different types of soil
CO2	Apply the knowledge of soil mechanics to design various types of structures
CO3	Select a particular type of soil for utilization under specific conditions in nature at local national, international and global level
CO4	Develop a plan for suitability of soil conservation structures at a location
CO5	Understand Earth pressure active and passive states simple numerical exercises. introduction to stability analysis of infinite and finite slopes

Course Code	EAG406
Course Name	Dairy and Food Engineering
COs	**Description**
CO1	The students will gain knowledge about Dairy and Food process engineering
CO2	Understand the process of manufacturing of dairy products and thermal processing of food. at local national, international and global level
CO3	The Students will understand the importance of quality control and food preservation and packaging.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	The students gain a good knowledge on the various processes and equipments used in the processing of milk and milk products.
CO5	The student will discover the biotechnological approaches in the field of dairy.

Course Code	EME405
Course Name	Strength of Materials

COs	Description
CO1	Will be able to design beams in respect deflection and slope in structures.
CO2	Will be able to analyze the beams, column and strut used in various structures. **at local national, international and global level**
CO3	Will understand the role of joining of solid members by welding and rivets and cause of failure.
CO4	Will be able to understand Riveted and welded connections Types of welds, Strength of butt welds.
CO5	Will be able to understand Stability of masonry dams Fixed and continuous beam analysis using superposition

Course Code	EME-406
Course Name	Thermal Engineering

COs	Description
CO1	Identify and use units and notations in Thermo dynamics.
CO2	State and illustrate first and second laws of Thermo dynamics at local national, international and global level
CO3	Explain the concepts of entropy, enthalpy, reversibility and irreversibility.
CO4	Apply the first and second laws of Thermodynamics to various gas processes and cycles.
CO5	To get conversant with properties of steam, dryness fraction measurement, vapor processes and Thermodynamic vapor cycles, performance estimation. at local national, international and global level

Course Code	EEC408
Course Name	Basic Electronics and Instrumentation

COs	Description
CO1	To understand important and fundamental parameters of electronics engineering.
CO2	To learn the basic concepts of measuring instruments such as:

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	ammeter, voltmeter, galvanometer, multi meter etc.
CO3	To develop the basic skills necessary for measuring various parameters such as current, voltage, temperature etc. Bourdon tube, LVDT, Strain gauge and tachogenerator.
CO4	To address the underlying concepts and methods behind Electronics measurements at local national, international and global level
CO5	To understand Binary ladder D/A converter, Successive approximation A/D converter

Course Code	EEC408
Course Name	**Basic Electronics and Instrumentation**
COs	**Description**
CO1	To understand important and fundamental parameters of electronics engineering.
CO2	To learn the basic concepts of measuring instruments such as: ammeter, voltmeter, galvanometer, multi meter etc.
CO3	To develop the basic skills necessary for measuring various parameters such as current, voltage, temperature etc. Bourdon tube, LVDT, Strain gauge and tachogenerator.
CO4	To address the underlying concepts and methods behind Electronics measurements at local national, international and global level
CO5	To understand Binary ladder D/A converter, Successive approximation A/D converter

Course Code	EEC408
Course Name	**Basic Electronics and Instrumentation**
COs	**Description**
CO1	To understand important and fundamental parameters of electronics engineering.
CO2	To learn the basic concepts of measuring instruments such as: ammeter, voltmeter, galvanometer, multi meter etc.
CO3	To develop the basic skills necessary for measuring various parameters such as current, voltage, temperature etc. Bourdon tube, LVDT, Strain gauge and tachogenerator.
CO4	To address the underlying concepts and methods behind Electronics measurements
CO5	To understand Binary ladder D/A converter, Successive approximation A/D converter at local national, international and global level

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EME407
Course Name	Theory of Machines

COs	Description
CO1	Distinguish kinematic and kinetic motion
CO2	Identify the basic relations between distance, time, velocity, and acceleration. at local national, international and global level
CO3	Drawing velocity and acceleration diagrams for different mechanisms
CO4	Selecting gear and gear train depending on application
CO5	Drawing displacement diagrams and cam profile diagram for followers executing different types of motions and various configurations of followers, at local national, international and global level

Course Code	EAG506
Course Name	Tractor System & Control

COs	Description
CO1	Familiarization with different makes and models of tractors. And identify the different tractor
CO2	Understand hitching & de-hitching to the tractor and Introduction to trouble shooting in tractors.
CO3	Replacement of broken components in tillage implements, Maintenance of cutter bar in a reaper.
CO4	Adjustments in a thresher for different crops. Setting of agricultural machinery workshop.
CO5	Understand engine test codes. tractor testing, determination of maximum drawbar pulls

Course Code	EAG507
Course Name	Soil and Water Conservation Engineering

COs	Description
CO1	Understand the erosion concept and its types.
CO2	Understand the concept of gully formation and USLE equation Determination.
CO3	Analyze the Water erosion control measures that can be undertaken
CO4	Understand the concept of terraces and gully and ravine reclamation processes. at local national, international and global level
CO5	Understand the concept of Grassed waterways and Wind erosion.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EAG508
Course Name	Tractor and Automotive Engines

COs	Description
CO1	Identify the conventional & non-conventional energy sources for farm power. And understand thermodynamic principles of IC (CI & SI) engines and deviation from ideal cycle
CO2	Understand the ignition, cooling electrical system of IC engines.
CO3	Familiar with the basics of engine testing with reference to BIS code. Understand about tractors various systems, mechanism and power outlets
CO4	To illustrate traction, its mechanics, basic Ergonomics and basic knowledge of tractor system testing.
CO5	Understand radiator efficiency ignition system of SI engines comparison of dynamo and alternator at local national, international and global level

Course Code	EAG509
Course Name	Watershed Hydrology, Planning and Management

COs	Description
CO1	Understand different components of hydrologic cycle and Precipitation.
CO2	Understand the different hydrologic processes.
CO3	Understand the geomorphology of watersheds, hydrograph, flood routing and drought. at local national, level
CO4	Understand the concept of watersheds, its development and management.
CO5	Understand the Water budgeting in watershed and dry farming at local national, level

Course Code	EAG510
Course Name	Bio-Energy Systems: Design and Applications

COs	Description
CO1	Identify the non conventional resources and understand solar cell material, array, power plant and its limitations.
CO2	Understand about Geothermal Energy, Principle of working of MHD Power plant and Fuel Cells.
CO3	Familiar with Wind energy and energy conversion system.
CO4	Understand about solar thermal energy, collectors and analyze solar thermal power
CO5	Plant for power generation, energy storage for heating and cooling purposes at local national, international and global level

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EHU501
Course Name	Human values and professional ethics

COs	Description
CO1	Understands human values.
CO2	Inculcate ethics in professional life at local national, international and global level
CO3	Understand codes of ethics balanced outlook on law Engineering as experimentation - engineers as responsible experimenter
CO4	Understand Safety and risk assessment of safety respect for authority professional rights discrimination
CO5	Understand Multinational corporations computer ethics Sample code of Ethics like ASME, ASCE, IEEE at local national, international and global level

Course Code	EME506
Course Name	Machine Design

COs	Description
CO1	The students will demonstrate the ability to apply the fundamentals of stress analysis, theories of failure and material science in the design of machine components.
CO2	The students will demonstrate the ability to make proper assumptions, perform correct analysis while drawing upon various mechanical engineering subject areas. at local national, international and global level
CO3	Specifically, the students will demonstrate the preceding abilities by performing correctly: at local national, international and global level The design, analysis and sizing of shafts, Keys and Coupling.
CO4	Student will Learn how to design a power screw, rivet joint and welded joint.
CO5	The selection, sizing and analysis of springs and other mechanical components/systems. Students will learn the use of data book.

Course Code	EAG607
Course Name	Irrigation & Drainage Engineering

COs	Description
CO1	Understand the irrigations projects and its relevance
CO2	Design and lining of irrigation field channels at local national, international and global level
CO3	Analyze the soil moisture measurement techniques, Evapotranspiration and water application methods.

Sanjeev Saraf
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand water logging and drainage concept.
CO5	Understand the drain layout and drainage methods. at local national, international and global level

Course Code	EAG608
Course Name	Groundwater, Wells and Pumps
COs	**Description**
CO1	Understand the concept of ground water, wells and aquifer.
CO2	Know the Methods of drilling of wells and groundwater hydraulics.
CO3	Know the concept of Well interference and pumping systems
CO4	study the Classification of pumps at local national, international and global level
CO5	Understand the impeller dimensions effect and other pump systems

Course Code	EAG609
Course Name	Post Harvest Engineering of Horticultural Crops
COs	**Description**
CO1	Understand the physical, chemical, and mechanical properties of food and their handling and storage.
CO2	Determine the porosity and roundness of fruits and vegetables.
CO3	Understand maturity indices of fruits and vegetables. at local national, international and global level
CO4	Understand the concept of quality in relation to fruit and vegetable based products.
CO5	Understand the processing and preservation of fruits and vegetables using various techniques. at local national, international and global level

Course Code	EAG610
Course Name	Farm Machinery and Equipment-II
COs	**Description**
CO1	Familiar with combines, cotton harvester, and chaff cutter.
CO2	The students will be able to understand the mechanization and various equipment used in the farm for different field operations
CO3	Familiar with potato and groundnut diggers
CO4	Understand Factors affecting thresher performance, combine and their terminology cutters and capacity calculations at local national,

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	international and global level
CO5	Understand straw combines of root crop functional components of cotton pickers vegetables and fruit harvesting equipment at local national, international and global level

Course Code	EAG612A
Course Name	Wasteland Development

COs	Description
CO1	Have theoretical knowledge of land degradation.
CO2	Understand the concept of wastelands.
CO3	Understand the need of afforestation and wasteland management and development.
CO4	To know about Mine spoils and Sustainable wasteland development under different conditions.
CO5	Know about Government policies and approach for wasteland development. at local national, international and global level

Course Code	EAG612B
Course Name	Information Technology for Land and Water Management

COs	Description
CO1	Understand about Concept of Information Technology (IT) and its application. at local national, international and global level
CO2	Understand the present system of information generation and Application and production of multimedia.
CO3	Understand the network system of information and database system.
CO4	Analyze the concept of remote sensing, geographic information system (GIS) and GPS. at local national, international and global level
CO5	Know about agricultural information management systems.

Course Code	EAG612C
Course Name	Precision Farming Techniques for Protected Cultivation

COs	Description
CO1	Knowledge about protected cultivation and precision farming.
CO2	Design and construction of greenhouses.
CO3	Types of irrigation systems used in Protected cultivation.
CO4	Knowledge about fertilization. at local national, international and global level
CO5	Greenhouse climate measurements.

Sanjeev Bhansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EAG612D
Course Name	Agribusiness Management

COs	Description
CO1	Importance of agribusiness in Indian economy for skill enhancement
CO2	Agri-business Management features for better employability in industry
CO3	Elements, Levels, Process & Functions of Management for skill enhancement at local national, international and global level
CO4	Organization for better skilling of entrepreneurship
CO5	Control requirements in agriculture for better skilling of entrepreneurship

Course Code	EAG612E
Course Name	Milk Processing

COs	Description
CO1	Understand the basic aspects of milk proteins in terms of major and minor milk proteins at local national, international and global level
CO2	Understand the effect of different processing of milk on interaction of milk proteins
CO3	Understand Alpha-lactalbumin and beta-lactoglobulin, bovine serum albumin:
CO4	Understand the Minor milk proteins: Proteose-peptone, immunoglobulins,
CO5	Understand Denaturation of milk proteins, various factors affecting denaturation; at local national, international and global level

Course Code	EAG612F
Course Name	Post Harvest Agricultural Engineering

COs	Description
CO1	Know the different unit operations in processing of major cereals, pulses and oilseeds. at local national, level
CO2	Know the Pre-milling treatments and their effects on milling quality;
CO3	Apply the various unit operations in Legumes and Oilseeds Processing
CO4	Apply the various unit operations in processing of Wheat.
CO5	Apply the various unit operations in processing of Paddy and Corn

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EAG612G
Course Name	Agricultural Information System

COs	Description
CO1	Introduction & scope of ICT in Agriculture, Need for ICT in Agricultural Extension etc. at local national, international and global level
CO2	Telephone/Mobile Technology: Farmer Call Centre, SMS Broadcast Service, m-krishi. ICT initiatives of NGOs and Private Companies.
CO3	Practices of ICT for Agricultural Extension, Digital Green, e-Agrik (e-Agriculture), e- Sagu (e-cultivation), KISSAN (Karshaka Information Systems Service and Networking), at local national, international and global level
CO4	Village Knowledge Centre (VRC/VRC/CIC):
CO5	ICTs for market information and Agri-Business

Course Code	EAG612H
Course Name	Conservation Tillage

COs	Description
CO1	Ability to design tillage machinery based on engineering principles as applied tom tillage science.
CO2	Occurrence of soil breaking fundamentals. Measures of resistance against breaking. at local national, international and global level
CO3	Crop requirements: Root structure, Soil conditions and purpose of tillage,
CO4	Tillage operations for special tasks. Preparation of soil for cropping and stubble management.
CO5	Plough bodies: Generalized representation, intake main flow and output process.

Course Code	EAG612I
Course Name	Water and Waste Management

COs	Description
CO1	Upon successful completion of this course, students will be able to The concept of a unit operation and a unit process.
CO2	The fundamental scientific processes underlying the design and operation of wastewater treatment plant. at local national, international and global level
CO3	The management of residuals from water and wastewater treatment.
CO4	The methods that are used for the design of a water and wastewater treatment plant.
CO5	Need and technologies used. Nitrification and Denitrification Processes,

Sanjeev Dravs
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Phosphorous removal at local national, international and global level

Course Code	EAG612J
Course Name	Zero Waste Processing

COs	Description
CO1	Learn basic concepts of Zero waste management, beginning from source generation to waste disposal in a system of municipality organizational structure.
CO2	Develop understanding on various technological applications for processing of waste and their disposals in various ways.
CO3	Acquire knowledge on waste to energy productions in the perspectives of sustainable development. at local national, international and global level
CO4	Waste management and co-product recovery:
CO5	Food processing waste water treatment.

Course Code	EAG612K
Course Name	Dairy Products Technology

COs	Description
CO1	Classify food products based on their rheological characteristics
CO2	Understand the relationship between instrumental rheology and sensory perception of food at local national, international and global level
CO3	To recommend use of textural analysis of dairy and food product for its quality control aspect
CO4	To recommend specific type of instrument for textural analysis of specific type of food (fluid or solid)
CO5	To large Deformations and failure in foods: Definitions of fracture, rupture and other related phenomena; at local national, international and global level

Course Code	EAG612L
Course Name	System Stimulation and Agro-Advisory

COs	Description
CO1	Soil-plant-atmospheric continuum and Crop models
CO2	Crop responses to weather elements
CO3	Crop production in moisture and nutrients limited conditions
CO4	Weather forecasting and Value added weather forecast
CO5	Crop-Weather Calendars and forewarning model at local national,

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	international and global level

Course Code	EAG612M
Course Name	Building Materials and Structural Design

COs	Description
CO1	Types of building and components of building and different material using for construction for skill enhancement at local national, international and global level
CO2	Design load and specification of material and Classification of quarrying building for better employability in industry
CO3	Types of properties of wood aluminum paint and about building services for better employability in industry
CO4	Standards of building material for better skilling of entrepreneurship at local national, international and global level
CO5	Principal of building planning and by laws for skill enhancement

Course Code	EAG612N
Course Name	Advances in Food Process Engineering

COs	Description
CO1	To process food products for skill enhancement
CO2	Preserve food products for better employability in industry
CO3	Extrusion cooking for better skilling of entrepreneurship
CO4	Use advance techniques as per requirement of food industries for processing for better employability in industry
CO5	Preservation for better skilling of entrepreneurship at local national, international and global level

Course Code	EHU601
Course Name	Disaster Management

COs	Description
CO1	The students will be able to identify the nature and causes of disaster. Also the students will be able to apply the disaster risk reduction mechanism.
CO2	Emphasis will be on interactive teaching learning methods.
CO3	Tools could be Range of Films - documentaries. at local national, international and global level
CO4	This could form a basis for classroom discussion.

Sanjeev Sharma
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Feature films related to disasters and their impacts and on vulnerabilities of people are available which a teacher could choose with care and screen at local national, international and global level

Course Code	EAG708
Course Name	Post Harvest Engineering of Cereals, Pulses and Oil Seeds

COs	Description
CO1	Again basic knowledge about processing of various agricultural products including cereals, pulses, oilseeds, fruits, vegetables and animal products.
CO2	Acquire basic knowledge about material handling of various agricultural products
CO3	Understand basic composition & structure of food grain
CO4	Understand the basics of milling operations at local national, international and global level at local national, international and global level
CO5	Learn processing of food grains into value added products

Course Code	EAG709
Course Name	Water Harvesting and Soil Conservation Structures

COs	Description
CO1	Know the water harvesting and its techniques.
CO2	Understand the farm pond structures and its specifications and types.
CO3	Understand the nala bunds and soil erosion control structures.
CO4	Analyze the Hydraulic jump and Spillway types at local national, international and global level
CO5	Understand the possible failures in the soil erosion control structures.

Course Code	EAG710
Course Name	Agricultural Structures & Environmental Control

COs	Description
CO1	To understand the concept of farmstead and its planning and layout specifications along with environmental control systems.
CO2	To understand the design, construction and cost estimation of farm structures specifications at local national, international and global level
CO3	Study the storage structures and their requirement.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the rural living and the required development and maintenance.
CO5	Analyze the sanitation system and its site and orientation based on location.

Course Code	EAG711
Course Name	Sprinkler and Microirrigation Systems
COs	**Description**
CO1	Understand the sprinkler irrigation system
CO2	To design the sprinkler irrigation system and evaluate its performance.
CO3	Understand the types of micro-irrigation systems and drip irrigation system.
CO4	Analyze the steps involved in maintenance of micro-irrigation system
CO5	Fertigation and its methods at local national, international and global level

Course Code	EAG712A
Course Name	**Plastic Applications in Agriculture**
COs	**Description**
CO1	The different types of materials and media used for packaging
CO2	Manufacturing processes for different packaging materials
CO3	Quality testing techniques for different packaging materials.
CO4	Hazards and toxicity associated with packaging materials at local national, international and global level
CO5	Understand the Silage film technique Agencies involved in the promotion of plasticulture in agriculture at national and state level

Course Code	EAG712B
Course Name	**Human Engineering and Safety**
COs	**Description**
CO1	Learn the moral issues and problems in engineering; find the solution to those problems.
CO2	Learn the need for professional ethics, codes of ethics and roles, concept of safety, risk assessment.
CO3	Gain exposure to Environment Ethics & computer ethics; know their responsibilities and rights at local national, international and global level
CO4	Understood the core values that shape the ethical behavior of an engineer Exposed awareness on professional ethics and human values.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Known their role in technological development

Course Code	EAG712C
Course Name	Waste and By-Products Utilization

COs	Description
CO1	Understand the scientific principles of the use of biodegradable waste and agricultural by-products from agriculture
CO2	Understand the basic information on waste management status in India.
CO3	Apply acquired knowledge both theoretical and practically to generate market for agriculture by-product waste utilization.
CO4	Understand Waste treatment and disposal, design, construction, concept of vermin-composting, Sedimentation, coagulation, flocculation and floatation at local national, international and global level
CO5	Secondary treatments: Biological and chemical oxygen demand for different food plant waste, Tertiary treatments: Advanced waste water treatment process

Course Code	EAG712D
Course Name	Operational Research

COs	Description
CO1	characteristics of different types of decision-making environments and the appropriate decision making approaches and tools to be used in each type for skill enhancement at local national, international and global level
CO2	Cognitive skills (thinking and analysis)-Be able to build and solve Transportation Models and Assignment Models for better skilling of entrepreneurship
CO3	Communication skills (personal and academic) - Be able to design new simple models, like: CPM, MSPT to improve decision – making and develop critical thinking.
CO4	Sequencing Problem for skill enhancement at local national, international and global level
CO5	Dynamic programming for better employability in industry

Course Code	EAG712E
Course Name	Fundamentals of Dairy Technology

COs	Description
CO1	To have knowledge to ensure delivery of safe and quality product from the dairy plant to the consumers for better employability in industry
CO2	To process the milk and dairy products in such a manner that losses of milk solids are minimal for better employability in industry

Sanjeev Dravid
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Be able to suggest to the dairy plant personnel, the latest type of tools that can be harnessed to produce quality products, without impairing the nutritive value of milk for skill enhancement
CO4	To suggest the dairy industry personnel regarding the formulation of detergent and/or acid and sanitizers for better skilling of entrepreneurship
CO5	Efficient cleaning and sanitization of dairy equipment for skill enhancement at local national, international and global level

Course Code	EAG712F
Course Name	**Irrigation System Automation**

COs	Description
CO1	Concept of automation in irrigation system for skill enhancement
CO2	Importance of water use efficiency in irrigation for better employability in industry at local national, international and global level
CO3	No de architecture for skill enhancement
CO4	Other routing protocols for better skilling of entrepreneurship
CO5	Surface irrigation automation for skill enhancement at local national, international and global level

Course Code	EAG712G
Course Name	**Entrepreneurship Development in Agro-Industries**

COs	Description
CO1	Concept of Entrepreneurship Development and Government policy and programmes and institutions for entrepreneurship development for skill enhancement
CO2	Entrepreneurial Development Process for better employability in industry
CO3	Developing Managerial skills for skill enhancement at local national, international and global level
CO4	Supply chain management for better employability in industry at local national, international and global level
CO5	Total quality management for better skilling of entrepreneurship

Course Code	EAG712H
Course Name	**Entrepreneurship Development in Business Communication**

COs	Description
CO1	This course makes able to develop entrepreneurial competencies among students
CO2	From the course, students may learn about the principles to develop an

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Enterprise or any business unit at local national, international and global level
CO3	Business Leadership Skills; Communication skills for entrepreneurship development.
CO4	Overview of Indian social, political and economic systems and their implications for decision making by individual entrepreneurs.
CO5	Concept of entrepreneurship; entrepreneurial and managerial characteristics; managing an enterprise; motivation and entrepreneurship development; importance of planning, monitoring,

Course Code	EAG712I
Course Name	**Problematic Soil, Water and their Management**
COs	**Description**
CO1	Acid and salt affected soils - their origin, distribution, classification,
CO2	Students can understand Water logged soils - their distribution, changes in soil pH, at local national, international and global level
CO3	Business Leadership Skills; Communication skills for entrepreneurship development.
CO4	Peoples participation at local national, international and global level
CO5	Concept of Education and training land development machinery and maintenance of development land. at local national, international and global level

Course Code	EAG712J
Course Name	**Soil Survey and Land Use Planning**
COs	**Description**
CO1	Understanding basic concept of soil types and soil survey techeniques.
CO2	Fundamentals of Soil survey interpretations at local national, international and global level
CO3	Basic concept of landform - soil relationship; major soil groups of India.
CO4	Understand the concept and techniques of land use planning.
CO5	Understand land evaluation methods and soil-site suitability evaluation for different crops at local national, international and global level

Course Code	EAG712K
Course Name	**Fundamentals of Food Preservation**
COs	**Description**
CO1	To have knowledge on the latest technologies for processing of foods, biopreservation system of processed dairy foods

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	To have an idea about the processing methods that do not diminish the quality attributes of food being processed at local national, international and global level
CO3	To know about the recent antimicrobial or bioactive packaging systems.
CO4	To have any idea about the GMO and their regulatory systems.
CO5	Enhance the shelf life of fresh as well as processed produce/food.

Course Code	EAG712L
Course Name	**Alternate Fuels And Applications**

COs	Description
CO1	Interpret the suitable alternative fuels like CNG and LNG.
CO2	Explain the characteristics of alcohols in SI & CI engines.
CO3	Analyze the various gaseous alternative fuels for IC engine applications.
CO4	Determine various properties of bio fuels and their significance in IC engines. at local national, international and global level
CO5	Explain the concepts of Electrical vehicle, Fuel cell and solar cars.

Course Code	EAG712M
Course Name	**Bio-Informatics in Agriculture**

COs	Description
CO1	Understanding basic concept of computer.
CO2	Fundamentals of MS Office. at local national, international and global level
CO3	Basic concept database, Internet and WWW.
CO4	Use of IT application and different IT tools in Agriculture.
CO5	Understand statistical tools at local national, international and global level

Course Code	EAG712N
Course Name	**Repair and Maintenance of Farm Tractor**

COs	Description
CO1	Design and types of farm tractor at local national, international and global level
CO2	Engine related terminology at local national, international and global level
CO3	Design of tractor systems at local national, international and global level

Sanjeev Agrawal
REGISTRAR

IFTM UNIVERSITY
MORADABAD

CO4	hydraulic system & hitching, chassis
CO5	Mechanics of tractor stability at local national, international and global level

Course Code	EAG713
Course Name	Renewable Energy Resources & Management

COs	Description
CO1	Identify the non conventional resources and understand solar cell material, array, power plant and its limitations
CO2	Understand about solar thermal energy, collectors and analyze solar thermal power plant for power generation, energy storage for heating and cooling purposes at local national, international and global level
CO3	Understand about Geothermal Energy, Principle of working of MHD Power plant and Fuel Cells. at local national, international and global level
CO4	Familiar with Wind energy and energy conversion system.
CO5	Understand Bio-mass and familiar with OTEC and Waste Recycling Plants. at local national, international and global level

Course Code	EAG 760, EAG 761 & EAG 762
Course Name	Experiential Learning I, Experiential Learning II & Experiential Learning III

COs	Description
CO1	learn to report making and technical things of operations
CO2	learn to present of scientific term and things
CO3	understand the importance of personality development and virtual conversation at local national, international and global level
CO4	Learn to handover performance of technical things at local national, international and global level
CO5	To interact with industrial approach with industrial environment
Course Code	EAG802
Course Name	Industrial Management

COs	Description
CO1	Understand the theories and principles of modern management and apply the concepts to the management of organizations in private and public sector. at local national, international and global level
CO2	Understand how managers can effectively plan in today's dynamic environment, be familiar with the design of organization structure and describe how environmental uncertainty affects organization design.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Identify what strategies organizations might use to become more customer oriented and be more innovative. at local national, international and global level
CO4	Identify the characteristics of effective teams and understand why teams have become so popular in organizations.
CO5	Understand Environmental Pollution, Noise pollution. And various control acts for Air at local national, international and global level

Course Code	EAG803
Course Name	**Entrepreneurship Development and Business Management**

COs	Description
CO1	Develop idea generation, creative and innovative skills.
CO2	Aware of different opportunities and successful growth stories.
CO3	Have the ability to discern distinct entrepreneurial traits
CO4	Know the parameters to assess opportunities and constraints for new business ideas at local national, international and global level
CO5	Understand the systematic process to select and screen a business idea

Course Code	EAG 804
Course Name	**Fundamental of Remote Sensing and GIS Applications**

COs	Description
CO1	Familiar with remote sensing and remote sensing techniques.
CO2	Familiar with the types of sensors and platforms and aerial photography.
CO3	Understand and analyze the concept of Photogrammetric and aerial photography.
CO4	Analyze the resolution types, digital image processing, scanning and digitization of maps. at local national, international and global level
CO5	Understand the components of GIS, its applications and data management

Course Code	EAG805A
Course Name	**Food Quality and Control**

COs	Description
CO1	The quality control and assurance system in food industry.
CO2	The risk assessments procedure for food sector
CO3	GMPs and GHP regulations in the food sector. at local national, international and global level
CO4	Food Safety Management Systems GAP, GHP, GMP, Hazards and HACCP (Hazard analysis and critical control point

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Food Laws and Regulations in India, FSSAI, Food grades and standards BIS, AGMARK, PFA, FPO, ISO9000, 22000Series.CAC

Course Code	EAG805B
Course Name	**Photovoltaic Technology and Systems**
COs	**Description**
CO1	Understand various photovoltaic technologies and design concepts.
CO2	Develop an understanding of operational aspects of photovoltaic system design at local national, international and global level
CO3	Plan project implementation, operation and maintenance.
CO4	Carry out techno-economic-environmental performance evaluation of a solar PV power plant
CO5	Understand the application of Solar PV system. Solar home lighting system, solar lantern at local national, international and global level

Course Code	EAG805C
Course Name	**Food Plant Design and Management**
COs	**Description**
CO1	To understand the complete design aspects of Food processing industry
CO2	To study about construction requirements, process design of Food Processing Industry
CO3	To gain the knowledge of fabrication and installation of equipments &layout characteristics.
CO4	To enhance the knowledge in the design of food processing equipments and food processing plant layout
CO5	To understand procedure of obtaining license and registration under FSSAI, Govt. policy on small and medium scale food processing enterprise

Course Code	EAG805D
Course Name	**Agricultural Risk Management**
COs	**Description**
CO1	Risk and its Identification, Capital Impacts of Risk and Market Risk.
CO2	Credit Risk and Political Risk and Country Risk
CO3	Operational Risk and IT Risks and Operational Risk at local national, international and global level
CO4	Human Systems and Risks to Organizations

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Catastrophe Risk and Regulation and Impacts to the Enterprise at local national, international and global level

Course Code	EAG805E
Course Name	**Beverage technology**

COs	Description
CO1	Brewing techniques and products from which beverages are made for skill enhancement
CO2	Importance of beverages for skill enhancement at local national, international and global level
CO3	Processing of beverages for skill enhancement
CO4	Production technology of different beverages for better employability in industry
CO5	Packaged drinking water: types and manufacturing processes for better skilling of entrepreneurship at local national, international and global level

Course Code	EAG805F
Course Name	**Advances In Farm Machinery Equipment**

COs	Description
CO1	Design, operate and maintain advanced farm machineries for skill enhancement
CO2	Sustainable mechanization management for better employability in industry at local national, international and global level
CO3	Understand Sustainable mechanization management techniques for better employability in industry
CO4	Understand Optimization of production processes to minimize energy loss in agriculture for skill enhancement
CO5	Understand the concept of Precision Livestock Farming for better skilling of entrepreneurship at local national, international and global level

Course Code	EAG805G
Course Name	**Basic Terminology in Farm Power**

COs	Description
CO1	The students can identify different areas of Engine terminology for skill enhancement at local national, international and global level
CO2	The student can identify different areas of Internal Combustion Engines for better skilling of entrepreneurship
CO3	Can find the applications of all the areas in day to day life. Performance characteristics

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Students can understand fuel properties for skill enhancement
CO5	Students can understand Unconventional Engines for better employability in industry at local national, international and global level

Course Code	EAG805H
Course Name	**Soil Erosion and Conservation**
COs	**Description**
CO1	Students can understand about History of soil erosion, definition, classification. at local national, international and global level
CO2	Students can understand Factors and processes of soil erosion; its impact on environment and biosphere
CO3	Management of soil and nutrient losses. Shifting cultivation – principles, extent and impact.
CO4	Mechanical measures like contour bunding, trenching, gully plugging, strip cropping, terracing, etc.
CO5	Concept of Forest fire and soil erosion. Control measures of grazing and forest fire. at local national, international and global level

Course Code	EAG805I
Course Name	**Soil Water and Air Pollution**
COs	**Description**
CO1	Fundamentals of Pollution Basic Concepts of Air Pollution: Definition, Sources (Natural and Anthropogenic), Chemistry of Air Pollutants,
CO2	Global Problems Associated with Air Pollution
CO3	Measurement and Analysis of Sound, Equipment Used for Noise Measurements at local national, international and global level
CO4	Water Pollutants:
CO5	Thermal Pollution: Definition, Sources, Effects of Thermal Pollution, Control Measures and Methods at local national, international and global level

Course Code	EAG805J
Course Name	**Land Degradation and restoration**
COs	**Description**
CO1	Basic definitions and principles of land management, degradation and restoration
CO2	The participatory SLM land use planning approach
CO3	SLM tools and methods (WOCAT global network, the Economics of Land Degradation (ELD) initiative and their 6+1 approach)

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	The use of financial and non-financial incentives for an enabling environment, to overcome barriers and encourage SLM adoption and uptake at local national, international and global level
CO5	SLM in the context of the global policy agenda, specifically SDG goal 15

Course Code	EAG805K
Course Name	**Energy, Ecology and Environment**

COs	Description
CO1	Correlate major local and regional environmental issues with changes in ecology and human health.
CO2	Monitor and document the development and dynamics of ecosystems in experimental or natural microcosms. at local national, international and global level
CO3	Define and document local resource consumption patterns and conservation strategies.
CO4	Define opportunities available for energy conservation and for use of renewable
CO5	Energy resources in local and regional entities at local national, international and global level

Course Code	EAG805L
Course Name	**Biomass Energy Conservation and Management**

COs	Description
CO1	Conceptual knowledge of the technology, economics and regulation related issues associated with energy conservation and energy auditing
CO2	Ability to analyse the viability of energy conservation projects at local national, international and global level
CO3	Capability to integrate various options and assess the business and policy environment regarding energy conservation and energy auditing
CO4	Advocacy of strategic and policy recommendations on energy conservation and energy auditing at local national, international and global level
CO5	Economic Analysis and Financial Management (C-1.5, L-15) Objectives, Investment needs, appraisal and criteria, sources of funds.

Course Code	EAG805M
Course Name	**Computer and its Application in Agriculture**

COs	Description
CO1	Know the terminology and proficiency necessary for Microsoft Word, Excel, and PowerPoint use.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Develop a thorough foundation of appropriate software commands.
CO3	Investigate elements of design and construction and improve the efficiency in electronic spreadsheet, word processor, and presentation software applications. at local national, international and global level
CO4	Use computer and the above-mentioned software in practical applications.
CO5	Introduction to programming languages, BASIC language, concepts, at local national, international and global level

Course Code	EAG805N
Course Name	Soil Physics
COs	**Description**
CO1	Students can understand Scope of soil physics and its relation with other branches of soil science; at local national, international and global level
CO2	Students can understand Soil structure, soil aggregation, soil physical properties;
CO3	Students can understand Soil water: content and potential, soil water retention, soil-water constants, measurement of soil water content, energy state of soil water, soil water potential, soil-moisture characteristic curve;
CO4	Students can understand Infiltration; internal drainage and redistribution; evaporation; hydrologic cycle, at local national, international and global level
CO5	Students can understand Modes of energy transfer in soils; energy balance; at local national, international and global level

Course Code	EAG806
Course Name	Agri-Informatics
COs	**Description**
CO1	Understand analogy of computer at local national, international and global level
CO2	Gain basic knowledge of MS Office at local national, international and global level
CO3	Gain basic knowledge of Internet and WWW
CO4	Use of IT application and different IT tools in Agriculture
CO5	Use of Decision support systems, Agriculture Expert System and Soil Information Systems in Agriculture at local national, international and global level

Sanjeev Dravel
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – M.Sc. Ag. (Agronomy)

Course Code	MAS 101
Course Name	Agronomy of Kharif Crops

COs	Description
CO1	In the course study the students will be able to know about Soil and climatic requirements, varieties, cultural practices and yield of Kharif crops.
CO2	Student will able to understand the preparation field for rising crop.
CO3	Student will able to understand the package and practices of Rabi crops.
CO4	Constraints in production of oilseeds and pulses maybe identified through course content.

Course Code	MAS 102
Course Name	Principles and Practices of Soil Fertility and Nutrient Management

COs	Description
CO1	Understand the role of soil fertility in plant growth.
CO2	Gained knowledge about essential nutrients and their functions in plant.
CO3	Imparts knowledge on types of fertilizers.
CO4	Gained knowledge about how to increase nutrient use efficiency.
CO5	Knowledge about the organic manures and bio- fertilizers at local national, international and global level

Course Code	MAS 104
Course Name	Principles of Plant Physiology

COs	Description
CO1	Understand plant water relations and various process associated with it such as osmosis, diffusion etc. at local national, international and global level
CO2	Understand the physiological roles and commercial use of Plant Growth Regulators in agriculture.
CO3	Understand the stomatal physiology in detail and mechanism of water and nutrient movement inside the plants. at local national, international and global level
CO4	Effect of water stress on different plants and adaptation of plants towards it.
CO5	Role of minerals and nutrients in the growth and development of plants.
CO6	Apply the knowledge of plant physiology to have better understanding science behind agronomic practices in different crops. at local national, international and global level

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAS 201
Course Name	**Principles and Practices of Water Management**

COs	Description
CO1	Be able to discuss the water resources, major and minor irrigation projects in India.
CO2	Professionally developed for irrigation water estimation under various conditions of data availability, scales and proper methodologies and master the skills for their applications. at local national, international and global level
CO3	Technically understand, design of irrigation structures including for drainage management and comment on irrigation project evaluation.
CO4	Technically understand the different irrigation methods and their efficiencies. at local national, international and global level

Course Code	MAS 202
Course Name	**Agronomy of Rabi Crops**

COs	Description
CO1	In the course study the students will be able to know about Soil and climatic requirements, varieties, cultural practices and yield of Rabi crops.
CO2	Student will able to understand the preparation field for rising crop.
CO3	Student will able to understand the package and practices of Rabi crops.
CO4	Constraints in production of oilseeds and pulses maybe identified through course content. at local national, international and global level
CO5	Students will able to understand the marketing of agricultural produces.

Course Code	MAS 204
Course Name	**Agricultural Statistics and Experimental Design**

COs	Description
CO1	Understand basic theoretical and applied principles of agricultural statistics needed to enter in agriculture.
CO2	Demonstrate an understanding of the basic concepts of probability and random variables. at local national, international and global level
CO3	Understand and interpret the concepts of descriptive statistics from the obtained data.
CO4	Utilize and apply regression and other statistical methods to analyze commodity markets and economic data.
CO5	Gain proficiency in using statistical software for data analysis. at local national, international and global level

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAS 301
Course Name	Principles and Practices of Weed Management

COs	Description
CO1	Students will able to differentiate the crop and weed plants.
CO2	Students will able to identify the origin, distribution, propagation, dispersal and management method of weed.
CO3	Understand the herbicides uses and their mode of action.
CO4	Understand about the herbicide resistance and how to minimize risk of it.
CO5	Understand the benefits of integrated weed management. at local national, international and global level

Course Code	MAS 302
Course Name	Modern Concepts in Crop Production

COs	Description
CO1	Understanding Principles involved in ecology, growth and factors affecting crop production.
CO2	Gain knowledge on Plant physiology and its application in crop production.
CO3	Overview of the management of Soil health and plant nutrient status.
CO4	To impart knowledge on basic concepts of crop growth, responses to growth factors, ideal plant type, crop production of recent time and yield gap analysis. at local national, international and global level
CO5	Gain the knowledge about the concept of balance nutrition and integrated nutrient management; precision agriculture.

Course Code	MAS 103 I
Course Name	Cropping Systems and Sustainable Agriculture

COs	Description
CO1	Understanding Principles involved Cropping systems.
CO2	Gain knowledge of concept of sustainability in cropping systems and farming systems. at local national, international and global level
CO3	To impart knowledge on basic Crop diversification for sustainability.
CO4	Gain the knowledge about the Plant Ideo types for drylands.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAS 103 II
Course Name	Fodder and Forage Crops

COs	Description
CO1	Understating of forage crop production and classification of forage crops.
CO2	Studying of anti- nutritional factors in forage crops and principles and methods of hay and silage making. at local national, international level
CO3	Role of fodder and forage crops in Indian agriculture. at local national, international and global level
CO4	Advances agro techniques for augmenting productivity of Fodder and forage crops at local national, international and global level

Course Code	MAS 103 III
Course Name	Conservation Agriculture

COs	Description
CO1	Know and understand what conservation agriculture entails.
CO2	Be able to name the advantages and disadvantages of conservation agriculture.
CO3	Be able to identify the different no-tillage implements and their uses.
CO4	Know and understand the relationship between soil fertility and plant health. at local national, international and global level
CO5	Be able to understand what is required for optimal plant growth and the efficient use of fertilizers.

Course Code	MAS 103 IV
Course Name	Soil, Plant, Water and Seed Testing

COs	Description
CO1	To have knowledge about the staple food crops and their cultivation practices with post-harvest technologies
CO2	Understand the determination of texture, bulk density and nutrient index.
CO3	To understand the analysis of plant and nutrient, data analysis and interpretations. at local national, international and global level
CO4	To gain knowledge about Quality criteria, classification and suitability of irrigation water.
CO5	Understand the use of soil testing kit for major and micronutrient analyzer.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAS 103 V
Course Name	Current Trends in Agronomy

COs	Description
CO1	Understand the basic concepts of Agro-physiological basis of variation in yield, recent advances in soil plant-water relationship for skill development for skill development. at local national, international and global level
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry.
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship.
CO5	Understand the concept of holistic approach of farming systems for skill development. at local national, international and global level

Course Code	MAS 103 VI
Course Name	Crop Ecology

COs	Description
CO1	On successful completion of this course a student will be able to: Understand the basics concepts of crop ecology for development of skills.
CO2	Understand all about the ecosystem for development of skill and employability. at local national, international and global level
CO3	Understand the physiological response and climate change on crop plant for skill development and employability.
CO4	Understand the solar energy for skill development and employability.
CO5	Understand the completion of crop plants with environment for skill development, entrepreneurship and employability.

Course Code	MAS 103 VII
Course Name	Agrometeorology and Crop Weather Forecasting

COs	Description
CO1	Understand the basic concepts of Earth and its atmosphere in relation to sun and seasons for skill development. at local national, international and global level

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand Temperature in the atmosphere: distribution of temperature in time and space, variation in temperature with height to provide employability and entrepreneurship
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry. at local national, international and global level
CO4	Understand the importance of Concepts of specific heats at constant volume and pressure; first and second laws of thermodynamics and their applications to atmosphere; vertical stability of atmosphere, virtual temperature and potential temperature for provide employability and entrepreneurship.
CO5	Understand the concept of Meteorological temperatures: dew point temperature, wet bulb temperature, equivalent temperature and equivalent potential temperature; thermodynamic diagrams and their uses; for skill development. at local national, international and global level

Course Code	MAS 103 VIII
Course Name	Weather and Climate Risk Management

COs	Description
CO1	Understand the basic concepts of Air masses and their properties: source regions, processes determining the characteristics of air masses, properties of air masses, classification of air masses for skill development. at local national, international and global level
CO2	Define the importance of Water vapour or humidity in the atmosphere-various humidity parameters: vapour pressure, specific humidity, relative humidity, mixing ratio, absolute humidity, dew point, wet bulb temperature to provide skill, employability and entrepreneurship.
CO3	Understand the Effects of earth's rotation on zonal distribution of radiation, rainfall, temperature and wind knowledge for better employability in industry. at local national, international and global level
CO4	Understand the importance of Weather and climate. Climatic elements and their diurnal, seasonal and annual variation; climatic classification-Koppen, Thornthwaite, Gaussen and Emberger systems, etc. for provide employability and entrepreneurship. at local national, international and global level
CO5	Understand the concept of Agroclimatic zones and agro-ecological regions of India for skill development.

Sanjeev Dhaul
REGISTRAR

IFTM UNIVERSITY
MORADABAD

Course Code	MAS 203 I
Course Name	Principle and Practices of Organic Farming

COs	Description
CO1	Understand the concepts of organic farming and its relevance in present context.
CO2	Preparation and use of different organic manures and compost such as vermicompost, FYM etc.
CO3	Understand farming system, crop rotations and various multi cropping systems. at local national, international and global level
CO4	Culture and use of biofertilizers. at local national, international and global level
CO5	Inspection, certification and labeling of organic products.
CO6	Scope of organic crop production. at local national, international and global level

Course Code	MAS 203 II
Course Name	Medicinal, Aromatic and Under-Utilized Crops

COs	Description
CO1	Understand the importance of medicinal and aromatic plants in human health, national economy and related industries.
CO2	Understand the classification of medicinal and aromatic plants according to botanical characteristics and uses. at local national, international and global level
CO3	Understand the package of practices of different medicinal and aromatic and under-utilized crops.

Course Code	MAS 203 III
Course Name	Agronomy of Major Cereals and Pulses

COs	Description
CO1	To have knowledge about the staple food crops and their cultivation practices with post-harvest technologies
CO2	To assess a nature of the farm site and develop a new cropping system with the available resources.
CO3	To understand recent crop management practices on crop productivity and resource use efficiency.
CO4	To gain knowledge about the recent trends in cultivation of crops. at local national, international and global level
CO5	To construct post harvest management practices and value addition.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAS 203 IV
Course Name	**Bio fortifications in cereals**

COs	Description
CO1	Understand the introduction, history and basic concepts of Biofortification.
CO2	Students able to understand of Rice and wheat Biofortification.
CO3	Students able to understand of Maize and sorghum Biofortification.
CO4	Students able to understand of Pearl millet and Small millets Biofortification.
CO5	Understand Biofortified crops in human nutrition and Status of biofortification. at local national, international and global level

Course Code	MAS 203 V
Course Name	**Recent Trend in Crop Growth and Productivity**

COs	Description
CO1	Understand the basic concepts of System Approach for representing soil-plant-atmospheric continuum, system boundaries for skill development.
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry. at local national, international and global level
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship.
CO5	Understand Use of crop simulation model for preparation of Agro-advisory and its effective dissemination for skill development. at local national, international and global level

Course Code	MAS 203 VI
Course Name	**Crop Production and System Modeling**

COs	Description
CO1	Understand the Evaluation of crop responses to weather elements; Elementary crop growth models for skill development.
CO2	Define the importance of Use of crop simulation model for preparation of Agro-advisory and its effective dissemination to provide employability

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and entrepreneurship. at local national, international and global level
CO3	Understand the Potential and achievable crop production- concept and modeling techniques for their estimation knowledge for better employability in industry.
CO4	Understand the importance of Weather forecasting, types, methods, tools & techniques for provide employability and entrepreneurship.
CO5	Understand the concept of System Approach for representing soil-plant-atmospheric continuum, system boundaries, Crop models, concepts & techniques for skill development. at local national, international and global level

Course Code	MAS 203 VII
Course Name	**Diagnosis of Nutritional Deficiencies in Field Crops and their Remedial Measures**

COs	Description
CO1	Understand the basic concepts of Origin, geographical distribution, economic importance of soil for skill development.
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the Soil and climatic requirements, varieties, cultural practices and yield of Rabi crops knowledge for better employability in industry.
CO4	Understand the Cultivation of sugar crops for provide employability and entrepreneurship. at local national, international and global level
CO5	Understand the concept of plant growth and development and understand the Cultivation of Forage crops-berseem, Lucerne, oat, maize and sorghum and other crops for skill development.

Course Code	MAS 203 VIII
Course Name	**Recent Trends in Weed Management**

COs	Description
CO1	Understand the Introduction to weeds, characteristics of weeds their harmful and beneficial effects on ecosystem for skill development.
CO2	Define the importance and Herbicide classification to provide employability and entrepreneurship. at local national, international and global level
CO3	Understand the Bio-herbicides and their application in agriculture knowledge for better employability in industry. at local national, international and global level

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the importance and Herbicide compatibility with agro-chemicals for provides employability and entrepreneurship.
CO5	Understand the concept of Integration of herbicides with non chemical methods of weed management for skill development.

Course Code	MAS 303 I
Course Name	Dryland Farming & Watershed Management

COs	Description
CO1	Understand the difference between dry, dry land and rainfed farming system. at local national, international and global level
CO2	Understand the significance of dry land faming in Indian agriculture.
CO3	Understand the drought adaptation mechanism in plants.
CO4	Drought management strategies in different plants and preparation of contingency plan for aberrant weather conditions.
CO5	Soil and moisture conservation strategies under different abnormal weather conditions. at local national, international and global level

Course Code	MAS 303 II
Course Name	Soil Conservation and Watershed Management

COs	Description
CO1	Know about the causes about water scarcity and their solution to fight against the damage effects through soil and water conservation technologies. at local national, international and global level
CO2	Recognize different types of erosion, rainfall and runoff.
CO3	Apply the knowledge on engineering for design of SWC structures in watersheds
CO4	Develop rainfall-runoff relationship for a watershed for prediction purpose
CO5	Apply the knowledge on hydrology for planning watershed management projects at local national, international and global level

Course Code	MAS 303 III
Course Name	Agrostology and Agro-Forestry

COs	Description
CO1	Students will get basic idea about agrostology and agro-forestry for skill development.
CO2	Provide knowledge of classification, structural and functional attributes of

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	agroforestry systems, different agroforestry systems diversified agro-ecological regions to provide employability and entrepreneurship.
CO3	Understand the management of ecosystem in Agroforestry knowledge for better employability in industry.
CO4	Provide knowledge for planting of different woody and non-woody plants to integrate with crop and forest plants for provide employability and entrepreneurship. at local national, international and global level
CO5	Understand the land conservation, micro-site enrichment and maintaining soil productivity by growing nitrogen fixing trees for skill development.

Course Code	**MAS 303 IV**
Course Name	**Agronomy of Commercial Crops**
COs	**Description**
CO1	Understand the production technology of cereals and sugar crops to provide employability and entrepreneurship.
CO2	Understand the management of production practices of various pulse crops knowledge for better employability in industry.
CO3	Provide knowledge for of oil seed crops of industrial use for extraction of edible oil for provide employability and entrepreneurship at local national, international and global level.
CO4	Understand growing of forage and fibre crops for skill development. at local national, international and global level
CO5	Understanding the agronomic practices for growing tuber crops needed in food industry use to provide employability and entrepreneurship.

Course Code	**MAS 303 V**
Course Name	**Stress Crop Production**
COs	**Description**
CO1	On successful completion of this course a student will be able to: Understand the Stress and strain terminology for development of skills.
CO2	Understand all about the high temperature or heat stress for development of skill and employability. at local national, international and global level
CO3	Understand the Excess water or flooding stress for skill development and employability.
CO4	Understand the Salt stress for skill development and employability.
CO5	Understand the mechanical impedance of soil and its impact on plant growth for skill development, entrepreneurship and employability at local national, international and global level.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAS 303 VI
Course Name	Physiological and Molecular responses of Plant to Abiotic Stress

COs	Description
CO1	Understand the basic concepts of field and crop management starting from field preparation, seed sowing, till harvesting and threshing of crop for skill development at local national, international and global level
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry.
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship.
CO5	Understand the concept of plant growth and development for skill development. at local national, international and global level

Course Code	MAS 303 VII
Course Name	Advance in Crop Growth and Productivity

COs	Description
CO1	Understand the basic concepts of field and crop management starting from field preparation, seed sowing, till harvesting and threshing of crop for skill development. at local national, international and global level
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry at local national, international and global level.
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship.
CO5	Understand the concept of plant growth and development for skill development. at local national, international and global level

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAS 303 VIII
Course Name	Plant Growth Modeling and Simulation

COs	Description
CO1	Understand the basic concepts of field and crop management starting from field preparation, seed sowing, till harvesting and threshing of crop for skill development. at local national, international and global level
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry.
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship.
CO5	Understand the concept of plant growth and development for skill development. at local national, international and global level

PROGRAMME NAME – M.Sc. Ag. Horticulture (Vegetable Science)

Course Code	MAHV–101
Course Name	Production Technology of Cool Season Vegetable Crops

COs	Description
CO1	To understand the taxonomical classification of different cool season vegetable crops. at local national, international and global level
CO2	Understand the cultivation practices of different cool season vegetables for commercial production.
CO3	Know the general informations regarding plant protection and post harvest management of commercial vegetable crops of cool season at local national, international and global level.

Course Code	MAHV–102
Course Name	Growth and Development of Vegetable Crops

COs	Description
CO1	Distinguish key physiological processes underlying the formation of seedlings from seed embryos; at local national, international and global level
CO2	Identify the physiological factors that regulate growth and developmental processes of crop plants, and clearly define their roles;

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Evaluate the different strategies used by plants to acquire and utilize resources, and formulate a logical argument of their impact on crop productivity;
CO4	Recognize the significance of assimilate translocation and patterns of its partitioning in determining crop yield;
CO5	Demonstrate clear understanding of crop-environment interaction and its implication on crop growth and yield; at local national, international and global level
CO6	Relate crop physiological processes with agronomic practices used in crop production systems; and
CO7	Integrate and apply their knowledge of crop physiology for analytical thinking and solving practical problems experienced in agricultural systems.

Course Code	MAHV–103
Course Name	Organic Vegetable Production Technology
COs	**Description**
CO1	Know different organic inputs for vegetable production
CO2	Understand the standard techniques of application of organic input for commercial cultivation of vegetables at local national, international and global level
CO3	Know different mechanical, cultural and biological technologies to replace agro chemicals
CO4	Understand the methodology and process of organic certification of organic vegetable produce. at local national, international and global level

Course Code	MAHV–104
Course Name	Protected Cultivation of Vegetable Crops
COs	**Description**
CO1	Summarize the scope and importance of greenhouse technology in improving crop production.
CO2	Compare various types of greenhouses, its advantages and cost benefits.
CO3	Students are able to successfully growing the different vegetable crops in protected conditions. at local national, international and global level

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAHV–201
Course Name	**Production Technology of Warm Season Vegetable Crops**

COs	Description
CO1	To understand the taxonomical classification of different cool season vegetable crops. at local national, international and global level
CO2	Understand the cultivation practices of different warm season vegetables for commercial production.
CO3	Know the general information regarding plant protection and post harvest management of commercial vegetable crops of warm season.

Course Code	MAHV–202
Course Name	**Fundamentals of Processing of Vegetables**

COs	Description
CO1	Summarize the history and scope of processing of vegetables.
CO2	Aware about the different quality assurance and control measures of processing of vegetables at local national, international and global level
CO3	Identify the spoilage in fruits and vegetables and state the reason for the spoilage following safety precautions.
CO4	Able to prepare different value added products.

Course Code	MMAG-204
Course Name	**Agricultural Statistics and Experimental Designs**

COs	Description
CO1	Understand basic theoretical and applied principles of agricultural statistics needed to enter in agriculture.
CO2	Demonstrate an understanding of the basic concepts of probabilityand random variables.
CO3	Understand and interpret the concepts of descriptive statistics from the obtained data.
CO4	Utilize and apply regression and other statistical methods to analyze commodity markets and economic data.
CO5	Gain proficiency in using statistical software for data analysis. at local national, international and global level

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAHV-301
Course Name	**Breeding of Vegetable Crops**

COs	Description
CO1	Students will be able to determine the breeding objectives, selection criteria and methods for improvement of vegetables.
CO2	Students can assess the performance and preserve the genetic resources of vegetables for further breeding use.
CO3	Students make them clear about protection of varieties and rights of their use for farmer and breeder.
CO4	Students will be able to introduce the new plants or varieties on the basis of its nutritive values, yield potential and disease resistance.

Course Code	MAHV-302
Course Name	**Seed Production Technology of Vegetable Crops**

COs	Description
CO1	Students will become aware about increased scope of vegetable seed production in seed industry as per new seed polices.
CO2	Students will be able to the generation system of seeds, certification standards and process. at local national, international and global level
CO3	Students will become self-reliant in producing own farm seeds for harvesting profuse yield.
CO4	Students will be able to determine the requirements of processing and storage of seed. at local national, international and global level

Course Code	MAHV-203 I
Course Name	**Diseases of Vegetable Crops and Management**

COs	Description
CO1	Students will know diagnosing symptoms, etiology, disease cycle and management of major diseases of vegetable crops.
CO2	Students will know the diseases of Chilli, Tomato, Potato and Brinjal
CO3	Students will able to manage the and Okra, Onion and Beans disease
CO4	Student will able to manage the diseases of Crucifers
CO5	Students will able to manage the Cucurbits at local national, international and global level

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAHV-203 II
Course Name	Abiotic Stress Management in Vegetable Crops

COs	Description
CO1	Students will understand the use of rootstocks and anti-transparent under stress soil conditions. at local national, international and global level
CO2	Understanding of soil-plant-water relations is used to develop management practices under different stress conditions in vegetable crops production. at local national, international and global level
CO3	Students can be able to compare techniques of vegetable growing under high and low temperature conditions.

Course Code	MAHV-203 III
Course Name	Breeding of Self Pollinated Vegetable Crops

COs	Description
CO1	Learn breeding procedures in self and cross pollinated crops
CO2	Understand exploitation of heterosis utilizing male sterility and other methods at local national, international and global level
CO3	Know about the various population improvement programmes
CO4	Study about the fundamentals of mutation, polyploidy and wide hybridization and their role in crop improvement
CO5	Orientation regarding modern molecular approaches like Marker Assisted Selection at local national, international and global level

Course Code	MAHV-203 IV
Course Name	Hi-Tech Horticulture

COs	Description
CO1	The student will be able to understand different branches of horticulture
CO2	Can demonstrate advanced technologies like training, pruning, etc in horticulture
CO3	Deals with soil science and fertility management for horticultural crops.
CO4	Analyze the Importance of crop physiology in horticulture.
CO5	Study of Plant Propagation and Nursery Management. at local national, international and global level

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	Processing of vegetables
Course Name	MAHV-203 V

COs	Description
CO1	Appreciate the scope and scenario of vegetable processing in India
CO2	Acquire knowledge about the processing technology of vegetable crops
CO3	Adopting processing products of vegetable crops at small or medium scale at local national, international and global level
CO4	Adopt processing of vegetable crops as entrepreneur

Course Code	MAHV-203 VI
Course Name	Production of Spice Crops

COs	Description
CO1	Appreciate the scope and scenario of production of spice crops in India
CO2	Acquire knowledge about the production technology and processing of spice crops
CO3	Adopting production of spice crops as entrepreneur at local national, international and global level

Course Code	MAHV-203 VII
Course Name	True Potato Seed (TPS) Production

COs	Description
CO1	Appreciate the scope and scenario of seed production of vegetable crops in India
CO2	Aquire knowledge about the complete seed production technology, extraction and post-extraction processing of vegetable seeds
CO3	Adoption of seed production of vegetable crops as entrepreneur at local national, international and global level

Course Code	MAHV-303 I
Course Name	Production Technology of Underexploited Vegetable Crops

COs	Description
CO1	Introduction, botany and taxonomy, and requirements of underexploited vegetables
CO2	The students will be well versed with package of practices of underexploited vegetables so as to enhance their production.
CO3	Post harvest management, plant protection measures and seed production

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	of underexploited vegetables at local national, international and global level

Course Code	MAHV-303 II
Course Name	Systematics of Vegetable Crops

COs	Description
CO1	Students learn the systematics of naming crops based on different methods of classification.
CO2	Students would be able to understand the climatic requirement of vegetable crops for their distribution in adaptable climatic zones.
CO3	Students will understand the role of molecular markers in characterization of vegetable crops at cytological level at local national, international and global level

Course Code	MAHV-303 III
Course Name	Breeding of Cross Pollinated Vegetable Crops

COs	Description
CO1	Students will be able to know about the different breeding methods and genetics of major vegetable crops for skill development.
CO2	Understand the significance breeding objectives and methodologies for the improvement of cross pollinated vegetable crops for better employability in industry at local national, international and global level
CO3	Provide knowledge of breeding of cole crops and cucurbits to provide employability and entrepreneurship.
CO4	Develop the basic knowledge of selection of characters in improvement of root crops, onion and okra as required for market acceptability for better employability in industry.
CO5	Understand the significance of leafy vegetables and their improvement for multi-cut greens and prolonged shelf life to provide employability and entrepreneurship. at local national, international and global level

Course Code	MAHV-303 IV
Course Name	Seed Production Techniques for Crucifers

COs	Description
CO1	Students will be able to know generation system of seed multiplication for skill development.

Sanjeev Dawar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the significance of seed quality factors and techniques uses for the improvement of seed quality and better germination for better employability in industry
CO3	Provide knowledge of seed certification and control of agencies in multiplication of seeds to provide employability and entrepreneurship.
CO4	Develop the basic knowledge of deterioration of crop varieties and maintenance of genetic purity for better employability in industry.
CO5	Understand the principles and practices recommended for seed production of various crucifer plants to provide employability and entrepreneurship. at local national, international and global level

Course Code	MAHV-303 V
Course Name	**Post Harvest Management of vegetable crop**

COs	Description
CO1	Students will be understands the introduction and history of post harvest.
CO2	To understand the methods of harvesting and packaging.
CO3	Students able to understand of Post harvest handling.
CO4	Students to be understand of Treatments prior to shipment.
CO5	The students will gain the basic knowledge of Storage systems and Distribution Marketing channels. at local national, international and global level

Course Code	MAHV-303 VI
Course Name	**Biotechnological Approaches in Vegetable Crops**

COs	Description
CO1	Students learn Synthetic seed production
CO2	Students learn about the different biotechnological tools
CO3	Students will understand of DNA Finger printing at local national, international and global level
CO4	Students will understand about Plant Genetic Engineering
CO5	Students will understand about NGS, genome editing at local national, international and global level

Course Code	MAHV-303 VII
Course Name	**Urban Horticulture**

COs	Description
CO1	Understand the basic concepts of Landscape design: Commercial landscape gardening- History, Plant identification and ecology, Materials

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	of garden design for skill development. at local national, international and global level
CO2	Assessing site and plants adaptability for different locations, Landscape engineering to provide employability and entrepreneurship.
CO3	Software in landscaping: Preparation and drawing of site plan, Learning the basics in computer aided design knowledge for better employability in industry.
CO4	Understand Landscaping for different situations for provide employability and entrepreneurship.
CO5	Understand the concept of Maintenance: Maintenance of different types of gardens for skill development. at local national, international and global level

Name of Program: M.Sc. Ag. Horticulture (Floriculture and Landscaping)

Course Code	MAHF 101
Course Name	**Breeding of Flower Crops and Ornamental Plants**
COs	**Description**
CO1	Plant breeding methods will help to understand crop improvement.
CO2	Students learn the genetic diversity and inheritance pattern of characters in flowering plants and its utilization in development of variety/hybrid.
CO3	Learn breeding methods of sexually and asexually propagated flower crops at local national, international and global level
CO4	Constraints and achievements of breeding flowering plants give rise to scope of commercial floriculture.
CO5	Constraints and achievements of breeding ornamental plants and seasonal flowers give views to design and decorate the gardens.

Course Code	MAHF 102
Course Name	**Production Technology of Cut Flowers**
COs	**Description**
CO1	Aware about the importance, scope, national and international scanerio of the cut flower production. at local national, international and global level
CO2	Know the scientific cultivation practices of cut flower under open and protected conditions.
CO3	Understand important for the commercial cultivation of flowers for exhibition purpose
CO4	Learn flower forcing and other physiological interventions for commercial

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	production cultivation of flowers
CO5	Understand important practices of post harvest management. at local national, international and global level

Course Code	MAHF 103
Course Name	Landscaping and Ornamental Gardening

COs	Description
CO1	Understand the styles of gardens
CO2	Explain the procedure of preparation of the garden for different situation and purpose at local national, international and global level
CO3	Understand different components of landscaping at local national, international and global level
CO4	Learn lawn establishment and maintenance techniques
CO5	Understand about eco tourism, bio-aesthetic planning xeriscaping etc.

Course Code	MAHF 201
Course Name	Production Technology of Loose Flowers

COs	Description
CO1	Aware about the importance, scope, national and international scanerio of the loose flower production. at local national, international and global level
CO2	Know the scientific cultivation practices of cut flowers for commercial exploitation
CO3	Understand important management techniques of of loose flowers
CO4	Learn flower forcing and round the year production of loose flower croops
CO5	Familiar about the Post harvest management of loose flowers at local national, international and global level

Course Code	MAHF 202
Course Name	Protected Floriculture

COs	Description
CO1	Summarize the scope and importance of greenhouse technology in improving crop production. at local national, international and global level
CO2	Compare various types of greenhouses, its advantages and cost benefits.
CO3	Students are able to successfully growing the different floricultural crops

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	in protected conditions.
CO4	Understand the flower crop regulation techniques
CO5	Familiar with the post-harvest management of flowers at local national, international and global level

Course Code	MMAG204
Course Name	**Agricultural Statistics and Experimental Design**
COs	**Description**
CO1	Understand basic theoretical and applied principles of agricultural statistics needed to enter in agriculture. at local national, international and global level
CO2	Demonstrate an understanding of the basic concepts of probability and random variables.
CO3	Understand and interpret the concepts of descriptive statistics from the obtained data.
CO4	Utilize and apply regression and other statistical methods to analyze commodity markets and economic data.
CO5	Gain proficiency in using statistical software for data analysis. at local national, international and global level

Course Code	MAHF 301
Course Name	**Value Addition in Flowers**
COs	**Description**
CO1	Develop as an entrepreneur by acquiring the knowledge of value addition in flowers at local national, international and global level
CO2	Be aware about the importance, scope and Scenario of value addition of commercial flowers.
CO3	Know different scientific packages and practices of value addition of flowers
CO4	Understand the different aspect of oil extraction at local national, international and global level
CO5	Selection of varieties and methodology of oil extraction at local national, international and global level

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAHF 302
Course Name	Turfing and Turf Management

COs	Description
CO1	Understand the importance of landscape industry in urban India.
CO2	Know the scientific techniques for establishment and maintenance of turf.
CO3	Understand the technologies involved in turfgrass management at local national, international and global level
CO4	Understand the different operation for turfgrass management
CO5	Know the establishment of the turf grass for the specific purpose at local national, international and global level

Course Code	MAHF 303 (A)
Course Name	Production Technology of Medicinal and Aromatic Crops

COs	Description
CO1	Students would understand the importance and scope of growing medicinal and aromatic plants.
CO2	Students will be able to learn the medicinal values of plants for use in *Ayurveda*. at local national, international and global level
CO3	Students will be aquatint with production technology of important medicinal and aromatic crops. at local national, international and global level
CO4	Students would understand about the production technology of oil bearing flowers crops
CO5	Students would understand the distillation process of extracting essential oil.

Course Code	MAHF 303 (B)
Course Name	Planting material and Seed Production Technology in Flower Crops

COs	Description
CO1	Students will aware of present status and future scope of developing planting materials and seed production of flower crops.
CO2	Students would understand the multiplication means of ornamental and flowering plants. at local national, international and global level
CO3	Students can be able to produce genetically pure seeds of seasonal and commercial flower crops. at local national, international and global level
CO4	Students will aware of the seed certification procedure, its importance and

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	different acts related to it
CO5	Students would understand Seed production technology of self pollinated, often cross pollinated and cross pollinated flower crops and development of planting material

Course Code	MAHF 303 (C)
Course Name	CAD for Outdoor and Indoor scaping

COs	Description
CO1	Understand the inclusion of CAD in the landscape designing
CO2	Know the use of basic tools, softwares, processes for landscape designing
CO3	Use patterns in AUTOCAD drawing, Dimension concepts and Drawing web format design at local national, international and global level
CO4	Understand 3D drawing methods, ARCHICAD file system
CO5	Familiar ARCHICAD organization tools, Dimensioning and detailing of designs, Attribute settings of components at local national, international and global level

Course Code	MAHF 303 (D)
Course Name	Systematic of Ornamental Plants

COs	Description
CO1	Students will get basic idea about classification and nomenclature of ornamental plants for skill development. at local national, international and global level
CO2	Provide knowledge of botanical description of various tropical, subtropical and temperate ornamental plants to provide employability and entrepreneurship.
CO3	Understand the cytological studies of ornamental plants knowledge for better employability in industry.
CO4	Understand the about molecular markers and its role in characterization of ornamental plants for provide employability and entrepreneurship.
CO5	Understand biotype, sub-species, and Species of some ornamental trees, shrubs, herbs and grasses making lawns for skill development. at local national, international and global level

Course Code	Indoor Plants and Interior Scaping
Course Name	MAHF 303 (E)

COs	Description
CO1	Students will get basic idea about indoor plants and indoor gardening for

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	skill development.
CO2	Provide knowledge of bonsai, styles, suitable plants and pots for making bonsai to provide employability and entrepreneurship.
CO3	Develop the knowledge of flower arrangement, containers and accessories for decorating indoors with plants for better employability in industry.
CO4	Understand the significance of interior scaping in improving environment and ecology conservation to provide employability and entrepreneurship.
CO5	Understand the special techniques used in garden landscaping and software's use for designing and planning of interior decoration of house for skill development. at local national, international and global level

Course Code	MAHF 303 (F)
Course Name	Nursery Management in Ornamental Plants

COs	Description
CO1	Understand the basic concepts of field and crop management starting from field preparation, seed sowing, till harvesting and threshing of crop for skill development. at local national, international and global level
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry.
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship.
CO5	Understand the concept of plant growth and development for skill development. at local national, international and global level

Course Code	MAHF 303 (G)
Course Name	Post-harvest Management in Floricultural Crop

COs	Description
CO1	Understand the basic concepts of field and crop management starting from field preparation, seed sowing, till harvesting and threshing of crop for skill development. at local national, international and global level
CO2	Define the importance of water in agriculture and ways to improve water use efficiency to provide employability and entrepreneurship.
CO3	Understand the nutritional requirements of crops and also about sources available to fulfill the nutritional requirement knowledge for better employability in industry. at local national, international and global

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	level
CO4	Understand the importance of weed management in agriculture and also about advantages and disadvantages of herbicide usage for provide employability and entrepreneurship.
CO5	Understand the concept of plant growth and development for skill development. at local national, international and global level

PROGRAMME NAME - M. Tech. Agricultural Engineering (Soil and Water Conservation Engineering)

Course Code	MSWE101
Course Name	Watershed Hydrology
COs	**Description**
CO1	Understand the components of hydrologic cycle and their importance
CO2	Compute the Hydrologic parameters and its analysis. at local national, international and global level
CO3	Understand the concept of hydrograph and its analysis. at local national, international and global level
CO4	Understand the concept of flood routing and routing methods.
CO5	Understand the hydrological models and its simulation. at local national, international and global level

Course Code	MSWE102
Course Name	Water Quality and Environment
COs	**Description**
CO1	Know about the pollution and its effects on environment.
CO2	Understand the water quality parameters and characteristics. at local national, international and global level
CO3	Understand the climate change and its effects on soil and water quality and on agriculture.
CO4	Know about the water quality modeling and mathematical modeling on pollution control at local national, international and global level
CO5	Manage the surface and ground water quality using relevant models.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSWE103
Course Name	Soil and Water Conservation Engineering

COs	Description
CO1	Know about the soil and water conservation measures and probability distribution methods. at local national, international and global level
CO2	Understand the design of soil and water conservation structures.
CO3	Understand the concept of hydraulic jump and gully control structures that can be undertaken.
CO4	Understand the earthen dam relevance and its design
CO5	Understand the water harvesting techniques and flood and stream bank erosion control. at local national, international and global level

Course Code	MSWE201
Course Name	Open Channel Flow

COs	Description
CO1	Develop the common understanding of open channel flow and their properties as well as its application. at local national, international and global level
CO2	Understand the concept and importance of uniform flow and its design computation. at local national, international and global level
CO3	Know about the surface roughness and velocity distribution in uniform flow.
CO4	Understand the concept of gradually varied flow.
CO5	Understand the relevance of hydraulic jump, rapidly varied flow and energy dissipation importance in any flow. at local national, international and global level

Course Code	MSWE202
Course Name	Planning and Management of Watershed

COs	Description
CO1	Understand the meaning of watershed and its analysis and management techniques. at local national, international and global level
CO2	Know the concept of watershed management and its associated projects.
CO3	Evaluate and monitor watershed programs and other hydrologic parameter analysis.
CO4	Understand the techniques involved in land treatment and erosion and sedimentation control. at local national, international and global level
CO5	Analyze about the guidelines undertaken for watershed development projects and its management.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MMAG 204
Course Name	Agricultural Statistics and Experimental Design

COs	Description
CO1	Understand basic theoretical and applied principles of agricultural statistics needed in agriculture. at local national, international and global level
CO2	Demonstrate an understanding of the basic concepts of probability distributions and random variables.
CO3	Understand the concepts of correlation nd regression.
CO4	Analyze the sampling methods and its importance. for understanding the commodity markets. at local national, international and global level.
CO5	Understanding the economic data at local national, international and global level

Course Code	MSWE301
Course Name	GIS and Remote Sensing for Land and Water Resources Management

COs	Description
CO1	Understanding the concept of remote sensing and photogrammetry
CO2	Know about the electromagnetic spectrum, energy interaction and image interpretation. at local national, international and global level
CO3	Understand the concept of Geographical Information System tools.
CO4	Analyze the GIS and remote sensing data for land and water resources development at local national, international and global level
CO5	Apply the concept of GIS for judicious land and water management.

Course Code	MSWE 302
Course Name	Sediment Transport

COs	Description
CO1	Able to estimate the sediment from the particular watershed by using various instruments. at local national, international and global level
CO2	To develop the common understanding of mechanics of sediment transportation process and remedies to reduce this.
CO3	Able to analyze the soil loss and other associated parameters.
CO4	Understand the runoff sediment relation using different types of graphs.
CO5	Know about the sediment sampling methods for sediment control at local

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	national, international and global level

Course Code	MSWE104 A
Course Name	Ground Water Engineering

COs	Description
CO1	Understand about the groundwater storage and its properties.
CO2	Understand the concept of well hydraulic, steady state and unsteady state flow. at local national, international and global level
CO3	Develop the methods for steady state flow analysis.
CO4	Understand the pumping tests that can be undertaken and study of aquifer parameters at local national, international and global level
CO5	Understand the techniques for groundwater recharge

Course Code	MSWE104 B
Course Name	Design of Pumps for Irrigation and Drainage

COs	Description
CO1	Understanding the functioning and design of centrifugal pumps.
CO2	Understanding the functioning and design of vertical turbine pumps, submersible pumps and axial flow pumps at local national, international and global level
CO3	Develop knowledge about the Non-conventional energy sources for pumping at local national, international and global level
CO4	Analyze about the hydraulic ram design.
CO5	Design a pumping station with required specifications for any pumping system installation at local national, international and global level

Course Code	MSWE104C
Course Name	Dry Land Water Management Technologies

COs	Description
CO1	drought severity assessment techniques for skill enhancement
CO2	new and appropriate methods of rainwater conservation for better employability in industry
CO3	rainwater harvesting technologies for rainfed areas for better employability in industry
CO4	Crops and cropping practices for better skilling of entrepreneurship
CO5	photography in surveys and planning for better skilling of

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	entrepreneurship at local national, international and global level

Course Code	MSWE104D
Course Name	Watershed Management and Modeling

COs	Description
CO1	different .conservation practices for skill enhancement
CO2	conservation practices effect on watershed behavior for skill enhancement at local national, international and global level
CO3	estimate the geomorphologic parameters of particular watershed which is quite useful for watershed planning for better skilling of entrepreneurship
CO4	development of watershed models for better employability in industry
CO5	Environmental impact assessment of watershed for better skilling of entrepreneurship at local national, international and global level

Course Code	MSWE104E
Course Name	Irrigation Economics Planning and Management

COs	Description
CO1	estimate the cost benefit analysis, pricing for skill enhancement
CO2	investment criteria on irrigation project evaluation for skill enhancement
CO3	finding their problems for better skilling of entrepreneurship
CO4	expose to conduct socio-economic survey for better employability in industry at local national, international and global level
CO5	Analyze secondary data for better skilling of entrepreneurship

Course Code	MSWE203 A
Course Name	Design of Farm Irrigation Systems

COs	Description
CO1	Understand the concept irrigation and water budgeting
CO2	Know about the surface irrigation techniques.
CO3	Develop knowledge about the different irrigation methods and its design criteria. at local national, international and global level
CO4	Understand the micro-irrigation systems and its applications.
CO5	Design the components of sprinkler and micro-irrigation systems and understand fertigation system at local national, international and global level

Sanjeev Bansal
REGISTRAR

IFTM UNIVERSITY
MORADABAD

Course Code	MSWE203 B
Course Name	Flow through Porous Media

COs	Description
CO1	Develop understanding of aquifer and its properties and hydrodynamics of porous media.
CO2	Develop knowledge about Initial and boundary conditions of flow.
CO3	Understand the concept of flow net, confined and unconfined flows.
CO4	Analyze about the seepage, unsaturated flow theory and simulation of soil moisture. at local national, international and global level
CO5	Understand the Saline water-fresh water interface.

Course Code	MSWE203D
Course Name	Command Area Management

COs	Description
CO1	Concept of command area
CO2	Management of command area at local national, international and global level
CO3	Analyze problem diagnostics at local national, international and global level
CO4	Remedies of command area and
CO5	Performance evaluation procedure of command area

Course Code	MSWE203E
Course Name	Water Resources System Engineering

COs	Description
CO1	Objective function and components in water resource planning problems for better skilling of entrepreneurship
CO2	Formulate various mathematical programming models and for better employability in industry at local national, international and global level
CO3	Solve various mathematical programming models of water resource system for better skilling of entrepreneurship at local national, international and global level
CO4	Develop conjunctive use and for skill enhancement
CO5	Crop production function optimization models for skill enhancement
Course Code	MSWE 303 A
Course Name	Crop Environmental Engineering

REGISTRAR
IFTM UNIVERSITY
MORADABAD

COs	Description
CO1	To develop the common understanding aerial and edaphic environments for plant growth at local national, international and global level
CO2	Understand the response of plant to climate change and required techniques for monitoring plant environment.
CO3	Analyze the growth and development measures in plants.
CO4	Understand the scenario of Water movement in soil-plant atmosphere.
CO5	Understand the design and operation of controlled environment facilities, crop growth and yield modeling at local national, international and global level

Course Code	MSWE 303 B
Course Name	Design of Surface Irrigation System

COs	Description
CO1	Understand the historical farm irrigation systems and their measurement.
CO2	Understand the different surface irrigation methods.
CO3	Design the surface irrigation systems and measure the irrigation water quality. at local national, international and global level
CO4	Understand the Irrigation scheduling and water distribution system.
CO5	Analyze the water conveyance network, channel lining and understand the environmental impacts of irrigation projects. at local national, international and global level

Course Code	MSWE303C
Course Name	Waste Water Management and Utilization

COs	Description
CO1	Sources and treatment methods of waste water quality for skill enhancement at local national, international and global level
CO2	Standard norms of water quality for domestic and irrigation for better employability in industry at local national, international and global level
CO3	Waste water recycling for better skilling of entrepreneurship at local national, international and global level
CO4	Environmental standards for skill enhancement
CO5	Environmental impact assessment for better employability in industry at local national, international and global level

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSWE303D
Course Name	Sensing and Automation in Irrigation System

COs	Description
CO1	Concept of automation in irrigation system for skill enhancement
CO2	Importance of water use efficiency in irrigation for skill enhancement
CO3	Applications in surface irrigation automation for better skilling of entrepreneurship at local national, international and global level
CO4	No dearchitecture for better skilling of entrepreneurship
CO5	Other routing protocols for better employability in industry at local national, international and global level

Course Code	MSWE303E
Course Name	Minor Irrigation Techniques

COs	Description
CO1	understand minor irrigation practices for better skilling of entrepreneurship at local national, international and global level
CO2	minor irrigation practices importance in Indian agriculture for better employability in industry
CO3	conjunctive use of surface and ground water for skill enhancement
CO4	perform groundwater development legislation for skill enhancement
CO5	recharge and utilization practices for skill enhancement at local national, international and global level

PROGRAMME NAME: M. Tech. Agricultural Engineering (Process and Food Engineering)

Course Code	MAE101
Course Name	Advanced Food Process Engineering

COs	Description
CO1	The students will be understand the principles in formulating solutions to solve problems in food industry at local national, international and global level
CO2	The students will be understood the importance of Food Process Engineering as one of the major pillars of Food Science and Technology discipline.
CO3	The students will acquired the required skills in dealing with units and dimensions, solving problems of Food Process Engineering
CO4	The students will acquired the knowledge of processing and preservation

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	by non-thermal methods
CO5	The students will be understand the use and application of enzymes and microorganisms in processing and preservation of foods at local national, international and global level

Course Code	MAE102
Course Name	Food Plant Design
COs	**Description**
CO1	The students will understand the principles in design considerations of layout and equipment.
CO2	The students understood the importance on the design of machinery for drying at local national, international and global level
CO3	The students acquired the required skills in dealing with units and dimensions.
CO4	The students will understand design solving problems of Food Process Engineering.
CO5	The students understood milling, separation, grinding, mixing, evaporation, condensation, membrane separation at local national, international and global level

Course Code	MBT-101
Course Name	Food Chemistry
COs	**Description**
CO1	To name and describe the general chemical structures of the major components of foods (water, proteins),
CO2	Acquired the knowledge of Carbohydrates, and lipids) and selected minor components (vitamins and minerals) at local national, international and global level
CO3	To relate the chemical composition of foods to their functional properties
CO4	To understand, plan, perform and analyze a range of chemical investigations with an emphasis on food Analysis
CO5	To give a molecular rationalization for the observed physical properties and reactivity of major food components and To predict how changes in overall composition are likely to change the reactivity of individual food components at local national, international and global level
Course Code	MME-104
Course Name	Heat and Mass Transfer

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

COs	Description
CO1	The basic laws of heat transfer and account for the consequence of heat transfer in thermal analyses of engineering systems.
CO2	To analyze problems involving steady state heat conduction in simple geometries at local national, international and global level
CO3	To evaluate heat transfer coefficients for natural convection.
CO4	To analyze heat exchanger performance by using the method of log means temperature difference.
CO5	To analyze heat exchanger performance by using the method of heat exchanger effectiveness and To understand the influence of radiation in food processing operations at local national, international and global level

Course Code	MAE201
Course Name	**Unit Operations in Food Process Engineering**

COs	Description
CO1	To define the various unit operations in food processing.
CO2	To compute the moisture content of food materials at local national, international and global level
CO3	To describe and demonstrate the various process equipments.
CO4	To evaluate the different operations in food processing.
CO5	To estimate the energy requirement for the different unit operations and To develop unit operation system for food processing at local national, international and global level

Course Code	MAE202
Course Name	**Engineering Properties of Food Materials**

COs	Description
CO1	To understand Engineering properties of food materials.
CO2	To identify the structure and chemical composition of foods.
CO3	To determine the physical properties of food materials at local national, international and global level
CO4	To calculate the water activity, food stability sorption and desorption isotherm of food materials.
CO5	To study the difference between Newtonian and non-Newtonian fluids and To examine the thermal properties, electrical and magnetic properties of food at local national, international and global level

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MMAG204
Course Name	**Agricultural Statistics and Experimental Design**

COs	Description
CO1	Understand basic theoretical and applied principles of agricultural statistics needed to enter in agriculture.
CO2	Demonstrate an understanding of the basic concepts of probability and random variables at local national, international and global level
CO3	Understand and interpret the concepts of descriptive statistics from the obtained data at local national, international and global level
CO4	Utilize and apply regression and other statistical methods to analyze commodity markets and economic data.
CO5	Gain proficiency in using statistical software for data analysis.

Course Code	MAE301
Course Name	**Food Quality and Safety Engineering**

COs	Description
CO1	After successful completion of the course, the student will be able to apply the fundamental concepts of Food safety
CO2	After successful completion of the course, the student will be able to apply the need for quality control and safety
CO3	After successful completion of the course, the student will be able to understand the strategy and criteria, microbiological criteria for safety and quality, at local national, international and global level
CO4	Derive prevention and control, FPO, PFA, Codex, GMP, BIS and HACCP; Practices at local national, international and global level
CO5	HACCP and quality management system at local national, international and global level

Course Code	MAE302
Course Name	**Food Packaging and Technologies**

COs	Description
CO1	After successful completion of the course, the student will be able to Apply the fundamental concepts of Flexible packaging materials and their properties
CO2	After successful completion of the course, the student will be able to understand the Flexible packaging materials properties
CO3	Derive prevention and control, gas packaging machine; seal and shrink packaging machine; form and fill sealing machine; at local national, international and global level

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Determine methods to extend shelf life; Packaging and Technologies equipment and machinery
CO5	Understanding the Package standards and regulation; Shrink packaging; Aseptic packaging. at local national, international and global level

Course Code	MAE203 I
Course Name	**Fruits and Vegetables Process Engineering**

COs	Description
CO1	To understand the production status and post harvest handling methods of fruits and vegetables
CO2	To learn the methods of processing and preservation of freshly harvested and cut fruits and vegetables. at local national, international and global level
CO3	To enumerate the processing and preservation of fruits and vegetables by heat treatment.
CO4	To understand the dehydration methods and design of driers used for drying fruit and vegetables. at local national, international and global level
CO5	To describe the aseptic technology for product preservation.

Course Code	MAE203 II
Course Name	**Processing of Cereals, Pulses and Oil Seeds**

COs	Description
CO1	After completing this unit, the student will be able To understand various physical properties of Cereals
CO2	After completing this unit, the student will be able To understand various physical properties of Pulses
CO3	Discuss principles Pre-milling treatments and their effects on milling quality at local national, international and global level
CO4	Explain the concepts of Storage of milled products, Expeller
CO5	Understand solvent extraction processing Understand concepts paddy and flour milling equipments at local national, international and global level

Course Code	MAE203 III
Course Name	**Farm Structures and Environmental Control**

COs	Description
CO1	Apply the fundamental concepts computer programmers for thermodynamic properties at local national, international and global level

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Derive farm structures, their design, constructional details and design of low cost structures.
CO3	Determine Instruments and measurements; codes and standards
CO4	Understand Drying and dehumidification system energy efficient environmental control practices at local national, international and global level
CO5	Understand Instruments and measurements; codes and standards

Course Code	MAE203IV
Course Name	**Dairy Products Processing**

COs	Description
CO1	mechanize processing operations in dairy industries for skill enhancement
CO2	manufacturing of dairy products for skill enhancement
CO3	Cream: Cream separation, neutralization, sterilization, pasteurization for better skilling of entrepreneurship at local national, international and global level
CO4	Ice cream: Methods of manufacture and related equipment for better employability in industry
CO5	Indigenous milk products for better skilling of entrepreneurship at local national, international and global level

Course Code	MAE203V
Course Name	**Horticultural Crop Process Engineering**

COs	Description
CO1	Milling of horticultural crops for skill enhancement
CO2	Processing (value added products) all kinds of horticultural crops as per requirement of food industries for skill enhancement at local national, international and global level
CO3	Cold storage of fruits and vegetables for better skilling of entrepreneurship
CO4	Dehydration of fruits and vegetables better employability in industry
CO5	Intermediate moisture foods for better skilling of entrepreneurship

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAE203VI
Course Name	Seed Processing Engineering

COs	Description
CO1	processing requirement of seed for skill enhancement
CO2	storage requirement of seed for better skilling of entrepreneurship
CO3	maintaining seed vigor and viability for better employability in industry
CO4	suitable equipment for seed processing as per requirement of seed industries for better employability in industry
CO5	packaging-principles for better skilling of entrepreneurship at local national, international and global level

Course Code	MAE203VII
Course Name	Storage Techniques of Processed Food

COs	Description
CO1	To have knowledge on the latest post-harvest management of fresh produce with limited shelf life for skill enhancement
CO2	To have an idea about the storage of food being processed for skill enhancement
CO3	To know about the recent packaging methodologies for better skilling of entrepreneurship at local national, international and global level
CO4	To have any idea farm structures for better employability in industry
CO5	Instruments and measurements for better skilling of entrepreneurship

Course Code	MAE303 I
Course Name	Storage Engineering and Handling of Agricultural Products

COs	Description
CO1	Acquire the basic knowledge about Storage of grains, biochemical changes during storage, production, distribution and storage capacity estimate models
CO2	identify with the different types of method of stacking
CO3	Learn about various Grain markets, cold storage, controlled and modified atmosphere storage at local national, international and global level
CO4	Understand the different food spoilage and preservation, BIS standards
CO5	Principles of fluidization; recent advances in handling of food materials

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAE303 II
Course Name	**Food Supply Chain Management**

COs	Description
CO1	Acquire the basic knowledge about of Food Supply Chain Management, Building blocks of supply chain network, performance measures, decisions in supply world and models at local national, international and global level
CO2	Learn about various Supply chain inventory management
CO3	Understand the different Internet technologies and electronic commerce in SCM related to ERP
CO4	Use of stochastic models and combinatorial optimization in SC planning
CO5	Understand the Internet technologies and electronic commerce in SCM related to ERP, Q-procurement at local national, international and global level

Course Code	MAE303 III
Course Name	**Agricultural Waste and by –Products Utilization**

COs	Description
CO1	Gain knowledge on agricultural wastes and decide on techniques to convert waste to inputs
CO2	Practice varied composting techniques of agricultural waste
CO3	Recommend processes to recycle agricultural wastes
CO4	Get familiar with the analytical geometry including straight line and Manage and utilize animal waste integration.
CO5	Comprehend management of waste from food processing industries and Understand sludge and waste water treatment and its applications at local national, international and global level

Course Code	MAE303IV
Course Name	**Processing of Meat, Poultry and Fish**

COs	Description
CO1	process meat for skill enhancement
CO2	process fish and for skill enhancement
CO3	poultry and for better skilling of entrepreneurship
CO4	milk processing for better employability in industry
CO5	manufacture value added products as per requirement of food industries for better skilling of entrepreneurship at local national, international and global level

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAE303V
Course Name	**Instrumentation and Sensors in Food Processing**

COs	Description
CO1	control the process operations precise instrumentation
CO2	knowledge of sensors for precision analysis of food quality in food industries
CO3	Temperature measurement at local national, international and global level
CO4	Theory and classifications of chemical sensors
CO5	X-ray imaging, Computed tomography at local national, international and global level

Course Code	MAE303VI
Course Name	**Energy Management in Food Processing Industries**

COs	Description
CO1	energy sources for skill enhancement
CO2	analyze energy requirement in food processing operations and to economize it in food industries for better skilling of entrepreneurship
CO3	Energy accounting methods for skill enhancement at local national, international and global level
CO4	Study of energy use pattern in various processing units for better skilling of entrepreneurship
CO5	Identification of energy efficient processing machines for better employability at local national, international and global level

Course Code	MAE303VII
Course Name	**Transport Phenomena in Food Processing**

COs	Description
CO1	Transport phenomenon with respect to heat, mass and momentum transfer for skill enhancement at local national, international and global level
CO2	Understand the food processing operations for skill enhancement
CO3	Analyse and solve numerically the food processing operations where heat/mass/momentum transfer is involved for better skilling of entrepreneurship
CO4	Molecular diffusion in gases, liquids and solids for better employability in industry

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Molecular diffusion with convection and chemical reaction for better skilling of entrepreneurship at local national, international and global level

PROGRAMME NAME - M. Tech. Agricultural Engineering (Farm Machinery and Power Engineering)

Course Code	MFM101
Course Name	**Design of Farm Power and Machinery Systems**

Cos	Description
CO1	Able to design the agricultural machines for tillage, planting/ sowing, threshing and combine harvesting etc. at local national, international and global level
CO2	Mastering the methods and processes of design.
CO3	Having fundamental knowledge of theories of agricultural machinery and equipment.
CO4	Having knowledge Safety devices for tractors and farm implements and transfer of new technologies in the field of design and construction of agricultural machines and equipment at local national, international and global level
CO5	Monitoring and implementation of new and contemporary solutions

Course Code	MFM102
Course Name	**Testing and Evaluation of Tractors and Farm Equipment**

Cos	Description
CO1	Understand the standard testing procedures and rules.
CO2	Familiarize with different instruments used in testing of agricultural machinery at local national, international and global level
CO3	Understand different test codes of ISO, RNAM, ASTM, ASABE etc.
CO4	Carry out performance evaluation of different agricultural implements
CO5	Understand the standard testing procedures and rules at local national, international and global level

Course Code	MFM103
Course Name	**Soil Dynamics in Tillage and Traction**

COs	Description
CO1	Be able to measure and utilize physical and mechanical properties of soil

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	in order to interpret and predict soil stress-strain behavior.
CO2	be able to design and implement safe and cost-effective mechanical soil tillage systems for producing desired physical states at local national, international and global level
CO3	be able to design and implement and cost-effective mechanical traction/transport systems which produce specified performance and acceptable alteration of affected soil profiles at local national, international and global level
CO4	Understand the need to learn and apply improved methodologies through continuing education.
CO5	Understand the basic design of traction and transport devices. Soil compaction by agricultural vehicles and machines.

Course Code	MFM 201
Course Name	**System Simulation and Computer Aided Problem Solving in Engineering**
COs	**Description**
CO1	Computer graphics and tools for designing and drafting & Mathematical modeling and engineering problem solving.
CO2	Develop a good knowledge about construction of numerical control systems and machines
CO3	Develop a good knowledge about operation of numerical control systems and machines at local national, international and global level
CO4	Process planning and Part programming
CO5	Software development process at local national, international and global level

Course Code	MFM 202
Course Name	**Advances in Farm Machinery and Power Engineering**
COs	**Description**
CO1	Getting knowledge of Farm Mechanization scenario and report writing.
CO2	Learning selection of farm machinery on the basis of various requirements, their costing and replacement
CO3	Develop a good knowledge about Statement and formulation of design problems at local national, international and global level
CO4	Analysis of forces in tractor implement combinations under two and three dimensional conditions
CO5	Single and double-tie-rod steering systems, development of mathematical models and its computer-aided solutions at local national, international

Sanjeev Dravid
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and global level

Course Code	MMAG 204
Course Name	Agricultural Statistics and Experimental Design

COs	Description
CO1	Design parameters of tractor engine components and power transmission system. at local national, international and global level
CO2	Stability during operation and different tests conducted on tractor
CO3	Demonstrate of hydraulic system & hitching
CO4	Design of fuel efficient engine components and tractor systems
CO5	Mechanics of tractor. Computer aided design and its application in agricultural tractors.

Course Code	MFM -302
Course Name	Applied Instrumentation in Farm Machines and Stress Analysis

COs	Description
CO1	To help understand students the basics of Instrumentation, control and automation emphasizing on measurement principles, transducers and their types with applications
CO2	Demonstrate an awareness of the Basic instrumentation systems and transducer principles at local national, international and global level
CO3	Understand what are the high pressure and vacuum sensing techniques.
CO4	Understand the Flow transducers, Positive displacement, venturimeter, Rota meter and Drag force,
CO5	Demonstrate an awareness of the Level measurement, OD and pH measurement, PCO2 and grain quality measurement. BP, ECG etc.

Course Code	MFM104 (I)
Course Name	Agro-Energy Audit and Management

COs	Description
CO1	Understand need to differentiate between conventional, non-conventional & renewable energy sources. at local national, international and global level
CO2	Reason out why the non-conventional energy sources need to be used as replacement to conventional form of energy.
CO3	To know the importance & role of government all over the world to

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	promote use of the renewable energy sources
CO4	Recognizing of energy sources and types of energy used in agricultural production and agro-industry at local national, international and global level
CO5	Study of energy efficiency, energy planning, forecasting and energy economics. Pattern of energy consumption and their constraints in production of agriculture at local national, international and global level

Course Code	MFM 104 (II)
Course Name	Machinery for Natural Resources Management and Precision Farming
COs	**Description**
CO1	Understanding how to set up an auto guidance system is only a small piece of the puzzle at local national, international and global level
CO2	Students master precision agriculture technologies like soil and crop health sensors, yield monitors, GNSS, GIS and mapping, variable rate controllers, and automated guidance.
CO3	Graduates of this program are challenged to understand management and troubleshooting of the entire agricultural system
CO4	Engineering fundamentals related to earth moving machinery: Swell, shrinkage and compaction measurements at local national, international and global level
CO5	Application of PERT and CPM to the problems related to land development at local national, international and global level

Course Code	MFM104(III)
Course Name	Machinery for Precision Agriculture
COs	**Description**
CO1	principles guiding the concept of precision agriculture for skill enhancement at local national, international and global level
CO2	Farm Machinery for better skilling of entrepreneurship
CO3	equipment systems that make use of this principle for better skilling of entrepreneurship at local national, international and global level
CO4	Electronics and Control Systems for Variable rate applications for better employability in industry
CO5	Goals based on end results of Precision Agriculture for better employability in industry at local national, international and global

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	level

Course Code	MFM104(IV)
Course Name	Fundamentals of New Introduce Agriculture Farm Equipments

Cos	Description
CO1	The students will be able to understand agriculture- horticulture farm-small implements for the use of kitchen gardening tools for skill enhancement.
CO2	The students will be able to understand equipment for slicing, shredding, crushing, chopping, juice extraction, etc. for skill enhancement
CO3	The students will be able to understand the new inter-culture equipments for the different operations for better skilling of entrepreneurship
CO4	The students will be able to understand the Weeding equipment for better employability in industry at local national, international and global level
CO5	The students will be able to understand the mechanization and various equipment used in the farm for different field operations for better skilling of entrepreneurship

Course Code	MFM104(V)
Course Name	Machinery for Horticulture and Protected Agriculture

Cos	Description
CO1	Machinery for planting crops on raised bed for skill enhancement
CO2	different principles of mechanizing cultivation of horticultural crops for skill enhancement at local national, international and global level
CO3	Machinery for orchards, vine yard for better skilling of entrepreneurship
CO4	Machinery for lawn and garden better employability in industry
CO5	mechanizing cultivation of protected agriculture for better skilling of entrepreneurship

Course Code	MFM104(VI)
Course Name	Fatigue Design

COs	Description
CO1	Technical aspects and principles of fatigue design. at local national, international and global level
CO2	Design the engineering product having good durability
CO3	Design the engineering product having long fatigue life

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Cumulative fatigue damage at local national, international and global level
CO5	Practical Fatigue tests on testing machine at local national, international and global level

Course Code	MFM 203 (I)
Course Name	**Ergonomics and Safety in Farm Operations**

COs	Description
CO1	Demonstrate an awareness of the unique attributes involved with farm work and planning for safety on a farm
CO2	Understand the impact of near misses, injuries and fatalities on the farm, including the daily workings, business finances, the wide range of people affected, etc. at local national, international and global level
CO3	Understand what hazards are, how they manifest, and how they impact business efficiency at local national, international and global level
CO4	Understand the elements involved in creating a farm safe plan
CO5	Understand how developing a farm safe plan can be valuable tool for business management, risk

Course Code	MFM 203 (II)
Course Name	**Farm Machinery Dynamics Noise and Vibrations**

COs	Description
CO1	Demonstrate of all type of soil working tools.
CO2	Understand Metering of seeds and granular fertilizers with various mechanisms & distribution of seed and fertilizer in seed cum fertilizer drills and planters etc. at local national, international and global level
CO3	Understand Theory of atomization, specific energy for atomization, electrostatic spraying and dusting, spray distribution patterns. Kinematics of reapers/harvesting machines at local national, international and global level
CO4	Understand the theory of root crop harvesters, power requirement of various components of field machines.
CO5	Balancing of single rotating weight and number of weights in same plane and different planes at local national, international and global level

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MFM203(III)
Course Name	Design of Farm Machinery – I

COs	Description
CO1	principles behind the design of tillage tools for skill enhancement
CO2	planting machinery for skill enhancement at local national, international and global level
CO3	design configurations for such machines for better skilling of entrepreneurship at local national, international and global level
CO4	Methods of sowing and planting for better employability in industry
CO5	Machines for fertilizer application for better skilling of entrepreneurship

Course Code	MFM203(IV)
Course Name	Principles of Automation and Control

COs	Description
CO1	principles behind implementation of systems for automation for skill enhancement at local national, international and global level
CO2	Control systems for better employability in industry
CO3	Control of machine tools for skill enhancement
CO4	Networking of sensors, actuators and controllers for better skilling of entrepreneurship at local national, international and global level
CO5	DC-DC converters for better employability in industry

Course Code	MFM203(V)
Course Name	Vibrations

COs	Description
CO1	Concept of vibrations for skill enhancement
CO2	analyze the mathematical modeling of the multi degree freedom systems for skill enhancement
CO3	Design vibration isolators for better employability in industry
CO4	Free vibration equation of motion for multi-degree of freedom systems for better skilling of entrepreneurship
CO5	Vibration of lumped parameter systems and continuous systems for better employability in industry at local national, international and global level

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MFM203(VI)
Course Name	Numerical Methods for Engineers

COs	Description
CO1	Algebraic equations, ordinary and partial differential equations coming across in Agricultural Engineering problems for skill enhancement
CO2	Use various numerical methods, for skill enhancement
CO3	ability to use latest software's towards numerical problems for better skilling of entrepreneurship at local national, international and global level
CO4	Finite difference formulae for better employ ability in industry
CO5	Solution of Partial Differential Equations for better employability in industry

Course Code	MFM 303 (I)
Course Name	Energy Conservation and Management in Farm Power and Machinery

COs	Description
CO1	Determine what farm practices use the most energy for producing a crop.
CO2	Describe farm equipment options for reducing energy use.
CO3	Describe management options for reducing energy use at local national, international and global level
CO4	Computer aided design and its application in agricultural tractors & IC Engine
CO5	Study of properties of coolants, anti freeze and anti-corrosion materials, lubricant types & study of their properties at local national, international and global level

Course Code	MFM 303 (II)
Course Name	Designs and Analysis of Renewable Energy Conversion Systems

COs	Description
CO1	On completion of this course, the students will be able to Learn about the Indian and World Energy Scenario and world energy use resources, Energy cycle on earth etc
CO2	Understand the types of energy, energy storage at local national, international and global level
CO3	Energy conversion systems.
CO4	Development and use of biogas, alcohols and plant oils, plant oil esters in

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	I.C. engines.
CO5	Design of bio-fuel production units at local national, international and global level

Course Code	MFM303(III)
Course Name	**Design of Farm Machinery –II**
COs	**Description**
CO1	principles behind the design of crop spraying equipments for skill enhancement at local national, international and global level
CO2	harvesting and threshing machinery for better skilling of entrepreneurship
CO3	Combine harvesters for better skilling of entrepreneurship
CO4	Design of grain header for better employability in industry
CO5	Cereal threshing and separation for skill enhancement at local national, international and global level

Course Code	MFM303(IV)
Course Name	**Principles of Hydraulic and Pneumatic System**
COs	**Description**
CO1	Design simple hydraulic circuits for skill enhancement at local national, international and global level
CO2	Pneumatic circuits for better skilling of entrepreneurship
CO3	Components for the same for better skilling of entrepreneurship
CO4	To design hydraulic system for skill enhancement at local national, international and global level
CO5	Pneumatic systems of farm Machinery for better employability in industry

Course Code	MFM303(V)
Course Name	**Mechatronics and Robotics in Agriculture**
COs	**Description**
CO1	Agricultural machinery that is built on concepts of mechatronics for skill enhancement at local national, international and global level
CO2	Ability to use robotic machinery in agriculture for better employability in industry
CO3	Micro processor based controller sand micro electronics for skill enhancement at local national, international and global level
CO4	Technologies of robot for better skilling of entrepreneurship

Sanjeev Bhaw
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Applicationofrobotsinagricultureforbetteremployabilityinindustry

Course Code	MFM303(VI)
Course Name	Artificial Intelligence
COs	**Description**
CO1	Principles of AI in solving simple problems for skill enhancement
CO2	Enable them to get insight into working of AI based systems for better skilling of entrepreneurship at local national, international and global level
CO3	Problems solving using AI for better employability in industry
CO4	Philosophy of AI for better skilling of entrepreneurship
CO5	Modern AI, biological brain, basic neuron model, perceptrons and learning for better employability in industry at local national, international and global level

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

SCHOOL OF BUSINESS MANAGEMENT

PROGRAMME NAME – Bachelor Of Business Administration (BBA)

Course Code	BBA 101A
Course Name	Business Economics

COs	Description
CO1	Get basic knowledge about Business Economics in nation; to understand the process of managerial decisions and the various objectives that the firms try to fulfill; understand the choices made by a rational consumer skill development and employability.
CO2	Get knowledge about the mechanism of demand and supply in working of markets and how changes in demand and supply affect markets entrepreneurship.
CO3	Learn main types of costs, short run and long run cost functions, revenue analysis and their application in decision making; to understand the relationships between production and costs employability.
CO4	Learn about characteristics, consequences of different forms of national markets & to know production and pricing decisions in various market structures; how the firms may compete & maintain potential equilibriums; to be aware with pricing and profit management skill development and employability.

Course Code	BBA 101B
Course Name	Basic Accounting

COs	Description
CO1	Understand the meaning, nature, functions, branches of accounting and also understand to basic terminologies used in accounting, accounting concepts and conventions, distinguish between book keeping and accounting, double entry system, basis of accounting, accounting standards at national level and also about the preparation of Journal and Ledger skill development and employability.
CO2	Understand the meaning and preparation of subsidiary books of accounts and of Bank Reconciliation Statement entrepreneurship.
CO3	Gain knowledge about the rectification of errors, trial balance, and about the meaning and preparation of Financial Statements employability.
CO4	Gain a thorough knowledge about provisions and reserves and be able to understand about the meaning of depreciation and about the accounting treatment of depreciation skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BBA 102A
Course Name	Business Statistics

COs	Description
CO1	Understand the meaning, nature, functions of Statistics and also understand the meaning of data at local level, national level classification and tabulation and preparation of diagrams and graphs skill development and employability.
CO2	Understand the meaning and practical applications of Measures of Central Tendency and Measures of Dispersion, students will also be able to understand the meaning and application of Skewness and Kurtosis entrepreneurship.
CO3	Understand the meaning and applications of Correlation and Regression employability.
CO4	Gain knowledge about the Sampling, its process, and understand the meaning and applications of Probability with its laws and various distribution theorems skill development and employability.

Course Code	BBA 102B
Course Name	Principles of Management

COs	Description
CO1	Understand the concepts related to business and its management along with the contribution of various psychologists to the field of management skill development and employability.
CO2	Demonstrate the roles, skills and functions of management specific to Planning and organizing in organizations entrepreneurship.
CO3	Analyze effective application of POM to direct human resources, solve organizational problems and develop optimal managerial decisions with effective controlling techniques employability.
CO4	Analyze effective application of knowledge to diagnose and solve organizational problems related to recent developments in the field of management at national and global level and thus develop optimal managerial decisions skill development and employability.

Course Code	BBA 103A
Course Name	Business Ethics And Governance

COs	Description
CO1	Develop understanding of business ethics and values skill development and employability.
CO2	Understand Gandhian philosophy & relationship between ethics and

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	corporate excellence entrepreneurship.
CO3	Apply the teachings for Indian scriptures to management employability.
CO4	Understand Corporate Social Responsibility at national level also in reference to environment skill development and employability.

Course Code	BBA 103B
Course Name	Computer Applications

COs	Description
CO1	Understanding the concept of computer in business, program development life cycle, flow chart and software development life cycle skill development and employability.
CO2	Understanding the concept of Functional components, generations of Computers and also describing different types of operating system entrepreneurship.
CO3	Perform common functional operations in MS Office & Understands the different formulas, report generation in excel employability.
CO4	Demonstrate the basic elements of database management system and recognize the technological trends of Computer Networking follow in nation and in global and discuss the key technological components of the Network skill development and employability.

Course Code	BBA CCC 101
Course Name	Food, Nutrition & Hygiene

COs	Description
CO1	Learn the basic concept of the Food and nutrition skill development and employability.
CO2	Learn about the macro and micro nutrition entrepreneurship.
CO3	Learn 1000 days Nutrition concepts and the nutritive requirement during special condition like pregnancy and lactation employability.
CO4	Study common health issues in the society and in nation for skill development and employability.

Course Code	BBA VOC 101
Course Name	Basics of MS Office

COs	Description
CO1	Understand the purpose, components and utility of MS-Office skill development and employability.
CO2	Prepare personal, academic and business documents at global standard

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	using MS-Word for entrepreneurship.
CO3	Create Spreadsheets, including charts with MS-Excel for various business & personal purposes employability.
CO4	Use MS-PowerPoint for creating effective presentations skill development and employability.

Course Code	BBA 201A
Course Name	Organizational Behavior

COs	Description
CO1	Develop the cognizance of the importance of human behavior in the organizations and the challenges and opportunities that come across within nation for skill development and employability.
CO2	Demonstrate the applicability of analyzing the complexities associated with management of individual behavior in the organization entrepreneurship.
CO3	Analyze the complexities associated with management of the group behavior and team management in the organization employability.
CO4	Appreciate the cultural aspects of an organization along with the particulars of conflicts and change management at global scenario for skill development and employability.

Course Code	BBA 201B
Course Name	Business Finance

COs	Description
CO1	Demonstrate the applicability of the concept of Business Finance with investment finance, dividend decisions, objectives, profitability vs. shareholder wealth maximization, time value of money, Capital budgeting with nature, importance; capital budgeting process, non-discounted and discounted cash flow techniques followed in nation for skill development and employability.
CO2	Analyze the financial decisions by capitalization, consequences, remedies over and under capitalization, capital structure planning, cost of capital and capital structure theories entrepreneurship.
CO3	Explain that how the concepts of financial management and investment, financing and dividend policy decisions could integrate employability.
CO4	Give an overview about working capital with need, determinants, approaches and estimation of working capital needs skill development and employability.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BBA 202A
Course Name	Human Resource Development

COs	Description
CO1	Develop the understanding of the concept of human resource management and its relevance in organizations; List methods for how to plan, incorporate innovators and build strategies for effective Human Resource Development used in nation for skill development and employability.
CO2	Understand the strategies to build a stronger workforce; analyze the strategic issues and strategies required to potential Appraisal and Training to develop manpower resources entrepreneurship.
CO3	Understand the Concept of job enrichment and Employee Participation comprehensively to improve supervisor-subordinate relationship employability.
CO4	Know concept, benefits and potential difficulties of Quality of Work Life; concept of Competency Assessments skill development and employability.

Course Code	BBA 202B
Course Name	Marketing Theory & Practices

COs	Description
CO1	Understand the various concepts related to marketing and its importance skill development and employability.
CO2	Understand the concept of STP in marketing at regional, national and International parameter for entrepreneurship.
CO3	Understand the 4Ps framework and its importance while devising a marketing strategy employability.
CO4	Understand the role of Marketing Research, MIS and importance of Consumer Behavior for a marketer skill development and employability.

Course Code	BBA 203A
Course Name	Business Mathematics

COs	Description
CO1	Understand basic algebraic skills and their applications to solve common business problems skill development and employability.
CO2	Apply matrix operations to solve the problems related to business and economics entrepreneurship.
CO3	Apply different set operations to solve business related problems employability.
CO4	Inspect concepts of differentiation and integration, and apply them to

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	solve problems in business at national basis for skill development and employability.

Course Code	BBA 203B
Course Name	Advertising Management

COs	Description
CO1	Understand the concept of advertising, Scope, importance in business: Role of advertising in social and economic development of India skill development and employability.
CO2	Understand the concept of ICM, important, communication mix, components, social media marketing, Google ad words and e-mail marketing used in national and international basis for entrepreneurship.
CO3	Understand the concept of promotional objectives, DAGMAR, advertising budget, budget allocation employability.
CO4	Understand the concept of advertising copy meaning, strategies, media mix, advertising research, international vs. local advertising skill development and employability.

Course Code	BBA CCC 201
Course Name	First Aid & Health

COs	Description
CO1	Learn the skill needed to assess the ill or injured person dealing with an emergency, first aid related with respiratory system, heart, blood and circulation, wounds and Injuries, Bones, Joints Muscle related injuries skill development and employability.
CO2	Learn the skills to provide CPR to infants, children and adults, First aid related with Nervous system and Unconsciousness, Gastrointestinal Tract, Skin, Burns, Poisoning, Bites and Stings, sense organs, specific emergency satiation and disaster management at international level for entrepreneurship.
CO3	Learn the basic sex education help young people navigate thorny questions responsibly and with confidence male female similarities and differences, sex without love — harassment, sexual abuse, and rape; Prevention of sexually transmitted diseases, facts, attitudes, and myths about LGBTQ+ issues and identities employability.
CO4	Learn the skill to identify Mental Health status and Psychological First Aid, first Aid for Panic Attacks, Traumatic events; understanding disorders in which Psychosis may occur, learn crisis first aid for acute psychosis, understanding substance, use disorder, crisis first Aid for overdose, withdrawal, using mental health First Aid skill development and

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability.
Course Code	**BBA VOC201**
Course Name	**Tally ERP 9**

COs	Description
CO1	Understand the basics of accounting and of tally and learn the operations of company in tally and maintaining the charts of accounts and SKU in tally skill development and employability.
CO2	Understand how to enter day to day transactions in tally and to maintain purchase and sales cycle, accounts receivables and payable management banking in tally entrepreneurship.
CO3	Learn how to manage MIS report and payroll accounting employability.
CO4	Understand about the tally administration and to use tally for taxation in a nation for skill development and employability.

Course Code	**BBA301**
Course Name	**Organizational Behavior**

COs	Description
CO1	Know the basics of OB along with its contributing disciplines, opportunities and challenges skill development and employability;
CO2	Explore the various aspects of their own behaviors as well as of the others by learning theories and determinants of Individual and Interpersonal ,behavior. Understand the group dynamics and its implications within an organization entrepreneurship;
CO3	Understand the importance of group dynamics and team development and its implications within an organization employability;
CO4	Appreciate the cultural aspects of an organization along with the particulars of conflicts and change management at International scenario for skill development and employability.

Course Code	**BBA302**
Course Name	**Research Methodology**

COs	Description
CO1	Understand some basic concepts of research and its methodologies skill development and employability;
CO2	Identify various types of sample design and procedure also primary and secondary data and data collection techniques and preparation of

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	questionnaire for local, national and International public for entrepreneurship;
CO3	Various types of chart and diagram used in research employability;
CO4	Understanding of research report preparation skill development and employability.

Course Code	BBA 303
Course Name	Cost Accounting

COs	Description
CO1	Understand nature, scope and concept of cost accounting, its methods, techniques along with cost audit skill development and employability;
CO2	Understand meaning of Material control, and techniques, Pricing of material issues, Treatment of material losses entrepreneurship;
CO3	Comprehensive Analysis of Labor cost, idle time and overtime, and various methods of wage payment schemes followed in nation for employability;
CO4	Understand Overheads, -under and over absorption and treatment, Cost Ascertainment and Cost Records skill development and employability.

Course Code	BBA 304
Course Name	Macro Economics

COs	Description
CO1	Learn the basic theoretical framework underlying the field of macroeconomics, aggregate measures of economic activities, macroeconomic equilibrium to understand how aggregate demand and aggregate supply interact to drive a free market economy skill development and employability;
CO2	Understand the basics of national income accounting, related factors, calculation methods & problems associated entrepreneurship;
CO3	Understand the classical economic theory, tenets & implications of Keynesian Economics and their application through the aggregate demand and supply model, consumption function & Investment function employability;
CO4	Understand the causes and consequences of economic disequilibrium (business cycle, inflation & deflation), role of fiscal and monetary policy in fighting and combating economic disequilibrium skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BBA305
Course Name	It In Business

COs	Description
CO1	Understand the purpose, composition, functioning and types of computers skill development and employability;
CO2	Describe the basics of MS-Word, MS-Excel, MS-PowerPoint and the key concept in DBMS entrepreneurship;
CO3	Understand the meaning and importance of networking and internet along with their related key basic concepts employability;
CO4	Define the concept and usage of Information Systems and understand the applications of Information Technology in national and international level for skill development and employability.

Course Code	BBA306
Course Name	Environmental Studies

COs	Description
CO1	Articulate the basic structure, functions, and processes of key social systems affecting the environment skill development and employability;
CO2	Understand how interactions between organisms and their environments drive the dynamics of individuals, populations, communities, and ecosystems entrepreneurship;
CO3	Design and evaluate strategies, technologies, and methods for assessment and sustainable management of environmental systems and for the remediation or restoration of degraded environments in a nation for employability;
CO4	Understand legislation governing environmental research and the environment in India skill development and employability.

Course Code	BBA UDM
Course Name	Disaster Management

COs	Description
CO1	Understand about the disaster, types, causes and impact of disaster, global trends in disaster skill development and employability;
CO2	Understand disaster management theory (cycle, phases, risk, crisis, emergency, disasters, resilience), role of community in successful Disaster Risk Reduction entrepreneurship;
CO3	Understand the impact of development project, Climate Change Adaptation by International countries, IPCC scenario, role of international

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	cooperation for skill development and employability;
CO4	Create Technological innovations GIS in Disaster Risk Reduction, Disaster management Act and policy Hazard and vulnerable profile of India entrepreneurship;
CO5	Understand the vulnerabilities, to work on reducing disaster risks, and to build a culture of safety students along with teacher could work on ways of addressing these vulnerabilities, preparing plans and consultation with local administration or NGOs skill development and employability.

Course Code	BBA 401
Course Name	**Production and Operations Management**

COs	Description
CO1	Understand concepts of production and its relation with management of operations, production planning and control, plant location, plant layout skill development and employability;
CO2	Understand concepts of Quality Assurance and Quality Control along with TQM at national basis , importance of materials management, Make-or-buy Decisions entrepreneurship;
CO3	Understand concepts of purchasing and its management, and selecting source of supply, Ordering, Delivery, Scientific Purchasing employability;
CO4	Understand Inventory Management, Planning and Control and Minimum and Maximum Level; Re-order level, ABC analysis skill development and employability.

Course Code	BBA402
Course Name	**Project Management**

COs	Description
CO1	Understand the basic concept of project management and how project management can be structured within an organization skill development and employability;
CO2	Understand the importance of project management as it affects strategy and business success and also understand the process of project formulation at national and international level for entrepreneurship;
CO3	Describe the concept of project appraisal employability;
CO4	Understand the relationships among scheduling, planning, and prioritization of projects and tasks, and apply the critical path method and PERT to develop a realistic, optimized project schedule skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BBA403
Course Name	Corporate Accounting

COs	Description
CO1	Understand the methodology of issue of shares in a Joint Stock Company, SEBI guidelines and redemption and buyback of shares in nation skill development and employability;
CO2	Get the depth knowledge of issue and redemption of debenture entrepreneurship;
CO3	Understand the knowledge about valuation of goodwill and various method of valuation of purchase and non-purchase goodwill employability;
CO4	Understand the basic concept of amalgamation of companies as per National Accounting standards: 14(ICAI), internal reconstruction of companies' skill development and employability.

Course Code	BBA404
Course Name	Indian Economic Environment

COs	Description
CO1	Understand the concept of nation economic growth and development; factors contributing to and detract from long-term economic growth, overview and potential of Resources in India skill development and employability;
CO2	Analyze the demographic distribution and trends in India; understand the importance, causes and impact of population growth and unemployment & translate and relate them with economic development entrepreneurship;
CO3	Grasp the philosophy, strategy and importance of economic planning undertaken by the government of India; have knowledge on the various objectives, failures and achievements as the foundation of the ongoing planning and economic reforms. Philosophy behind introduction of NITI Aayog employability;
CO4	Understand structure, growth, relevant issues, and policies of Indian agriculture sector; agriculture reforms, and learn the process of Industrialization & rationalization of industries in India skill development and employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BBA405
Course Name	Quantitative Techniques

COs	Description
CO1	Understand applications of QT and Linear Programming in managerial decision making skill development and employability;
CO2	Solve the problems using special solution algorithms like assignment and transportation problems at regional, national and International level for entrepreneurship;
CO3	Become friendly with solving any type of sequencing problem and replacement problem employability;
CO4	Use critical path method (CPM) and program evaluation and review technique (PERT), to plan schedule and control project activities skill development and employability.

Course Code	BBA406
Course Name	Indian Banking System

COs	Description
CO1	Understand Banking with its functions skill development and employability;
CO2	Understand the role of banking in Indian economy entrepreneurship;
CO3	Understand the role of development bank in nation for employability;
CO4	Understand the role and application of the National Banking Regulation Act for skill development and employability.

Course Code	BBA501
Course Name	Management Accounting

COs	Description
CO1	Critically analyze and provide recommendation to improve the operations of organizations at regional and national level through the application of management accounting technique skill development and employability;
CO2	Explain the conceptual framework of marginal costing and apply the concept of marginal costing and CVP analysis in decision making entrepreneurship;
CO3	Understand the meaning and essentials of budgets and also describe the process of preparing various budgets employability;
CO4	Understand the importance of standard costing as a tool of cost reduction and learn the computation of all cost and revenue variances skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BBA502
Course Name	Company Law

COs	Description
CO1	Understand the meaning, nature and characteristics of the company, Objectives and Salient Features of the Companies Act, 2013, Kinds of Companies, and Formation of company in the nation for skill development and employability;
CO2	Understand the MOA, AOA, Prospectus and membership entrepreneurship;
CO3	Understand the concept of share capital, types of shares, debentures and classification of debentures employability;
CO4	Understand the importance of standard costing as a tool of cost reduction and learn the computation of all cost and revenue variances skill development and employability.

Course Code	BBA503
Course Name	e-Business

COs	Description
CO1	Understand the basics of e-Business including mobile commerce and its importance in the current business environment skill development and employability;
CO2	Identify different Business Models and distinguish between them entrepreneurship;
CO3	Understand the concept of e-Payment constituents of its ecosystem and e-CRM employability;
CO4	Understand the concept, features of ERP, basics of cyber laws at national level along with basic concepts in cyber security at International standard for skill development and employability.

Course Code	BBA 504
Course Name	Entrepreneurship Development

COs	Description
CO1	Recognize the conceptual details of an Entrepreneur and Entrepreneurship skill development and employability;
CO2	Know the particulars of EDPs along with the diverse facets of Women Entrepreneurship;
CO3	Comprehend the basics of starting a new venture along with the workings of its feasibility in real world and national and international level for

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability;
CO4	Identify with how the arrangement of finances for a new business enterprise may be done skill development and employability.

Course Code	BBA 505
Course Name	International Business

COs	Description
CO1	Identify and explain the meaning need and importance of International Business Globalization and International business environment skill development and employability;
CO2	Understand the different types of theories of International business entrepreneurship;
CO3	Understand about the foreign investment, policy framework of FDI and FII and MNC employability;
CO4	Understand the international economic institutions like-SAARC, World Bank, IMF, NAFTA, WTO, EU, and BRICS skill development and employability.

Course Code	BBA 506
Course Name	Advertising Management

COs	Description
CO1	Understand the Meaning, scope, importance of advertising in business, and different types of advertising skill development and employability;
CO2	Understand the meaning, importance and process of integrated marketing mix, and communication mix components entrepreneurship;
CO3	Understand the Importance, determination of promotional objectives, DAGMAR approach, and allocation of budget employability;
CO4	Understanding the Meaning, components, types of advertising copy, media mix, Advertising Research and International and Local Advertising skill development and employability.

Course Code	BBA 508
Course Name	International Marketing

COs	Description
CO1	Define the concept of International Marketing and describe the nature of international business and international marketing process for skill

Sanjeev Dawar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development and employability.
CO2	Providing the information of tariff and non-tariff barriers; WTO, UNCTAD, Generalized system of preferences (GSP) and incentives for exporters to promote the employability and entrepreneurship.
CO3	Discuss the Entry Modes Selection of Products, Selection of Market, various modes of entry into international markets for skill development and employability.
CO4	Providing information relate to international product planning and pricing and ISO 9001:2000 quality system standard for entrepreneurship and employability.
Course Code	**BBA 509**
Course Name	**Financial Market and Institutions**

COs	Description
CO1	Understand the Indian Financial System, Financial Markets and institutions Role of financial markets in economic development helpful for skill development.
CO2	Provide the Money and Capital Market and Regulation of money and credit, monetary and fiscal policies SEBI and its role for entrepreneurship in national development and employability
CO3	Discuss the concept of financial institutions Commercial banking-introduction, role in project finance and working capital finance is better for Entrepreneurship and employability.
CO4	Provide the information related to financial services and E-Banking, Venture Capital Financing, Credit Rating, emerging trends for better employability.

Course Code	**BBA 510**
Course Name	**Consumer Behavior**

COs	Description
CO1	Understand the concepts and theories of consumer behavior, consumer behaviour models and their significance in business, and consumer decision-making processes. for entrepreneurship & employability
CO2	Understand the individual and group influences on consumer behavior and consumer decision making process. For skill development, entrepreneurship & employability
CO3	Relate consumer behavior theories, models and concepts to marketing decisions and understanding their implications & Analyzing the environmental influences on consumer behavior and differentiating

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	individual buying from industrial buying. For entrepreneurship & employability
CO4	Applying most appropriate consumer behavior models and techniques for appropriate market solutions at local, national and International level. for skill development, entrepreneurship & employability.

Course Code	BBA 511
Course Name	Business Values and Ethics
COs	**Description**
CO1	Use contemporary and classical frameworks to analyze and suggest resolutions to ethical dilemmas; for skill development &entrepreneurship
CO2	Understand various theories and models of Business Ethics; for entrepreneurship
CO3	Recognize the importance of Corporate Social Responsibility at national level ; for entrepreneurship & employability
CO4	Apply the basic teachings of the Indian Scriptures in the Management of an organization. For skill development, entrepreneurship & employability

Course Code	BBA 512
Course Name	Service Marketing
COs	**Description**
CO1	Validate an extended understanding of the similarities and differences in service based and physical product based marketing activities for skills development
CO2	Inculcate a knowledge of the extended marketing mix for services and develop & justify marketing planning and control systems appropriate to service-based activities for the learning of entrepreneurial skills
CO3	Demonstrate integrative knowledge of marketing issues associated with service productivity, , customer satisfaction and loyalty for better employability in the industry
CO4	Conduct an investigation of service delivery systems at local, national and International level, collecting, analyzing data, and synthesizing information to provide valid conclusions for entrepreneurship and employability

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BBA 513
Course Name	Rural Marketing

COs	Description
CO1	Develop the understanding of the Indian rural economy Illuminate and interpret Rural Marketing Evolution and Structure increase skills for better employability
CO2	Able to recognise the challenges and opportunities in the field of rural marketing for the budding managers and also expose the students to the rural market environment and the emerging challenges for the learning of entrepreneurship
CO3	Able to implement the concepts and techniques of marketing management and their application in rural marketing for better entrepreneurial skills
CO4	Able to identify the differentiate and design marketing strategies for rural specific products. Assess and interpret the relevance of pricing and distribution strategies at local and national level for employability and entrepreneurship

Course Code	BBA 601
Course Name	Strategic Management

COs	Description
CO1	Understand the meaning, nature, scope and importance of strategic management, strategic management process skill development and employability;
CO2	Understand the meaning, nature, characteristics and categorization of environmental factors strategic management entrepreneurship;
CO3	Understand the analysis of internal resources, audit of resources, value chain approach and SWOT analysis employability;
CO4	Understand the formulation of strategy, BCG model, and evaluation of strategy at national level, diversification and retrenchment skill development and employability.

Course Code	BBA602
Course Name	Labour Laws

COs	Description
CO1	Learn the role of management and unions in the promotion of industrial relations skill development and employability;
CO2	Examine the labour relation issues and its management entrepreneurship;
CO3	Acquire skills in handling employer-employee relations employability;

Sanjeev Dawar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Know the provisions of various acts related to Labour Laws followed in nation skill development and employability.

Course Code	BBA603
Course Name	Management Information System

COs	Description
CO1	Understand concepts of data, information, Information System (IS) and its classification skill development and employability;
CO2	Appreciate the strategic role and advantage offered by MIS entrepreneurship;
CO3	Understand the concept & phases of System Development Life Cycle employability;
CO4	Define various applications of IS and Cross Functional IS such as ERP and CRM followed at national level for skill development and employability.

Course Code	BBA 604
Course Name	Auditing

COs	Description
CO1	Articulate knowledge of fundamental audit concept, audit programme, audit planning and qualities of an auditor skill development and employability;
CO2	Acquire the knowledge of audit procedure entrepreneurship;
CO3	Comprehend the knowledge about appointment, rights, duties and responsibility of auditor at National basis employability;
CO4	Acquire knowledge of audit documentation of various sectors skill development and employability.

Course Code	BBA 605
Course Name	Income Tax

COs	Description
CO1	Understand the provisions of Income Tax Act,1961 of India and various terminologies used in the process of calculating tax liability in nation of a particular person and also to know the concept and process of determine the residential status of a person skill development and employability;
CO2	Calculate the taxable income of a particular assessee from Income from Salary and Income from House Property head entrepreneurship;
CO3	Understand and calculate the taxable income of a particular assessee from

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Business or Profession head, Capital Gains head and Income from Other Sources head employability;
CO4	Define the provisions of Income Tax Act, 1961 with reference to deductions u/s 80 (C) to 80 (U), Set-off and Carry Forward of Losses, Clubbing of Incomes and their practical applicability, calculate tax liability of a particular person, and understand the applicability of the concept of tax planning, tax avoidance and tax evasion skill development and employability.

Course Code	BBA606
Course Name	Sales Management
COs	**Description**
CO1	Understand the meaning of sales management, salesmanship & personal selling skill development and employability;
CO2	Explain the sales forecasting techniques and appreciate the sales organization process entrepreneurship;
CO3	Understand the concepts related to personal selling including its process and various elements employability;
CO4	Understand the process of recruitment, selection, training, motivating and evaluation of sales force in national and International level skill development and employability.

Course Code	BBA 608
Course Name	Public Finance
COs	**Description**
CO1	Understand the concept of public finance, canons of taxation, and theories of taxation and economic effects of taxes on nation, Indian tax structure for skill development.
CO2	Providing the information of public revenue and public expenditure and public expenditure in India for better employability and entrepreneurship.
CO3	Discuss the Concept, objectives, classification of public budget, zero-base budgeting, budgeting process in India and Financial Administration in India for entrepreneurial skills.
CO4	Describe the Concept, significance, classification and sources of public debt and Concept, objectives, significance and limitations, methods of deficit financing for employability and entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BBA 609
Course Name	Security Analysis and Portfolio Management

COs	Description
CO1	Understand the Nature and Scope of Investment Management and Portfolio Analysis and Portfolio Management Practices in International markets for skill development.
CO2	Describe the Risk and Return, Fundamental Analysis: Economic Analysis, Industry Analysis, company Analysis Framework Technical Analysis for better employability and entrepreneurship.
CO3	Portfolio Theory: The Benefits of Diversification, Diversification and Portfolio Risk, Capital Asset Pricing Model for employability and entrepreneurship.
CO4	Describe Specification of Investment Objectives and Constraints, Selection of Asset Mix, Formulation of Portfolio Strategy for better entrepreneurship.

Course Code	BBA 610
Course Name	Retail Management

COs	Description
CO1	Define the concept of Retailing Management and gain the knowledge about retail management process at national and international level for skill development.
CO2	Describe retail institution for better employability.
CO3	Gain the knowledge about Retail organization and HRM for entrepreneurship and employability
CO4	Understand the meaning, Merchandise buying and handling to develop skill, people in retailing

Course Code	BBA 611
Course Name	Supply Chain Management

COs	Description
CO1	Understanding of supply chain fundamental knowledge for better employability in industry.
CO2	Ability to design supply chain networks to enhance supply chain performance at local, national and international level for better skilling of entrepreneurship.
CO3	Ability to plan demand based on inventory and supply for entrepreneurship and employability

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understanding the role of logistics in supply chain performance for develop skill, global economy for entrepreneurship and employability

Course Code	BBA 612
Course Name	Industrial Psychology

COs	Description
CO1	Understand the theoretical frameworks of psychology that can be applied to make an organization more effective and efficient; for entrepreneurship
CO2	Learn about acquiring the necessary interpersonal, behavioral and technical skills for application in the work setting at national and international level for entrepreneurship & employability
CO3	Understand about the effect of work environment & psychology on performance of human resource. for employability & entrepreneurship
CO4	Understand about applicability of different techniques that may be helpful in improving & managing Performance of employees. for better entrepreneurial skills.

Course Code	BBA 613
Course Name	Management of Small Business

COs	Description
CO1	Understand the concepts related to small Business for entrepreneurship & employability
CO2	Learn about Small Scale Industries their growth, future prospects, challenges & global trade opportunities for small businesses for entrepreneurship & employability
CO3	Understand about different techniques and kinds of small business management for skill development, employability & entrepreneurship
CO4	Understand about applicability of different techniques that may be helpful in improving & managing small business globally employability & entrepreneurial skills.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – Master of Business Administration (MBA)

Course Code	MBA – 101
Course Name	Management Concepts and Organizational Behavior

COs	Description
CO1	Understand the basic concepts, evolution and thoughts related to management for skill development and entrepreneurial development.
CO2	Demonstrate the roles, skills and functions of management starting from Planning till controlling for skill development and entrepreneurial development.
CO3	Describe the general history of organizational theory and practice and frame how organizational behavior has developed from these into a discrete field for skill development and increasing employability.
CO4	Analyze the behavior of individuals and groups in organizations in terms of organizational behavior theories on national basis, models and concepts and apply the same to real life management situations for skill development and entrepreneurial development.

Course Code	MBA - 102
Course Name	Managerial Economics

COs	Description
CO1	Get basic knowledge about Managerial Economics; to understand the process of managerial decisions and the various objectives that the firms try to fulfill, understand the choices made by a rational consumer for skill development.
CO2	Get knowledge about the mechanism of demand and supply in working of national markets & how changes in demand and supply affect markets; Application of demand analysis in managerial decision making for skill development and entrepreneurial development.
CO3	Learn about cost & revenue analysis, their application in decision making; to understand the relationship between production and costs; to understand different forms of market structures their production and pricing decisions; how the firms may compete & maintain potential equilibriums; to be aware with pricing and profit management for skill development, increasing employability and entrepreneurial development.
CO4	Understand basic theoretical framework of macro-economics, impact of cyclical fluctuations and inflationary pressures on business decisions for skill development and entrepreneurial development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBA – 103
Course Name	**Accounting Theory and Practices**

COs	Description
CO1	Understand and define the accounting and other related terminologies, concept of Generally Accepted Accounting Principles (GAAPs), Indian Accounting Standards (AS), International Accounting Standards (IAS), International financial reporting standards (IFRSs) and its compliance at Nation and International level for skill development.
CO2	Know the concept of double entry system, process of making financial statements in the form of pass journal entries, preparation of books of accounts, profit & loss account and balance sheet, calculation of goodwill, depreciation, etc. for skill development, increasing employability and entrepreneurial development.
CO3	Analyse the financial statements by ratio analysis, comparative analysis, preparing common size statements & trend analysis and provide fruitful information to all stakeholders for decision making for skill development, increasing employability and entrepreneurial development.
CO4	Understand the concept of funds flow statement and cash flow statement and analyze the position of cash flow and funds flow in any organization for making decisions for skill development, increasing employability and entrepreneurial development.

Course Code	MBA – 104
Course Name	**Statistics for Business Managers**

COs	Description
CO1	Understand the key manners in descriptive statistics and their use in business decision making for skill development, increasing employability and entrepreneurial development.
CO2	Learn Time Series Analysis and its application in business decision making and analyze Index Numbers for skill development.
CO3	Perform correlation and regression analysis and understand their use in business at national level for skill development.
CO4	Apply probability rules and concepts relating to discrete and continuous random variables and answer questions within a business context for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBA – 105
Course Name	Business Environment

COs	Description
CO1	Understand the concept and the various constituents of environment and their impact on business; applying the environmental analysis techniques in practice for skill development and increasing employability.
CO2	Understand the Economic Environment of nation ; know state policies, economic planning & reforms laid by the government for skill development.
CO3	Understand the Political Environment, various economic laws & legislations and their impact on business decisions for skill development and entrepreneurial development.
CO4	Understand the characteristics, opportunities, challenges of the global and technological environment that regulate and promote international trade for increasing employability and entrepreneurial development.

Course Code	MBA – 106
Course Name	Business Research Methods

COs	Description
CO1	Develop an understanding of various kinds of research their objectives, process, designs, and their application in various functions for skill development and increasing employability
CO2	Assess different methods and sources of data collection at national and international level and processing of the collected data for skill development
CO3	Formulate and solve the problems related to testing of Hypotheses for skill development
CO4	Understand functions and types of research report, and write research report in an ethical and effective manner for skill development and increasing employability and entrepreneurial development.

Course Code	MBA – 107
Course Name	Professional Skills Development (PSD) – I

COs	Description
CO1	Understand the importance and nuances of English language in present business scenario at international basis along with the Indianisms associated with it for skill development.
CO2	Understand the basic elements involved with the communication process for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Identify the various types of communication with their pros and cons for skill development and increasing employability.
CO4	Enhance their business specific vocabulary and Word Power in general for skill development, increasing employability and entrepreneurial development.

Course Code	MBA – 108
Course Name	**Business Ethics and Values**

COs	Description
CO1	Use contemporary and classical frameworks to analyze and suggest resolutions to ethical dilemmas for skill development.
CO2	Understand various theories and models of Business Ethics for skill development and increasing employability.
CO3	Recognize the importance of Corporate Social Responsibility at national and International level for entrepreneurial development.
CO4	Apply the basic teachings of the Indian Scriptures in the Management of an organization for entrepreneurial development.

Course Code	MBA – 109
Course Name	**Computer Application in Business**

COs	Description
CO1	Understand the concept of Functional components, Memory and Classification of Computers and also describe Number System and basic arithmetic operations for skill development.
CO2	Perform common functional operations in MS Office & understand the different functions provided by Operating System at different level for skill development, increasing employability and entrepreneurial development.
CO3	Recognize the technological trends of Computer Networking at national and International level and discuss the key technological components of the Network and Internet for skill development and increasing employability.
CO4	Demonstrate the basic elements of a relational database management system and identify the data models for relevant problems for skill development and entrepreneurial development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBA – 201
Course Name	Management Concepts and Organizational Behavior

COs	Description
CO1	Understand the basic concepts of Human Resource Management, its scope, evolution and its applications in the individual, group as well as organizational levels for entrepreneurial development.
CO2	Understand the role that HRM has to play in manpower planning, job analysis, recruitment, selection, training and forecasting the human resource requirements for skill development, increasing employability and entrepreneurial development.
CO3	Understand performance management system and appraisal of employees in organizations as per nation procedure for skill development, increasing employability and entrepreneurial development.
CO4	Enable the students to integrate the understanding of various welfare concepts along with the domain concept in order to take correct business decisions related to employee welfare, safety and security in the organizations for increasing employability.

Course Code	MBA – 202
Course Name	Marketing Management

COs	Description
CO1	Define and evaluate the relevance of marketing concepts, distinguish between marketing and selling and impact of environmental change while designing marketing plans, strategies and practices for skill development.
CO2	Defining concept of customer experience management and developing marketing strategies based on segmentation, target marketing and positioning by examining consumer behavior at national and international basis for increasing employability and entrepreneurial development.
CO3	Describe a product, market, marketing mix and creating strategies related to new product development and analyzing strategies for different stages of product life cycle for increasing employability and entrepreneurial development.
CO4	Develops and apply knowledge to create integrated marketing communication strategies, pricing strategies and distribution strategies as per the recent trends of marketing for skill development, increasing employability and entrepreneurial development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBA – 203
Course Name	Financial management

COs	Description
CO1	Demonstrate an understanding of the overall role and importance of the finance function and demonstrate basic finance management knowledge for entrepreneurial development.
CO2	Demonstrate the applicability of the concept of National Financial Management to understand the managerial Decisions and Corporate Capital Structure for skill development and entrepreneurial development.
CO3	Analyze the complexities associated with management of cost of funds in the capital Structure for skill development, increasing employability and entrepreneurial development.
CO4	Select and apply techniques in managing working capital and also understand the dividend decision models for skill development and increasing employability.

Course Code	MBA – 204
Course Name	Operations Research

COs	Description
CO1	Understand Operations Research and its various models and develop linear programming (LP) models and discuss the solution techniques for skill development.
CO2	Select the best strategy on the basis of decision criteria under uncertainty, solve the zero-sum- two-person games and problems using special solution algorithms like assignment and transportation problems at regional, national and International level for skill development, increasing employability and entrepreneurial development.
CO3	Aware about queuing models and well known the process to examine an (M/M/I; ∞/FCFS), and, make friendly to solve any type of sequencing problem for skill development and increasing employability.
CO4	Have knowledge about replacement problem solution, and, use critical path method (CPM) and program evaluation and review technique (PERT), to plan schedule and control project activities for skill development, increasing employability and entrepreneurial development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBA – 205
Course Name	Professional Skills Development (PSD) - II

COs	Description
CO1	Develop better reading skills and employ them to identify with the authors' point of view and analytically solve case studies for skill development and increasing employability.
CO2	Compose various types of business letters and other business-related documents at national and international standard for skill development, increasing employability and entrepreneurial development.
CO3	Develop improved listening skills for skill development and increasing employability.
CO4	Understand the basics of effective speaking in order to become good conversationalists for skill development and increasing employability and entrepreneurial development.

Course Code	MBA GE1
Course Name	Cost and Management Accounting

COs	Description
CO1	Explain how management accounting is different from financial accounting and cost accounting, and how management accounting ideas and practices are relevant to business decisions: short term and strategic decisions for skill development, increasing employability and entrepreneurial development.
CO2	Use Cost-Volume-Profit (CVP) Analysis as an aid to short-term planning and decision-making at local and national level for skill development.
CO3	Use the ideas and practices of budgeting in a business decision-making context, with an emphasis on flexible budgeting and cash budgeting for skill development, increasing employability and entrepreneurial development.
CO4	Use the ideas and practices of standard costing and variance analysis in a business decision- making context, with an emphasis on material and labour variance for skill development and entrepreneurial development.

Course Code	MBA GE2
Course Name	e-Business

COs	Description
CO1	Understand the meaning, limitations and benefits of e-Business along with the components and process of Electronic Data Interchange for skill development and increasing employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Identify the cyber security-related concerns and issues at national and international basis along with measures of overcoming such threats in e-Business for skill development and entrepreneurial development.
CO3	Understand the concept of e-Money and EFT along with types of Electronic Payment Systems for skill development, increasing employability and entrepreneurial development.
CO4	Identify different Business and Revenue Models and understand the Legal, Ethical and Societal Impacts of e-Commerce for increasing employability and entrepreneurial development.

Course Code	**MBA GE3**
Course Name	**Operations Management**
COs	**Description**
CO1	Understand the scope and nature of operations management along with operations strategy for entrepreneurial development.
CO2	Understand the process of product development and different plant layout techniques for skill development, increasing employability and entrepreneurial development.
CO3	Understand the need for forecasting and its types along with inventory planning and the selective inventory control techniques used in nation for increasing employability and entrepreneurial development.
CO4	Understand the terms related to management of quality such as quality circles, six sigma along with modern methods of managing quality for increasing employability and entrepreneurial development.

Course Code	**MBA GE4**
Course Name	**Legal Aspects of Business.**
COs	**Description**
CO1	Know about the concept of agreement, contract, types of contracts, essential elements of a valid contract, Consideration and discharge of contract for skill development, increasing employability and entrepreneurial development.
CO2	Know about sale of goods act with goods, sale, condition and warranty, ownership of goods, transfer of property, Performance of contract, doctrine of caveat emptor, right of an unpaid seller and auction for skill development and entrepreneurial development.
CO3	Understand the concept of partnership with types of partners, partnership deed, and registration of firm law followed in nation, consequences of non-registration and dissolution of firm for skill development, and entrepreneurial development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the concept of negotiable instruments with cheque, promissory note, bill of exchange and the concept of dishonor and also noting, protesting and hundies for skill development and increasing employability.

Course Code	**MBA GE5**
Course Name	**Essentials of Psychology for Managers**

COs	Description
CO1	Better understand the essentials of psychology, brain and consciousness for managers in organizations followed to nation for skill development.
CO2	Understand the relationship of sensation and perception with learning for increasing employability.
CO3	Understand the role of learning, conditioning and reinforcement in developing subordinate social behavior for skill development and increasing employability.
CO4	Understand how memory and cognition regulate our day to day thinking patterns for skill development and entrepreneurial development.

Course Code	**MBA GE6**
Course Name	**Management of Start-ups**

COs	Description
CO1	Recognize the conceptual details of an Entrepreneur and Entrepreneurship, along with knowing the particulars of EDPs for entrepreneurial development.
CO2	Understand the basics of a Start-up and it is different from entrepreneurship for skill development and entrepreneurial development.
CO3	Comprehend the basics of starting a new venture along with the working so fits feasibility in real world and in International market for skill development, increasing employability and entrepreneurial development.
CO4	Identify with how the arrangement of finances for a new business enterprise may be done for skill development, increasing employability and entrepreneurial development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBA GE7
Course Name	Service Operation Management

COs	Description
CO1	Know the basics of Strategic Service Vision, Overall Cost Leadership and the Virtual Value Chain for entrepreneurial skills;
CO2	Explore the various aspects of Service Quality, Quality Function Deployment, Cost of Quality and Control Chart for better employability and entrepreneurship skill;
CO3	Understand the importance of Supply Chain Management, Service Supply, Relationships, Outsourcing Services as per national and International basis and Classification of Business Services for employability;
CO4	Appreciate Service Design, Value to the Business and Optimizing Design Performance to develop skill.

Course Code	MBA GE8
Course Name	Global Capital Market

COs	Description
CO1	Understand the concept of security, common stock, bonds, and warrants at global basis for employability.
CO2	Explore the various aspects of government issued securities and primary market for better skill development.
CO3	Know the importance of securitization, auction call market and its history for better industrial decision for employability.
CO4	Understand the concept of derivatives, futures, spot market, about traders and US commodities for dealing with uncertainties as per International basis for skill and entrepreneurial skills.

Course Code	MBA 301
Course Name	Business Policy and Strategic Management

COs	Description
CO1	Define the concepts of business policy and strategic management and describe the strategic management process by developing a strategic management model to inculcate entrepreneurial skills.
CO2	Provide information relating to strategy formulation by internal & external environmental scanning at national level by means of organizational analysis and industry analysis. to inculcate employability & entrepreneurial skills.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Describe and discuss different types of corporate generic strategies for growth, diversification, stability, retrenchment, corporate structure, mergers, acquisition and strategic alliance for skill development and employability. to inculcate entrepreneurial skills.
CO4	Provide information relating to strategy implementation in different perspectives of decision making for organizational effectiveness and managerial knowledge while dealing any other different situations with control. To improve entrepreneurial skills.

Course Code	MBA 302
Course Name	Project Management

COs	Description
CO1	Understand project concept, types and various stages of a project. to inculcate skill, provide entrepreneurial skills.
CO2	Understand the conceptual clarity about project organization and feasibility analyses – Market, Technical, Financial and Economic as per national and global level to provide employability & entrepreneurial skills.
CO3	Understand various project appraisal & consideration of social cost benefit, learning and understand techniques for Project planning, scheduling and Execution Control. to provide entrepreneurial skills.
CO4	Understand how monitoring and control is practiced in the industry. to inculcate skill, provide employability & entrepreneurial skills.

Course Code	MBA 303
Course Name	Professional Skills Development (PSD) - III

COs	Description
CO1	Understand what constitutes proper grooming and etiquette in a professional environment as per national and global standard and the skills necessary to demonstrate a comfort level in executing the same to inculcate skill and provide employability.
CO2	Appreciate the nuances of the Group Decision-making process and understand the skills tested and participate effectively in Group Discussions to inculcate skill, provide employability
CO3	Learn the basics of how to make an effective presentation and have numerous practice presentations in small groups and larger audiences to inculcate skill, provide employability
CO4	Attend any type of interview with the confidence borne out of knowledge gained and practice sessions to inculcate skill, provide employability & entrepreneurial skills.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBA 401
Course Name	Management Information System

COs	Description
CO1	Understand the meaning, concept and classification of IS for skill development and entrepreneurial development
CO2	Understand applications of Information System and Artificial Intelligence for skill development and entrepreneurial development
CO3	Understand emerging technologies as per national and global level along with IT infrastructure and SDLC for skill development
CO4	Understand and appreciate ethical and social issues related to Information security and control for skill development, increasing employability and entrepreneurial development

Course Code	MBA 402
Course Name	Supply Chain Management

COs	Description
CO1	Understand the meaning of supply chain management and its processes, Understand the supply chain management dynamics and key issues in supply chain management for skill development
CO2	Describe the various components of supply chain network design, Understand the role of transportation in distribution network for entrepreneurial development
CO3	Understand the inventory management various modern strategic methods as applicable in nation and in global space to improve inventory management, and inventory fundamentals; Basic EOQ models; Various models of order quantities for entrepreneurial development
CO4	Understand the Role of Information Technology in SCM emerging concepts and trends in supply chain management. Understand the concept of demand chain management, green supply chain, sustainability in SCM for skill development, increasing employability and entrepreneurial development

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBA 403
Course Name	Professional Skills Development (PSD) - IV

COs	Description
CO1	Understand and handle emotions of self and others and also identify the role of soft skills in professional environment approved in nation and in global market for skill development and increasing employability;
CO2	Be more aware of his / her own self – confidence esteem and awareness for skill development and increasing employability;
CO3	Understand the importance of and the various skills involved in developing enriching interpersonal relationships when working as a part of a group for skill development and increasing employability;
CO4	Understand the necessity and importance of working together as a team, learn how to go about being a good team player and form an effective team for skill development

Course Code	MBAMK 01
Course Name	Marketing Research

COs	Description
CO1	Understand how to apply marketing research to management, provide a detailed overview of the steps of the marketing research process and explain differences between marketing research and marketing information systems to inculcate skill, provide entrepreneurial skills.
CO2	Develop suitable research design with appropriate data collection methods to inculcate skill, provide entrepreneurial skills.
CO3	Acquaint with various measurement and scaling techniques used in marketing research to provide employability & entrepreneurial skills.
CO4	Learn data processing and analysis, formulate hypothesis, and understand the application of various parametric and non-parametric tests to solve decision problems in marketing applicable in nation to inculcate skill, provide employability & entrepreneurial skills.

Course Code	MBAMK 02
Course Name	Sales and Distribution Management

COs	Description
CO1	Understand the scope, nature and meaning of sales management along with the theories of selling and related key concepts to inculcate skill, provide employability.
CO2	Understand salesmanship and management of sales force through implementation of several methods used by International companies

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	along with classifying basic types of sales organizational structure. to inculcate skill, provide employability.
CO3	Identify the role of distribution management in the marketing mix and describe various types of distribution channels to provide employability & entrepreneurial skills.
CO4	Understand the reasons behind the occurrence of channel conflicts and outline the ways of managing channel conflicts to inculcate skill, provide employability & entrepreneurial skill.

Course Code	**MBAMK03**
Course Name	**Services Marketing and Customer Relationship Management**
COs	**Description**
CO1	Understand the meaning and characteristics of Services Marketing for increasing employability and entrepreneurial development.
CO2	Understand the elements of Service Marketing Mix and appreciate its role in value delivery for increasing employability and skills.
CO3	Learn to foresee the potential reasons of service failure and appreciate the concept and role of CRM for increasing employability and entrepreneurial development.
CO4	Define the emerging issues in CRM faced by National and International companies in context of different industries for increasing skill, employability and entrepreneurial development.

Course Code	**MBAMK04**
Course Name	**Event Management**
COs	**Description**
CO1	Understand the roles and responsibilities of an event manager and identify the 5 C's of events used in local and national level for skill development, increasing employability and entrepreneurial development
CO2	Critically examine the multi-faceted functions of event management from conceptualization, through to planning, risk management, and marketing for skill development, increasing employability and entrepreneurial development
CO3	Acquire the knowledge and competencies required to promote, implement and conduct events for skill development, increasing employability and entrepreneurial development
CO4	Understand the techniques and strategies required to plan successful events for skill development, increasing employability and entrepreneurial development

Sanjeev Dagar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBAMK05
Course Name	Consumer Behavior

COs	Description
CO1	Demonstrate how knowledge of consumer behavior and application in marketing for national and international customer increase their skills and employability.
CO2	As an entrepreneurship development they understand the effective segmentation and targeting strategy.
CO3	Relate internal dynamics such as personality, perception, learning motivation and attitude to the choices consumers make and importance of communication with consumer for development of entrepreneurial skills.
CO4	Able to enhance entrepreneurship skill to understand the importance of social class, culture.

Course Code	MBAMK06
Course Name	E Marketing

COs	Description
CO1	Students will able to understand the scope and strategies adopt of internet marketing which will help them in enhance knowledge as an entrepreneur.
CO2	Students demonstrate their developed skills in digital marketing, online branding strategies followed by national and International companies
CO3	Students will be able to make more employable by increasing their knowledge of data base, consumer awareness.
CO4	Demonstrate their knowledge in internet marketing management with development of entrepreneurial skills.

Course Code	MBAMK07
Course Name	International Marketing

COs	Description
CO1	Apply basic international marketing theories and concepts to understand the environment for more employability
CO2	Able to identify the Opportunities and challenges available in international marketing for better skills
CO3	Undertake strategic business analysis in order to develop appropriate international marketing objectives and strategies for understanding entrepreneurship
CO4	Identify, analyse, and evaluate data, information, and evidence related to international business opportunities and threats relevant in the current world for employability

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBAMK08
Course Name	Advertising and Sales Management

COs	Description
CO1	Explore the fundamental concepts of marketing communication and learn effective communication through skill development
CO2	Categorize the promotion mix tools to be used for creating public relations, sales promotion and direct marketing towards enhancement of employability and entrepreneurship skills
CO3	Understand the consumer buying behaviour which will serve as a guide to develop new and suitable marketing strategies followed by globally to reach customers for employability
CO4	Conversant with the process of integrated marketing communication process and also how to manage cultural diversity through communication and increase knowledge for better employability

Course Code	MBAMK09
Course Name	Product and brand Management

COs	Description
CO1	Apply the fundamental concepts of product and brand development and management for skill development.
CO2	Use portfolio analysis and the product life cycle to understand how a firm manages its product mix for more employability.
CO3	Use the brand positioning framework to develop a brand, keep it relevant, expand a brand internationally, and reposition a brand for entrepreneurship.
CO4	Use tools and metrics to analyse competitors and develop positioning strategies used by big International companies for better employability and entrepreneurial skills.

Course Code	MBAMK10
Course Name	Advanced Marketing Analytics

COs	Description
CO1	Students will develop the skill in marketing analytics for skill development.
CO2	Students will be able to identify what customers' value in a product, and assess what they are willing to pay for it for more employability and entrepreneurship.
CO3	Students will develop analytical skill for effective market decision making

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	as per national market requirement in real life environment learning of entrepreneurial skills.
CO4	Students will able to Segment customers based on the differences in what they value, using different techniques for more employability and entrepreneurship.

Course Code	**MBAMK11**
Course Name	**Digital Marketing**
COs	**Description**
CO1	Student able to translate some of the key marketing and business models that will help to shape your digital marketing strategy with development of skills.
CO2	Students should demonstrate their understanding of the various new medias such as; social media, mobile technology, web analytics, search engine optimization, viral advertising knowledge for better employability in industry.
CO3	Demonstrate cognitive knowledge of the skills required in conducting online research and research on online markets, as well as in identifying, assessing and selecting digital market opportunities available in nation and in global for entrepreneurship and employability.
CO4	Student able to enlighten emerging trends in digital marketing and critically assess the use of digital marketing tools by applying relevant marketing theories and frameworks for the learning of entrepreneurial skills.

Course Code	**MBAMK12**
Course Name	**Business to Business Marketing**
COs	**Description**
CO1	Make conscious choices of models of analysis and other theoretical tools designed for the challenges that companies face in B2B markets for entrepreneurship skills.
CO2	Detailed understanding of organizational buying process across various types of organizations available in nation for entrepreneurship.
CO3	Familiarization with the critical success factors in marketing products or services to business customers to get better employability in industry.
CO4	Development of skills and expertise in the use of the newer marketing methods and techniques for development of skill.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBAMK 13
Course Name	Service and Industrial Marketing

COs	Description
CO1	Demonstrate an extended understanding of the similarities and differences in service based and physical product-based marketing activities skills enhancement
CO2	Demonstrate a knowledge of the extended marketing mix for services and develop & justify marketing planning and control systems appropriate to service-based activities benefit for entrepreneurial skills
CO3	The subject will prepare the students for a career in national and International companies in "Industrial Marketing" for more employability and expose the students to a variety of product-market situations in the Indian context.
CO4	To use and evaluate the concepts and frameworks this may be more relevant in industrial marketing situations to develop skills to formulate implementable marketing strategies for entrepreneurship and employability

Course Code	MBAMK 14
Course Name	Customer Relationship Management

COs	Description
CO1	Apply the concept of CRM, the benefits delivered by CRM, the contexts in which it is used, the technologies that are deployed and how it can be implemented understanding for entrepreneurial skill
CO2	Implement how CRM practices and technologies enhance the achievement of marketing , sales and service objectives throughout the customer life-cycle stages of customer acquisition, retention of national and international customer and development whilst simultaneously supporting broader organizational goals to develop skills and better employability
CO3	Student identify and evaluate various technological tools for data mining and also successful implementation of CRM in the Organizations for better skilling of entrepreneurship
CO4	Students make customer relationship management strategies by understanding customers' preferences for the long-term sustainability of the Organizations for employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBAMK 15
Course Name	International Brand Management

COs	Description
CO1	Develop an International strategic brand equity business plan based on an accurate analysis of a business situation. for better employability
CO2	Evaluate the customer environment for new and existing brands and build this customer focus into brand strategy in unpredictable and complex contexts for skill development
CO3	Develop a communication strategy which integrates all communication elements – traditional and interactive for entrepreneurial skills and employability
CO4	Student able to evaluate an International brand audit using both primary and secondary sources and propose strategic recommendations based on the audit results knowledge for better employability in industry

Course Code	MBAMK 16
Course Name	Logistics and Supply Chain Management

COs	Description
CO1	Students identify and evaluate the functions of national logistics system, new issues and trend and new techniques of logistics management used in International market for enhancing their skills
CO2	Understand the fundamentals of elements and functions of supply chain, role of drivers and demand forecasting for better employability in industry
CO3	Analyze how supply chain decisions related to facility location can be applied to various industries and designing the supply chain for learning entrepreneurial skills
CO4	Understand how various warehousing management system and transportation can be practiced in various industries for entrepreneurship and employability

Course Code	MBAFM 01
Course Name	International Finance

COs	Description
CO1	Describe the structure of the global financial system, the functions and main elements. to inculcate skill.
CO2	Understand the concept of Foreign Exchange Market and also explain and apply orthodox theories of exchange rates. to inculcate skill, provide employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Apply knowledge of foreign exchange hedging to identify and manage the foreign exchange risks faced by globally active firms. to provide employability & entrepreneurial skills.
CO4	Learn about the various International Money and capital market instruments and recent developments in International Finance. to provide entrepreneurial skills.

Course Code	MBAFM 02
Course Name	Indian Financial Markets, Institutions and Services

COs	Description
CO1	Know the concept and importance of Indian financial system in the growth of Indian economy to inculcate skill, provide employability.
CO2	Know the various National banking tools to manage the activities of commercial banks like ALM, CAN, Liquidity management and also understand to manage NPAs of banks to inculcate skill, provide employability & entrepreneurial skills.
CO3	Know the types, functions and role of non-banking financial corporations in the development of Indian economy to provide employability & entrepreneurial skills.
CO4	Know the importance of various national financial services providing under the India financial system and also know about the e-banking services for the customers to inculcate skill, provide employability & entrepreneurial skills.

Course Code	MBAFM 03
Course Name	Security Analysis and Portfolio Management

COs	Description
CO1	Appreciate and apply the concepts of Investment analysis in theory as well as in a real-life situation for increasing employability and entrepreneurial development
CO2	Identify numerous investments in national and international companies related risks that an investor is subject to while investing in financial securities entrepreneurial development
CO3	Carry out Fundamental Analysis (that involves Economy Analysis, Industry Analysis and Company Analysis) to study the intrinsic strength of a firm and make investment decisions based on the study for entrepreneurial development
CO4	Analyze and interpret various technical charts related to stock price movements and predict future price movements to comment on

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Buy/Sell/Hold decisions, and, Comprehend the news items appearing in the financial dailies to provide skills and employability.

Course Code	MBAFM 04
Course Name	Financial Derivatives and Risk Management

COs	Description
CO1	Describe standard derivative contracts, their properties and functionality to provide skills and employability.
CO2	Understand the concept of various derivative products such as futures, options, and forwards contracts to provide skills and employability.
CO3	Apply National exchange hedging models in assessing price risk of various energy derivatives to provide skills and employability.
CO4	Analyze and estimate value at risk for various energy derivatives to provide skills and employability.

Course Code	MBAFM 05
Course Name	Mergers, Acquisition and Corporate Restructuring

COs	Description
CO1	Developed understanding of the economic activity of M & A taking place in the Indian economy for the learning of entrepreneurial skills.
CO2	Ability to examine the merger and acquisition process of national companies in the capital market for the development of skills.
CO3	Ability to illustrate the leading methods used in the valuation of a firm for merger analysis for better employability in industry.
CO4	Familiarity with the techniques of corporate restructuring for entrepreneurship.

Course Code	MBAFM 06
Course Name	Tax Procedure and Planning

COs	Description
CO1	Acquire the knowledge about the basic principles and concepts of tax regarding skill development.
CO2	Understand the rules and provisions of income tax under five heads of income namely, Income from Salaries, Income from House Property, Profits and Gains of Business or Profession, Capital Gains and Income from other sources for entrepreneurship.
CO3	Analyse and apply the permissible exemptions and deductions from

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	income under Income tax Act applicable in nation for employability.
CO4	Gain practical knowledge in computing tax liability of an individual and the filing of Income tax returns for better skills in entrepreneurship and employability.

Course Code	MBAFM 07
Course Name	Public Finance

COs	Description
CO1	Student able to identify and analyse the role of national Government in the economy for private and public finance for entrepreneurship
CO2	Develop complete understanding of theories of public expenditure and their application for skill development
CO3	Thoroughly understand concepts and theories related to Public policy and rational choice for employability and skill development
CO4	Identify differences in processes, revenue sources, and budgetary challenges that exist between different levels of government for learning entrepreneurship skill

Course Code	MBAFM 08
Course Name	Indian Financial System

COs	Description
CO1	Student understand the complete knowledge of Financial System of India for employability
CO2	Students able to understand the function of National banking and non-banking financial institutions, their role in financial system, sources of finance for developing entrepreneurship
CO3	Students gain the knowledge about primary and secondary function of banking and investment policy with new reforms in banking sector for developing entrepreneurship skill and employability
CO4	Understanding of technical terms relating to Financial System like Derivatives, Stock etc, function of RBI for employability

Course Code	MBAFM 09
Course Name	Financial Services Management

COs	Description
CO1	Clarity about the role of SEBI, IDBI, NABARD, EXIM and other national development banks and increase entrepreneurship skill.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Students get a complete knowledge of Financial Markets of India and increase employability with skills development.
CO3	Understanding of technical terminology to develop skills and policies related to Mutual Funds apply on national companies
CO4	Development of basic understanding related to services offered by the depositories in India for entrepreneurship and employability.

Course Code	MBAFM 10
Course Name	Money and Banking

COs	Description
CO1	Student able to review and understand Current Banking Scenario India for entrepreneurship.
CO2	Student able to enhance entrepreneurial skills, regarding impacted the operation of today's financial companies.
CO3	Students able to evaluate theoretical exposition and meaningful insights relating to national Policy environment and Legal Aspects for Banks in India to gain knowledge on entrepreneurship and enhance skills.
CO4	Students become familiar with current issues in financial services as well as reasons Identify leading trends affecting the financial services industry knowledge for better employability in industry.

Course Code	MBAFM 11
Course Name	Traditional and Modern Portfolio Theory and Management

COs	Description
CO1	Provide students with a conceptual and analytical framework of Investment and compliance requirements laid down by SEBI applicable for national companies understand entrepreneurship skills.
CO2	Familiarizing students with practical application of financial markets knowledge for better employability in the industry.
CO3	Understanding of application of portfolio theory for portfolio construction and evaluation for skills development.
CO4	Formulate and exercise appropriate judgment in selecting and presenting information using various methods relevant to securities analysis and portfolio management for entrepreneurship & employability.

Sanjeev Bhardwaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBAFM 12
Course Name	Direct Tax Law and Accounts

COs	Description
CO1	Students would identify the technical terms related to Income Tax policies framed by nation to develop skills.
CO2	Students would determine the residential status of an individual and scope of total income understanding to learn entrepreneurial skills.
CO3	Students would compute income from salaries, house property, business/profession, capital gains and income from other sources for more employability and entrepreneurship.
CO4	Students would familiar with the computation of income from business and profession for better employability in industry.

Course Code	MBAFM 13
Course Name	Analysis of Fixed Income Security

COs	Description
CO1	Demonstrate basic understanding of various fixed Income securities, their derivatives and national markets for skill development
CO2	Demonstrate basic understanding of various term structure models and apply appropriate techniques to use them for better employability
CO3	Demonstrate basic understanding of the use of fixed Income Securities and derivatives for risk management for learning entrepreneurial skills
CO4	Demonstrate critical and analytical skills wherein they should be able to make sense out of a mass of information to address relevant issues pertaining to fixed income markets for better employability in industry

Course Code	MBAFM 14
Course Name	Behavioral Finance

COs	Description
CO1	Understand the limitation of rational models of investment decision making for skills development
CO2	To analyze and evaluate behavioral finance concept, behavioral finance theories and their application on national companies and International companies for better employability
CO3	Understanding of heuristics and biases and their application in the investment decision making process for learning entrepreneurial skills
CO4	To explore behavioral corporate finance, approaches and how decision is made on the basis of Behavioral finance for better employability in industry

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBAFM 15
Course Name	Investment Management

COs	Description
CO1	Demonstrate a basic understanding of investments and the degrees of investing for national companies for skills development
CO2	Exhibit the acquaintance of the securities market and its constituents followed by national companies for learning entrepreneurial sills
CO3	Apply knowledge gained to perform analysis of various securities, funds for better employability in industry
CO4	Analyze and apply models to securities performance and forecasting and Construct optimal portfolios and evaluate those using models for entrepreneurship and employability

Course Code	MBAFM 16
Course Name	Management of Commercial Banks

COs	Description
CO1	Student will able to understand various types of National banks and their special features to develop skills
CO2	Student will able to understand the role and structure of Indian banking system and analyse the working of National financial holding companies for better employability
CO3	Student will able to analyse and evaluate the reforms and other developments in the Indian Banking for the learning of entrepreneurial skills
CO4	Student will able to understand the functions and role of Reserve Bank of India and analyse the financial statement, audit for entrepreneurship and employability

Course Code	MBAHR 01
Course Name	Performance Management

COs	Description
CO1	Understand the concept, dimensions, framework & theories of performance management and their applications. to inculcate skill, provide employability
CO2	Learn concept of performance planning and development; planning mechanism & documentation, Critical evaluation of effectiveness of performance management; different advantages of implementing well-designed performance management systems used by globally to inculcate skill, provide employability & entrepreneurial skills.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand different approaches to performance appraisal; job-related performance standards and indicators that reflect the employee's range of responsibilities; best practices, skills & attributes involved in effective performance management systems to provide employability & entrepreneurial skills.
CO4	Understand issues and ethics in Performance Management; team performance management to inculcate skill, provide employability & entrepreneurial skills.

Course Code	**MBAHR 02**
Course Name	**Labour Laws and Industrial Relations**

Cos	**Description**
CO1	Know the conceptual framework of IR to inculcate skill, provide employability & entrepreneurial skills.
CO2	Relate with the facets of Trade Unions applied in nation along with the importance of a collective stance to problem Solving. to inculcate skill, provide employability & entrepreneurial skills.
CO3	Know the national legislations related to labour intensive industries. to provide employability & entrepreneurial skills.
CO4	Appreciate the growth and provisions of social security in India. to provide employability & entrepreneurial skills.

Course Code	**MBAHR 03**
Course Name	**Training and Development Systems and Practices**

Cos	**Description**
CO1	Acquire knowledge regarding the concept, scope, importance and various components used in training and development of employees followed by national and International companies for skill development and increasing employability.
CO2	Understand the need for training and development and various methods used to train and develop employees in the organizations for skill development and increasing employability.
CO3	Evaluate (using multiple levels of analyses) the effectiveness of training and development programs for skill development and increasing employability.
CO4	Leverage the emerging trends in the field of training and development including Electronic Enabled Training Systems and six sigma for skill development and entrepreneurship

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBAHR 04
Course Name	Participative Management

Cos	Description
CO1	Understand the concept of participative management in a holistic manner and appreciate its relevance to provide employability
CO2	Learn the different types of participation and the various forums commonly used to provide employability
CO3	Understand the structural arrangements required to promote WPM in national industries at various levels for skill development and employability
CO4	Understand the evolution of WPM in Indian context and its practice by the corporate world for skill development and employability

Course Code	MBAHR 05
Course Name	Organizational Change and Development

Cos	Description
CO1	Gain knowledge about concept of organizational change & development. for skill development
CO2	Analyze different kinds and levels of organizational changes. For entrepreneurship
CO3	Demonstrate implementation process of change, setting up of change teams, problems associated with organizational change faced by national and international companies' process & Absorbing Changes into Organization. for entrepreneurship & employability
CO4	Understand HR and Technological change & Organizational Development. for skill development, entrepreneurship & employability

Course Code	MBAHR 06
Course Name	Negotiation and Counseling

Cos	Description
CO1	Understand the concepts & tactics of negotiation for skill development and entrepreneurship.
CO2	Identify and demonstrate the dynamic nature of negotiation process and sub processes. For entrepreneurship & employability.
CO3	Understand the International and Cross-Cultural Negotiation & their influence on business for better skilling of entrepreneurship & employability.
CO4	Develop an understanding of emergence, growth, process and the issues related with Counseling for entrepreneurship & employability

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBAHR 07
Course Name	Employee Welfare and Labour Administration

Cos	Description
CO1	Recognize concept & role of social welfare & labour welfare in Structuring of labour force for skill development
CO2	Understand the importance of statutory and non-statutory welfare program followed by national companies and the historic development of these programmes. For entrepreneurship & employability
CO3	Demonstrate Concept, Scope & Development of Social security in India. for entrepreneurship & employability
CO4	Understand rational and contemporary Labour Administrative machinery. for skill development, entrepreneurship & employability

Course Code	MBAHR 08
Course Name	Talent Management

Cos	Description
CO1	Understand and explain concepts, source, tools & building blocks of effective talent management system. for skilling development & entrepreneurship
CO2	Analyze, integrate, and apply the knowledge of Talent Management System and process in national and international companies. For entrepreneurship
CO3	Demonstrate different approaches, Strategies & ethical issues in Talent Management for better skilling of entrepreneurship
CO4	Understand in detail about talent planning, engagement and retention. Appreciate the organizational context and apply relevant contemporary organizational practices to connect the talent. for better skilling of entrepreneurship

Course Code	MBAHR 09
Course Name	Management of Trade Unions

COs	Description
CO1	Recognize about concept, role & different theories related to trade unions for employability.
CO2	Understand about different Trade Union Movements worldwide and their management especially in country like India for entrepreneurship & employability.
CO3	Gain knowledge about administration of trade unions and industrial relations for entrepreneurship & employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand about procedure of trade union elections, emerging trends & social responsibilities of these unions followed Internationally and nationally for better skilling in entrepreneurship & employability.

Course Code	MBAHR 10
Course Name	Cross Cultural Management

COs	Description
CO1	Understand the concept of cross culture & its dimensions for a business context skill development and employability.
CO2	Understand cross culture global business scenario and its influence on business decision making. Skill development & entrepreneurship.
CO3	Develop strategies for cross cultural leadership and decision making for skill development, entrepreneurship & employability.
CO4	Understand the importance of forming high performance winning teams across cultures, formulating strategies for cross cultural manpower & its effective implementation & developing a framework for the values and behaviors necessary to build high-performance organization for Skill development & entrepreneurship.

Course Code	MBAHR 11
Course Name	Global HRM

COs	Description
CO1	Understand the concept of managing human resource globally, the investment perspective of human resources & Understanding challenges of managing Human resources in global context for skill development and employability.
CO2	Analysing issues and challenges of HR department in global recruitment, compensation, succession planning, performance management and employee relations for entrepreneurship & employability
CO3	Evaluating HR in international context to formulate HR strategy like Performance Management & Compensation to align with business strategy for skill development, employability & entrepreneurial skills.
CO4	Developing HR & employee empowerment policies and practices for minimizing cross-national differences and achieve organizational effectiveness & Suggesting implementation framework for strategies of cultural change process for continuous improvement in organizations performance for employability & entrepreneurial skills.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBAHR 12
Course Name	HR Audit

COs	Description
CO1	Learn the major concerns or challenges one might face while conducting an HR audit for skill development and entrepreneurship.
CO2	Learn the methods and approaches to conduct an HR audit in nation. for entrepreneurship & employability
CO3	Learn the major concerns or challenges one might face by local, national and international companies while conducting an HR Audit, evaluate the system of acquiring, developing, assigning and utilizing human resources in the organization & preparation of audit Report for skill development, employability & entrepreneurial skills.
CO4	Understand about Legal Compliance for Safe Business Practices & issues in Human Capital Measurement and Reporting for employability & entrepreneurial skills.

Course Code	MBAHR 13
Course Name	Team Building, Training and Development

COs	Description
CO1	Understand and explain the concept of teambuilding and its process in detail. for entrepreneurship
CO2	Learn to identify the different types of teams their leadership and management & develop different strategies for leading, Recognize the different team development stages and behaviors for entrepreneurship & employability
CO3	Understand the importance & uses of Training and Development for national and international companies in team building for entrepreneurship & employability
CO4	Identify the training needs, training method and their effectiveness. for entrepreneurship & employability

Course Code	MBAHR 14
Course Name	Compensation Management

COs	Description
CO1	Recognize how pay decisions help the organization achieve a competitive advantage. for skill development and entrepreneurship
CO2	Analyze, integrate, and apply the knowledge of compensation strategy to solve compensation related problems in local, national and global organizations for entrepreneurship & employability

Sanjeev Dawra
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Demonstrate comprehension by constructing a compensation system encompassing; Internal consistency, external competitiveness, employee contributions, organizational benefit systems and administration issues. for entrepreneurship & employability
CO4	Design rational and contemporary compensation systems in modern organizations. for entrepreneurship & employability

Course Code	MBAHR 15
Course Name	Human Resource Management in Service Sector

COs	Description
CO1	Learn the concept of Service, issues and growth reasons for service sector. for entrepreneurship
CO2	Learn about nature of service sector, customer groups, maintenance and improvement in service quality and performance. for entrepreneurship & employability
CO3	Understand about HRM functions in Service Sector, application of HRM in service sector and the problems and challenges associated therein. for skill development, employability & entrepreneurial skills.
CO4	Understand about applicability of HRM in different sectors like local, national and international organisations for employability & entrepreneurial skills..

Course Code	MBAHR 16
Course Name	Women and Children in Employment

COs	Description
CO1	Understand and explain big picture of trends in women's Participation in the Labour Force, for entrepreneurship
CO2	Analyze, and apply the knowledge participation of women workers in different sectors of economy for entrepreneurship & employability
CO3	Understand the different legislation on women to provide them legal protection. for entrepreneurship & employability
CO4	Understand in detail about dimensions of child labour in India and legislative provisions on child labour laws followed by regional and national level for entrepreneurship & employability

Course Code	MBAOM 01
Course Name	Inventory Management

COs	Description
CO1	Understand the meaning, components and objectives of inventory, Material Requirement Planning (MRP), objectives and Methods, MRP

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	System Components followed by national and international companies , Limitations and Advantages of MRP. to provide entrepreneurial skills.
CO2	Understand factors influencing inventory management and control, Feedback Inventory Information System; Selecting Inventory Control Techniques: ABC Analysis, HML Analysis, VED Analysis, SDE Analysis, Just in Time (JIT) to inculcate employability & entrepreneurial skills.
CO3	Assess the meaning of purchasing, benefits and the process of inventory management and control, classification and codification of material, Stock Valuation Methods and Stock Verification. to provide employability
CO4	Understand the meaning Material Handling, Transportation Strategy and Cost Reduction; Waste management, Sources of Surplus, Disposal of Surplus to inculcate skill, provide employability & entrepreneurial skills.

Course Code	MBAOM 02
Course Name	**Manufacturing Procedures and Technology Management**
COs	**Description**
CO1	Manage operations function, drive transformation process and devise operations strategy, to inculcate skill, provide employability & entrepreneurial skills.
CO2	Understand the key concepts in Production Planning & manage its end-to-end process, to provide entrepreneurial skills.
CO3	Define components and other related concepts of technology management, to inculcate employability & entrepreneurial skills.
CO4	Understand the concept of selection and implementation of new technologies and its various forms for local, national and global companies to inculcate skill, provide employability & entrepreneurial skills.

Course Code	MBAOM 03
Course Name	**Logistics Management**
COs	**Description**
CO1	Understand the meaning and concept of logistics management, Describe the bullwhip effect in logistics management and relevance of logistics to export management for skill development and increasing employability
CO2	Understand the Overview of Logistics Function various facility location decisions and logistics costing, performance auditing and Strategy and planning for skill development and increasing employability
CO3	Understand the inventory management systems and its coordination with logistics activities, and exercises –numerical problem solving, ABC, SDE

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	/ VED Analysis, Just-In-Time & Kanban System of Inventory management for skill development and increasing employability
CO4	Understand the transportation fundamentals and future of logistic industry and Order Processing & Information Systems Transport Fundamentals, Transport Decisions, Storage & Handling System & Decisions followed by global and national industries for skill development and entrepreneurial development

Course Code	MBAOM 04
Course Name	Total Quality Management

COs	Description
CO1	Understand the meaning of terms such as quality, quality control and quality assurance, Describe the basic concepts of benchmarking and customer perception of quality for skill development
CO2	Understand the meaning Contribution of Deming Theory of Kaizen, Supplier Management and Supplier Selection for skill development
CO3	Understand the meaning tools and techniques of ISO 9000 and ISO 14000 quality systems for national companies , and QFD process, FMEA documentation- Process of FMEA documentation, Total Productive Maintenance for skill development, increasing employability and entrepreneurial development
CO4	Understand the meaning of "statistical process control" (SPC) technique and the various types of control charts and Quality strategy for Indian Industries, Quality Management in India for skill development, increasing employability and entrepreneurial development

Course Code	MBAOM 05
Course Name	Store and Warehousing Management

COs	Description
CO1	Understand the Stores and Warehousing, for better skilling of entrepreneurship.
CO2	Understand the, Retailing and Warehousing, Challenges in retail warehousing for better employability in industry.
CO3	Understand, Different Types of Customers in Warehousing used by national companies understanding for entrepreneurial skill.
CO4	Enable the students to Warehouse information Introduction, Objectives, Importance of Warehouse Information, Decision Making Using Warehouse Information for entrepreneurship.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBAOM 06
Course Name	Material Handling and System

COs	Description
CO1	Define Material handling and for understanding entrepreneurial skills, material handling equipment for better skill development
CO2	Understand thruster operated shoe brakes - control brakes for entrepreneurship and employability.
CO3	Understand the working of elevating equipment and hoisting of equipment knowledge for better employability in industry.
CO4	Enable the students about conveying machinery, Traction type conveyors Working belt conveyors- chain conveyors-bucket elevators- escalators-for better employability.

Course Code	MBAOM 07
Course Name	Operation Management and Strategy

COs	Description
CO1	Define and evaluate the relevance of Finance Productivity and Productivity Measures for entrepreneurship and employability.
CO2	Defining concept of management and developing Queuing Theory Process Simulation for understanding entrepreneurship.
CO3	Describe Capacity Planning Operations Planning Process for national firms Aggregate Planning CRP, MRP, ERP Scheduling, TOC for skill development
CO4	Develops and apply knowledge about Process Improvement Quality Management for better entrepreneurship.

Course Code	MBAOM 08
Course Name	Service Operation Management

COs	Description
CO1	Define Positioning of Services in the Organisation Value Chain for entrepreneurship and employability,
CO2	Define various Human Factor in Services; External Associates in Service Processes for skill development,
CO3	Develop New Service Development knowledge for better employability in industry;
CO4	Understand the basics of Customer Relationship Management followed by National and global firms; Inventory Management for Improved service Delivery for entrepreneurship and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBAOM 09
Course Name	**Linear programming and Data Envelopment Analysis**

COs	Description
CO1	Understand the assignment problem, transportation problem, linear programming and game theory, linear programming and input output for skill development.
CO2	Understand the, multiple criteria decision making for better skilling of entrepreneurship.
CO3	Understand output- maximization and input-minimization DEA models understanding for entrepreneurial skills.
CO4	Enable the students Practical applications using sectoral data in national companies for entrepreneurship and employability.

Course Code	MBAOM 10
Course Name	**Supply Chain Analytics**

COs	Description
CO1	Understand the basic Road Map for better skilling of entrepreneurship.
CO2	Understand Space Determination and Layout Methods knowledge for better employability in industry.
CO3	Understand Risk Analysis in Supply Chain Measuring transit risks, supply risks, delivering risks, Risk pooling strategies for entrepreneurship and employability.
CO4	Enable the students to the transportation network models to the regional, and national companies Notion of Graphs, Minimal Spanning Tree, Shortest Path Algorithms for skill development for better skilling of entrepreneurship.

Course Code	MBAOM 11
Course Name	**Business Analytics**

COs	Description
CO1	Define descriptive statistics meaning and its scope Skewness and Kurtosis which helps for skill development
CO2	Provide information relating to Time Series & Index Number applications in business decision-making for understanding entrepreneurship and employability.
CO3	Describe and discuss Properties of Regression Coefficients and Relationship between Regression and Correlation for better skilling of entrepreneurship.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Provide information relating to Probability Theory & Distribution Probability to the local and national level companies for better employability.

Course Code	MBAOM 12
Course Name	Decision Sciences

COs	Description
CO1	Enable to understand Importance of Decision Sciences & Role of Quantitative Techniques in Decision Making for better skills of entrepreneurship.
CO2	Defining concept of Linear Programming and Limitations for entrepreneurship and employability.
CO3	Describe probability Concept, Conditional Probability and theories for skill development.
CO4	Develops and apply knowledge about CPM & PERT for new projects of local, national and global companies for better understanding for entrepreneurship and employability.

Course Code	MBAOM 13
Course Name	International Logistics Management

COs	Description
CO1	Define the concepts Relevance of International Logistics in Foreign Trade understanding for entrepreneurial skill
CO2	Provide information relating to Chartering Practices. Organization of Shipping Company. Freight Structure for better skilling of entrepreneurship.
CO3	Describe and discuss different types of Functions. International Shipping Intermediaries for skill development.
CO4	Provide information relating to Logistic Control Process. Risk Management its Importance and Types for better skilling of entrepreneurship

Course Code	MBAOM 14
Course Name	Warehouse Management

COs	Description
CO1	Understand the concepts documents required for issuing goods for better skilling of entrepreneurship
CO2	Provide information relating to strategic warehousing for better

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	understanding of entrepreneurship.
CO3	Describe and discuss Functions of Warehouse-break-bulk, cross docking, order mixing for skill development.
CO4	Provide information relating to Centralized and Decentralized Storage Systems for local and international companies for better understanding of entrepreneurship and employability.

Course Code	MBAOM 15
Course Name	Documentation and Indirect Taxes

COs	Description
CO1	Develop better Goods and Service Tax (GST) documentation for better skilling of entrepreneurship;
CO2	Compose various types of Registration under GST Identification Number understand Registration Number Format for skill development.
CO3	Define and understand Supply under GST and Valuation of Supply late fee and interest and documentation understanding for entrepreneurship.
CO4	Understand the basics of effective custom duties Indirect taxation applicable to few commodities levied by either Central or State Government on local and national companies' knowledge for better employability in industry.

Course Code	MBAOM 16
Course Name	TQM-Manufacturing & Services

COs	Description
CO1	Develop better understanding of Quality in sales and services, Guarantee, analysis of claims for entrepreneurship and employability
CO2	Define Quality Management Supplier partnership, Partnering, Supplier rating & selection for better skilling of entrepreneurship.
CO3	Understand tools Techniques knowledge for better employability in industry.
CO4	Understand the basics of Defects Diagnosis and Prevention quality circle for national companies. Understanding for entrepreneurial skill

Course Code	MBAIB 01
Course Name	Foreign Exchange Management

COs	Description
CO1	Understand the Basic Concepts of National and International foreign exchange, various types of Theories of foreign exchange, and various

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	types of Exchange Rate Regimes To provide employability & entrepreneurial skills.
CO2	Understand the price theory of exchange rate volatility, exchange rate overshooting and the J-curve effect; Central banking intervention for exchange rate stability Exploring the international sources of long-term finance to inculcate skill.
CO3	Understand the nature of the national and international market and transactions, spot and forward markets, different methods of quoting exchange rates. to inculcate skill, provide employability & entrepreneurial skills.
CO4	Understand the currency futures, Euro currency, and Foreign-exchange regulation in India, foreign exchange risk and exposure. to inculcate skill, provide employability & entrepreneurial skills.

Course Code	**MBAIB 02**
Course Name	**Export Import Procedures and Documentation**
COs	**Description**
CO1	Understand export prospects, Process of Export Marketing and its legal framework. to inculcate skill, provide employability & entrepreneurial skills
CO2	Understand the nature and features of International Trade operations and documentation, EDI and ADS documentation, WTO Provisions to inculcate skill.
CO3	Understand the Export contracts; Export price quotations; Shipping and custom clearance of export and import cargo, Methods of payment in international trade, UCPDC guidelines, provisions of RBI's Exchange Control Manual to inculcate skill, provide employability & entrepreneurial skills.
CO4	Understand the Pre-shipment & Post-shipment Finance, Role of EXIM bank and Export Credit Guarantee Corporation (ECGC) in India, Mechanism of Price Fixation and Types of Export Houses. to inculcate skill, provide employability & entrepreneurial skills.

Course Code	**MBAIB 03**
Course Name	**International Business Environment**
COs	**Description**
CO1	Understand and apply appropriate frameworks to analyze the international business environment; the concept of the various constituents of environment and their impact on business; determine how the

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	international business environment influences business practices for skill development, increasing employability and entrepreneurial development
CO2	Concept and significance of balance of payments account and related policies for skill development, increasing employability and entrepreneurial development
CO3	Apply the trade theories, investment theories, exchange rate theories and regional trading bloc theories and their impact on economic welfare and business; to analyze the principles and the different exchange rate regimes and their impact on business for skill development, increasing employability and entrepreneurial development
CO4	Understand the role of International Economic Institutions and Agreements in international business and opening the economies of developing countries like India for skill development, increasing employability and entrepreneurial development

Course Code	**MBAIB 04**
Course Name	**Foreign Trade Policy**
COs	**Description**
CO1	Understand the multiple theories related to International Trade, its evolution and related key concepts for skill development and entrepreneurial development
CO2	Understand the concept of FDI and various instruments of Commercial Policy for entrepreneurial development
CO3	Understand the factors of International Trade in Services and Integration of Regional Economies for skill development and entrepreneurial development
CO4	Define Foreign Trade & Investment Policy Framework and Promotional Measures in India for skill development and entrepreneurial development

Course Code	**MBAIB 05**
Course Name	**Global Human Resource Management**
COs	**Description**
CO1	Understand the basic concepts of Global Human Resource Management, its scope Contemporary global trends in HRM for better skilling of entrepreneurship.
CO2	Understand International HRM department and functions; Models of international HRM for understanding of entrepreneurial skill.
CO3	Understand the International staffing for better understanding of employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Enable the students Working with multicultural and ethnic groups for skill development Health and safety and International Assignees and better understanding of HRIS for entrepreneurship and employability

Course Code	MBAIB 06
Course Name	International Sales Force and Channel Management

COs	Description
CO1	Understand the basic concepts of Centralisation and decentralisation of sales force management in the global context understanding for entrepreneurial skill.
CO2	Understand Sales research and analysis International HRM department and functions; Models of international HRM for understanding of entrepreneurial skill.
CO3	Understand Sales planning and forecasting better understanding of employability.
CO4	Enable the students Working with multicultural sales rewards to skill development and understanding for entrepreneurial skill.

Course Code	MBAIB 07
Course Name	International Organizational Behavior

COs	Description
CO1	Understand the Organizational Ethics Cross cultural ethical issues communication for entrepreneurship and employability.
CO2	Provide information relating to culture shapes workplace perception and attitudes Culture and key work-related attitudes for better skilling of entrepreneurship.
CO3	Describe and discuss Negotiation and Conflict Resolution Managing Power in the workplace understanding for entrepreneurial skill development
CO4	Provide information Building global commitment through Labour Relations to develop skills.

Course Code	MBAIB 08
Course Name	Brand Management of International Business

COs	Description
CO1	Understand the basic Brand and Brand Planning for better skilling of entrepreneurship,
CO2	Understand Integrating Marketing Communications for global context for entrepreneurship and employability Build Brand Equity for skill

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development.
CO3	Understand Measure Brand Equity for better skilling of entrepreneurship.
CO4	Enable the students to the Global Branding Strategies Measuring Brand Equity. Legal Issues in Branding and Commercial Brands for understanding entrepreneurial skills

Course Code	MBAIB 09
Course Name	International Trade and Law
COs	**Description**
CO1	Define and evaluate the relevance of International Finance Productivity and Productivity Measures for entrepreneurship and employability.
CO2	Defining concept of management and developing Queuing Theory Process Simulation for understanding entrepreneurship.
CO3	Describe Capacity Planning Operations Planning Process Aggregate Planning CRP, MRP, ERP Scheduling, TOC for skill development.
CO4	Develops and apply knowledge about Process Improvement Quality Management global warming for skill development WTO Provisions on Anti-Dumping Duties.

Course Code	MBAIB 10
Course Name	International Tendering and Commodity Trading
COs	**Description**
CO1	Understand International Tendering Meaning strategies understanding for entrepreneurial skill.
CO2	Understand International sourcing Value chain analysis knowledge for better employability.
CO3	Understand the business process outsourcing employability production and trade to development of entrepreneurial skills.
CO4	Enable the students working with international commodity agreements and understanding for entrepreneurial skill.

Course Code	MBAIB 11
Course Name	Digital Product Management
COs	**Description**
CO1	Understand the product management skills, for better skilling of entrepreneurship,
CO2	Understand the, quantitative methods, Challenges in new product

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development on digital platform for better employability in industry,
CO3	Understand, Different Types of products and relations between them for understanding for entrepreneurial skill,
CO4	Enable the students to ideation about the product and hypothesis development, Information, Decision Making Using product Information for national and international context for entrepreneurship.

Course Code	MBAIB 12
Course Name	Technology Driving International Business

COs	Description
CO1	Validate an extended understanding of the international business stages, activities for skills development
CO2	Inculcate a knowledge of the product life cycle theory for the learning of entrepreneurial skills
CO3	Demonstrate integrative knowledge of international business management and loyalty for better employability in the industry
CO4	Conduct an investigation of the modes of entering international business for entrepreneurship and employability

Course Code	MBAIB 13
Course Name	International Banking

COs	Description
CO1	Understand the concepts international banking and multinational banking understanding for entrepreneurial skill
CO2	Provide information relating to English Banking System for better understanding entrepreneurial skill
CO3	Describe and discuss Federal Reserve System for entrepreneurship and employability.
CO4	Provide information relating to Investment Banking service portfolio, regulatory framework by RBI for skill development.

Course Code	MBAIB 14
Course Name	International Business Management

COs	Description
CO1	Define the concepts Relevance of International Logistics in Foreign Trade understanding for entrepreneurial skill
CO2	Provide information relating to Chartering Practices. Organization of Shipping Company. Freight Structure for better skilling of

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	entrepreneurship.
CO3	Describe and discuss different types of Functions. International Shipping Intermediaries for skill development.
CO4	Provide information relating to Logistic Control Process. Risk Management its Importance and Types for better skilling of entrepreneurship.

Course Code	MBAIB 15
Course Name	Trade Blocs and WTO
COs	**Description**
CO1	Understand the basic Trade Blocs for skill development.
CO2	Understand Regional Trade Blocs and World Economic System for better skilling of entrepreneurship.
CO3	Understand Trade blocs and India-World Trade Blocs-Trade Flows and International conflicts for entrepreneurship and employability.
CO4	Enable the students to GATT understanding for entrepreneurial skill.

Course Code	MBAIB 16
Course Name	International Strategic Management
COs	**Description**
CO1	Understand the basic Strategic Management Process for skill development.
CO2	Understand Corporate Social Responsibility, Ethical and Social Considerations in Strategy Development understanding for entrepreneurial skill
CO3	Understand Industry and Resource analysis Environmental appraisal for entrepreneurship and employability
CO4	Enable the students International Corporate Portfolio Analysis Business Portfolio Analysis for entrepreneurship and employability

Course Code	MBAIT 01
Course Name	System Analysis and Design
COs	**Description**
CO1	Understand project management techniques, explain the purpose and activities of the Systems development life cycle phases to inculcate skill, provide employability
CO2	Understand and model classes of data within a system. to inculcate skill, provide employability & entrepreneurial skills

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand basic tools used by system analyst DFD, ER- Diagrams, Decision Trees for smooth functioning of national companies to provide employability & entrepreneurial skills
CO4	Understand the concepts relating to various models and techniques to auditing and security control used in system analysis and design to provide employability & entrepreneurial skills

Course Code	MBAIT 02
Course Name	Database Management System

COs	Description
CO1	Evaluate business information problem and find the requirements of a problem in terms of data, also Design the database schema with the use of appropriate data types for storage of data for the use of local and national companies in database to inculcate skill, provide employability
CO2	Understand the uses of database schema and need for normalization and apply various Normalization techniques to inculcate skill, provide employability & entrepreneurial skills
CO3	Understand oracle database concepts and structures and query language, Perform PL/SQL programming using concept of Cursor Management, Error Handling, Package and Triggers to inculcate skill, provide employability
CO4	Design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS to inculcate skill, provide employability

Course Code	MBAIT 03
Course Name	Innovation and Technology Management

COs	Description
CO1	Recognize the range, scope, and complexity of issues and problems related to the strategic management of technology and innovation for skill development, increasing employability and entrepreneurial development
CO2	Select and apply disciplinary knowledge in discussing and creating innovative technological solutions, Research for regional and national companies analyze and propose solutions to innovation and technology business issues for skill development and increasing employability
CO3	Discuss ethical and environmental implications of technological innovation – and consider such implications in the proposed solutions for skill development and increasing employability
CO4	Discuss social and cultural implications of technological innovation – and consider such implications in their own proposed solutions for skill development and increasing employability

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBAIT 04
Course Name	Knowledge Management

COs	Description
CO1	Describe different methods for work with knowledge management and techniques for managing knowledge; understand the concept of knowledge and different views of knowledge for skill development and increasing employability
CO2	Evaluate the methods and techniques for explicit knowledge management, show awareness on how different types of knowledge systems can change the work within organizations for skill development and increasing employability
CO3	Understand the architecture and development of knowledge systems, carry through a project; define the purpose of a knowledge system, knowledge acquisition, organization of knowledge, implementing a knowledge system, test, document and evaluate the system of national and global companies for skill development, increasing employability
CO4	Identify key knowledge-related processes in a particular company and diagnose potential barriers to their efficient flow for skill development, increasing employability

Course Code	MBAIT 05
Course Name	Enterprise Resource Planning

COs	Description
CO1	Know the basics of enterprise resource planning so that it can be implemented for skill development;
CO2	Explore the various aspects ERP solutions for small, medium and large enterprise for better employability;
CO3	Understand the importance of ERP implementation with its proper planning for better decision making to develop entrepreneurial skills;
CO4	Appreciate post implementation and its maintenance to know the success and failure of ERP for better employability

Course Code	MBAIT 06
Course Name	Data Communication and Networking

COs	Description
CO1	Understand the concept of data communication and networking for national companies context , and its better implementation for employability;
CO2	Explore the various aspects of network and devices with TCP/IP protocol

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	suites for skill development;
CO3	Understand the importance of signal, time and frequency domains for better entrepreneurial skills;
CO4	Keep the digital transmission with time division multiplexing for skill development.

Course Code	MBAIT 07
Course Name	Cyber Security Ethics & Privacy

COs	Description
CO1	Explore networks and devices, gateways and routing with its uses to develop skill in the field of network;
CO2	Explore the various factors of internet, different IOT with cloud security for national and international companies for employability;
CO3	Understand the importance of cloud applications and remedial measures for entrepreneurial skills;
CO4	Understand the importance of HTTP protocols, HTTP status codes with its uses for employability

Course Code	MBAIT 08
Course Name	Applied Artificial Intelligence for business

COs	Description
CO1	Know the basics of AI with its importance which enhance deep knowledge and its application for national and international companies for skill development;
CO2	Explore the various aspects of transfer learning, neural networks and natural language processing for entrepreneurial and employability;
CO3	Understand the importance of speech recognition with speech to text for self-driving milestones for skill development;
CO4	Appreciate future of AI and social impact with its ethics so that the use of it could not harm the environment for better entrepreneurial skills.

Course Code	MBAIT 09
Course Name	IT in Insurance

COs	Description
CO1	Understand the concept of insurance broker's regulations with its role and functions for better employability;
CO2	Explore the various aspects of capital by which we can arrange equity, code of conduct or professional ethics to develop skills;

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the importance of professional indemnity, payment of fees and consequences of failure to pay fee for employability;
CO4	Keep in understanding about cancellation or suspension of license and penalties of local, national and international companies for better employability.

Course Code	MBAIT 10
Course Name	Management of Intellectual Property Rights

COs	Description
CO1	Understand the concept of IPR so that industry's work can be protected to enhance employability opportunities;
CO2	Explore the understanding the concept of IPRS with its practical aspects of registration of copy right relation to local , national and international companies to develop entrepreneurial skills;
CO3	Understand the importance of agreement and legislation with the knowledge of international treaties and conventions on IPRs to develop skills;
CO4	Know the basics of digital products and law for increasing knowledge assets for entrepreneurial skills.

Course Code	MBAIT 11
Course Name	Cloud Computing

COs	Description
CO1	Know the basics of cloud computing with its network access and rapid elasticity with reference to international standard to develop skills;
CO2	Explore the various aspects of cloud insights by implementation of simplicity and security for better employability opportunities;
CO3	Understand the importance cloud architecture so that proper planning of it can be implemented for skill development;
CO4	Appreciate cloud simulator with cloud sim and green cloud to develop skills.

Course Code	MBAIT 12
Course Name	Software Quality Assurance

COs	Description
CO1	Know better about quality and why TQM is essential for the national , and global company to develop skills;
CO2	Explore the various aspects software quality and also understanding the

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	concept of customer is the king for entrepreneurial skills;
CO3	Understand the importance of testing, necessity of testing and development of life cycle for skill development;
CO4	Know the importance of boundary value testing for better employability skills.

Course Code	MBAIT 13
Course Name	Network Applications

COs	Description
CO1	Know the basics of network applications, network hardware and reference models for skill development.
CO2	Explore the various aspects of design issues, error detection and correction with elementary data for employability.
CO3	Understand the importance of network layer design issues and quality of service related to national and international criteria for skill development.
CO4	Know the concept of transport service with transport protocol with TCP to develop skill in the field of employability.

Course Code	MBAIT 14
Course Name	Data Mining and Coding

COs	Description
CO1	Know the basics of data mining with its stages, techniques with its application for national and global context for skill development;
CO2	Explore the various aspects data warehouse and OLAP, data warehouse and DBMS for entrepreneurial skills;
CO3	Understand the importance of data mining knowledge with visualization techniques for skill development;
CO4	Know about attribute oriented analysis and statistical measures for employability opportunities.

Course Code	MBAIT 15
Course Name	Data Management and Analytics

COs	Description
CO1	Understand the basics of database approach, advantages of using DBMS approach with database languages and interfaces for entrepreneurial skills;
CO2	Explore the various aspects of high level conceptual data models used by national and international companies for database design for skill development;

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the importance of rational model, binary relational operations for employability opportunities;
CO4	Appreciate ACID properties, performance of locking and transaction support in SQL for skill development.

Course Code	MBAIT 16
Course Name	**Data Information and Mobile Computing**

COs	Description
CO1	Develop the knowledge related to mobile computing and its applications for skill development for skill development;
CO2	Explore the various aspects of mobile computing, also provide the capability to change location for developing skills to develop skills;
CO3	Understand the importance of computing for automation and mobility related with national and global context to develop skills in the field of entrepreneurship;
CO4	Appreciate mobile application strategy and infrastructure for skill development.

Course Code	MBAED 01
Course Name	**Entrepreneurship Theory and Practice**

COs	Description
CO1	Recognize the conceptual details of an Entrepreneur and Entrepreneurship; to inculcate entrepreneurial skills
CO2	Appreciate the contribution of various thinkers for their contribution in the field of entrepreneurship; to inculcate skill, provide employability & entrepreneurial skills
CO3	Comprehend the basics of starting a new venture along with how the finances may be
CO4	Know about the facilities available to promote entrepreneurship issued by national agencies for entrepreneurial development

Course Code	MBAED 02
Course Name	**Small and Medium Enterprise**

COs	Description
CO1	Understand the concept of SSIs and gain an insight on the key aspects and challenges of small and medium sized enterprises (SMEs) to provide employability & entrepreneurial skills

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Recognize the conceptual details of an Entrepreneur and Entrepreneurship and also understand the key management issues that founders of SMEs face, in general, and women entrepreneurs faces for starting business in nation in particular to inculcate skill, provide employability & entrepreneurial skills
CO3	Gain knowledge of systems and techniques to manage and strategically position SMEs in the national and international context and also understand the different life phases in a small enterprise and its problems /opportunities to inculcate entrepreneurial skills
CO4	Understand the skills and the intricacies involved in starting an entrepreneurial venture to inculcate skill, provide employability & entrepreneurial skills

Course Code	**MBAED 03**
Course Name	**New Enterprise Management**
COs	**Description**
CO1	Develop their creativity required to generate a Business Idea and conduct its feasibility analysis in national and international context for entrepreneurial development
CO2	Have advance knowledge about the basic formalities of launching an enterprise and have an in-depth understanding of what typically characterizes successes and failures for skill development, increasing employability and entrepreneurial development
CO3	Explore the institutional support available for the Entrepreneurs, including financial and marketing support for increasing employability and entrepreneurial development
CO4	Know about the facilities available to promote entrepreneurship for entrepreneurial development

Course Code	**MBAED 04**
Course Name	**Business Planning and Development**
COs	**Description**
CO1	Develop an understanding about the basic concept of entrepreneurship and the latest trends for entrepreneurial development
CO2	Assess the commercial viability of new technologies, business opportunities and existing companies for skill development, increasing employability and entrepreneurial development
CO3	Assess the motivational factors required to strengthen the entrepreneurial competencies for facing national and international competition for

Sanjeev Agrawal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	increasing employability and entrepreneurial development
CO4	Write and analyse business plans and communicate the results in a professional manner for entrepreneurial development

Course Code	MBAED 05
Course Name	Entrepreneurship and New Venture Planning

COs	Description
CO1	Define the concepts of entrepreneurship and strategic management model for skill development and employability.
CO2	Provide information relating to startup opportunities, evaluating entrepreneurial options and industry analysis for entrepreneurship.
CO3	Describe and discuss different types of National startups finance, gathering the resources for employability.
CO4	Provide information relating to national and international business plan implementation in different perspectives of decision making for organizational effectiveness and managerial knowledge while dealing any other team and different situations with required evaluation and control for skill development and employability.

Course Code	MBAED 06
Course Name	Family Business Management

COs	Description
CO1	Validate an extended understanding of the family business management, physical product-based national and global marketing for activities for skills development
CO2	Inculcate a knowledge of the ownership challenges and family governance to service-based activities for the learning of entrepreneurial skills
CO3	Demonstrate integrative knowledge of strategic planning and transgenerational entrepreneurship, customer satisfaction and loyalty for better employability in the industry
CO4	Conduct an investigation of the future of family business or information to provide valid conclusions for entrepreneurship and employability

Course Code	MBAED 07
Course Name	Social Entrepreneurship

COs	Description
CO1	Define the concepts of entrepreneurship and strategic management model for skill development and employability.
CO2	Provide information relating to social entrepreneurship, social enterprises

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	analysis for entrepreneurship.
CO3	Describe and discuss the for national and international social entrepreneurship process different types of social entrepreneurship frame work, gathering the resources for employability.
CO4	Provide information relating to boundaries of social entrepreneurship and different situations with required evaluation and control for skill development and employability.

Course Code	MBAED 08
Course Name	**Business Analysis and Forecasting**

COs	Description
CO1	Validate an extended understanding of Business analytics, Analytics the New Path for globally business to Value for skills development
CO2	Inculcate a knowledge of the data classifications, the dark side of national and international customer analytics to service-based activities for better employability
CO3	Demonstrate introduction to data mining tools, customer satisfaction and loyalty for skills development.
CO4	Conduct an investigation of the decision modeling, capital budgeting, risk types of problems to provide valid conclusions for skills enhancement and employability

Course Code	MBAED 09
Course Name	**Enterprise Growth and Succession**

COs	Description
CO1	Validate an extended understanding of the foundation of entrepreneurship development. Entrepreneurship as a style of Management for Better Skilling of Entrepreneurship.
CO2	Inculcate knowledge of the theories of entrepreneurship, Women Entrepreneurs. Government Initiatives given to national firms and Inclusive Entrepreneurial Growth for Entrepreneurship & Employability. .
CO3	Demonstrate integrative knowledge of business planning process, Elements of Business Planning for Entrepreneurship & Employability.
CO4	Conduct an investigation of national and international project planning for entrepreneurs, Schemes and Challenges to develop skill

Sanjeev Bhardwaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBAED 10
Course Name	Entrepreneurial Marketing

COs	Description
CO1	Validate an extended understanding of the Definition and Concept of Entrepreneurs the Entrepreneurial Mind-Set for Skill Development.
CO2	Inculcate a knowledge of the State Government in promoting Entrepreneurship with various Incentives, Subsidies, Grants, Export Oriented Units – Fiscal & Tax Concessions, Entrepreneurship Development Institute (EDI) For Better Skilling Of Entrepreneurship.
CO3	Demonstrate integrative knowledge of Idea Generation- Sources and Methods, Identification and Classification of Ideas for Skill Development.
CO4	Conduct an investigation of Business Planning Process: Elements of Business Planning, Preparation of National and International Project Plan Understanding for Entrepreneurial Skill

Course Code	MBAED 11
Course Name	Entrepreneurship and Family Business

COs	Description
CO1	Validate an extended understanding concept of entrepreneurship, family's relationships Entrepreneurial Intention Understanding for Entrepreneurial Skill,
CO2	Inculcate knowledge of the family business, Parallel Planning Process for Better Skilling of Entrepreneurship.
CO3	Demonstrate integrative knowledge of balancing National and international family and business planning, professional management to understanding For Entrepreneurial Skill
CO4	Conduct an investigation of family or Characteristics of Successful Family Businesses For Entrepreneurship & Employability.
Course Code	MBAED 12
Course Name	Technology Innovation and Sustainable Enterprise

COs	Description
CO1	Validate an extended understanding of the Management Functions, Levels of Management, Roles of Manager, Managerial Skills, Management &Administration, Management as a Science, Art &Profession for Entrepreneurship & Employability
CO2	CO2 Inculcate a knowledge of the Behavioral Approach of Leadership; Coordination- Meaning, Types, Techniques of Coordination; Controlling – Meaning, Need for Control System, Benefits Of Control, Essentials Of Effective Control System For Entrepreneurship & Employability

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	CO3 Demonstrate integrative knowledge of Social Responsibilities of Business Towards Different Groups, Social Audit, Business Ethics and Corporate Governance entrepreneurship: Definition of Entrepreneur For Better Skilling Of Entrepreneurship. ,
CO4	CO4 Conduct an investigation of Marketing Feasibility related to national and International market; Financial Feasibilities; Political Feasibilities; Economic Feasibility; Social and Legal Feasibilities for Entrepreneurship & Employability.

Course Code	**MBAED 13**
Course Name	**Management of Buying Behaviors and Modelities**

COs	**Description**
CO1	Validate an extended understanding of Buyer Behavior. National and International Consumer Behavior Knowledge in Marketing and Public Policy Decisions. Modern Consumerism and The Global Consumer Movement Knowledge for Better Employability in industry.
CO2	Inculcate a knowledge of the Consumer Learning: Nature and Sources of Consumer Learning; Learning and Consumer Memory. Consumer Perception for Better Skilling of Entrepreneurship.
CO3	Demonstrate integrative knowledge of Information Search: Internal and External Search, Passive and Active Search. Types Of Information Sought by Consumers: Evaluative Criteria for Entrepreneurship & Employability.
CO4	Conduct an investigation of Consumer Behavior Knowledge in Marketing and Public Policy Decisions. Modern Consumerism and The Global Consumer Movement Knowledge For Better Employability in Industry.

Course Code	**MBAED 14**
Course Name	**Contemporary Issues in Strategy**

COs	**Description**
CO1	Define the concepts of Strategy For Better Skilling of Entrepreneurship, Corporate, Business And Functional Levels of Strategy.
CO2	Provide information relating to external and internal environment Resource Based View of a Firm for Better Skilling of Entrepreneurship.
CO3	Describe and discuss different types of Organizational Capability Profile: Strategic Advantage Profile for Entrepreneurship & Employability.
CO4	Deliberate & Emergent Strategies, Mc Kinsey's 7s Framework; Organization Structures suitable in national and International condition for Strategy Implementation for Skill Development

Sanjeev Bhatnagar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBAED 15
Course Name	Entrepreneurial Finance

COs	Description
CO1	Validate an extended understanding of financing and managing new venture and a new business plan for better skills development in entrepreneurship
CO2	Inculcate the sources of finance, start-up culture followed in nation a knowledge of the Entrepreneurial Culture for Entrepreneurship & Employability
CO3	Demonstrate integrative knowledge of National and International institutional financial support, DICS marketing issues associated with service productivity, customer satisfaction and loyalty for better employability in the industry
CO4	Conduct an investigation of Startup Finance and Sources of Finance, Understanding the Business Model and Financial Projections for Skill Development.

Course Code	MBAED 16
Course Name	Creativity and Innovation

COs	Description
CO1	Inculcate a knowledge of the Creativity Process- Nature and Characteristics of Creativity — Factors Affecting Creativity, Concept of Creativity for Better Skilling of Entrepreneurship.
CO2	Validate an extended understanding of Innovation Business Ideas for national and international market Like Red Bus, Flip Fart, Ola, Big Basket, Methods and Techniques Importance for Entrepreneurship & Employability. In Innovation
CO3	Demonstrate integrative knowledge of Innovation Process & Principles of Design Thinking, Design Thinking Tools Design Thinking & New Product Development, Innovation & Understanding for Entrepreneurial Skill
CO4	Conduct an investigation of Understanding the Forms and Characteristics of Various Painting Traditions for Skill Development

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – Bachelor of Commerce (B.Com)

Course Code	BCOM 101
Course Name	Business Organization

COs	Description
CO1	Understand the meaning of Business, Trade, Industry and Commerce, Features and function, classification of trade skill development and employability
CO2	Understand the formation of business organization in nation and globally and type of companies entrepreneurship.
CO3	Understand the meaning, Importance, Plant Location and Plant Layout, Various kind of Theories of Location and Size of business unit employability.
CO4	Understand to Meaning, objective and causes of Business Combinations, Rationalization and Nationalization and Size of the Business Unit meaning and its objectives skill development and employability.

Course Code	BCOM 102
Course Name	Business Statistics

COs	Description
CO1	Understand the meaning, nature, functions of Statistics and sources and collection of data and classification and tabulation and preparation of diagrams and graphs skill development and employability.
CO2	Understand the meaning and practical application s of Measures of Central Tendency and Measures of Dispersion, and the meaning and application of Skewness entrepreneurship
CO3	Understand the meaning and application s of Correlation and Regression skill development and employability.
CO4	To gain knowledge about the meaning and construction of Index Numbers, and understand the meaning and applications of Time Series and its various methods applied in national firms employability.

Course Code	BCOM 103 A
Course Name	Business Communication

COs	Description
CO1	Understand the basic elements involved in communication process skill development and employability.
CO2	Identify the various types of Communication with their pros and cons entrepreneurship.

Sanjeev Bhardwaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Compose the various applications, letters, documents and reports used for business correspondence as per national and International standard employability.
CO4	Become a good speaker and presenter skill development and employability.

Course Code	BCOM 103 B
Course Name	Introduction to Computer Application

COs	Description
CO1	Understand the elements and generations of computer and number systems along with Software and Operating System skill development and employability.
CO2	Understand the concept of data, its processing and management along with business organizations processing systems entrepreneurship.
CO3	Understand the relevance of Data Base Management System along with the applications of DBMS followed by national and international firm's skill development and employability.
CO4	Describe the basics of Word Processing and understand the meaning and types of networking along with their key concept employability.

Course Code	BCOM CCC 101
Course Name	Food, Nutrition and Hygiene

COs	Description
CO1	Learn the basic concept of the Food and nutrition skill development and employability.
CO2	Learn about the macro and micro nutrition entrepreneurship.
CO3	Learn 1000 days Nutrition concepts and the nutritive requirement during special condition like pregnancy and lactation skill development and employability.
CO4	Understand common health issues in the society and in nation employability.

Course Code	BCOM VOC 101
Course Name	Basics of MS Office

COs	Description
CO1	Understand the purpose, components and utility of MS-Office skill development and employability.
CO2	Prepare personal, academic and business documents for global standard

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	using MS-Word employability.
CO3	Create Spreadsheets, including charts with MS-Excel for various business & personal purposes entrepreneurship.
CO4	Use MS-PowerPoint for creating effective presentations skill development and employability.

Course Code	BCOM 201
Course Name	Business Management

COs	Description
CO1	Understand the concepts related to business and its management along with the contribution of various national and International psychologists to the field of management skill development and employability.
CO2	Demonstrate the roles, skills and functions of management specific to Planning and organizing in organisations entrepreneurship.
CO3	Analyze effective application of POM to direct human resources, solve organizational problems and develop optimal managerial decisions with effective controlling techniques employability.
CO4	Analyse effective application of knowledge to diagnose and solve organizational problems related to recent developments in the field of management and thus develop optimal managerial decisions skill development and employability.

Course Code	BCOM 202
Course Name	Financial Accounting

COs	Description
CO1	Know about the concept of financial accounting and basic principles of accounting with GAAP issued by national government agencies , Journal, Ledger, trail, concept of income and final account preparation skill development and employability.
CO2	Know about royalty accounts, Hire purchase account with different methods of calculation, maintenance of suspense account and Installment payment system with difference between hire purchase and installment payment system entrepreneurship.
CO3	Understand the concept of departmental accounts with objects, importance, advantage, methods of departmental accounts, concept of branch accounts with importance, advantages, classification of branches, various methods employability.
CO4	Understand and prepare the insolvency accounts, circumstances of insolvency, procedure of declaring insolvency, preparation of statement of

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	affairs and deficiency account, and preparation of voyage accounts skill development and employability.

Course Code	BCOM 202P
Course Name	Computerized Accounting (Practical)

COs	Description
CO1	Know about the practical concept of financial accounting and basic principles of accounting with objectives, advantages, its types and role of accounting in national and International business skill development and employability.
CO2	Understand computer, operating system, utility software, application software and management information system employability.
CO3	Understand computerized accounts by using any popular accounting software, creating accounting ledgers and groups, creating stock items and vouchers entry entrepreneurship.
CO4	Preparation of cash book, ledger accounts, trail balance, profit and loss account, balance sheet, fund flow statement, cash flow statement, backup and restore data of a company skill development and employability.

Course Code	BCOM 203 A
Course Name	Essentials of E-Commerce

COs	Description
CO1	Understand the benefits of E-Commerce to various stakeholders and the role of internet along with limitation of e-commerce; employability
CO2	Identify Business to Consumer Model and its applications along with several aspects and benefits of Online Banking; skill and entrepreneurship development
CO3	Understand the applications Business to Business national to international Model along with its types and basic key concepts; skill development and employability
CO4	Understand the different E-Governance models and implementation of Electronic Data Interchange in Governance. skill development and employability

Course Code	BCOM 203 B
Course Name	Business Economics

COs	Description
CO1	Relate routine day to day problems with the various basic laws and theories of economics in nation skill development and employability.
CO2	Understand how households (demand) and businesses (supply) interact in

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	various market structures to determine the optimum price and quantity of goods produced entrepreneurship
CO3	Understand the concept and functioning of short run and long run costs in different conditions of firm and industry employability.
CO4	Understand the impact of varying degrees of competition in a market on price and output determination skill development and employability.

Course Code	BHSC 201T
Course Name	Fundamentals of Nutrition and Food Science

COs	Description
CO1	Comprehend relationship between food, nutrition and health for skill development;
CO2	Understand functions of various nutrients and their sources and gaining knowledge about clinical manifestations of excess/deficiency of nutrients as per national and international medical bodies suggest for skill development;
CO3	Understand the selection, nutritional contribution and changes during cooking of the commonly consumed foods for skill development;
CO4	Understand the concept of nutrient losses during pre-preparation and preparation of food for skill development and employability

Course Code	A07020IT
Course Name	Society in India: Structure, Organization and Change

COs	Description
CO1	This paper is designed in this manner, so that students are introduced to the concepts related to Indian Society for skill Development.
CO2	They are made familiar with the Indian Society, its linkages and continuity with past and present for skill Development.
CO3	It also gives insights to analyze contemporary Indian society. This paper provides comprehensive understanding of Indian society for skill Development.
CO4	Understand the National Tribal Communities in India, Problems and Underdevelopment in Tribe for skill Development.
CO5	Understand the Basic Institutions of Indian society for skill Development.
CO6	Understand the Social Classes in India as Agrarian-Rural, Industrial-Urban: The Middle Class; Exclusion and Inclusion, Backward classes, Dalits, Women for skill Development.
CO7	Explain the Population, Demographic analysis, Population explosion, Demographic theories for skill development for skill Development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO8	Understand the Change and Transformation in Indian Society for skill Development.
Course Code	**BCOM CCC 201**
Course Name	**First Aid and Health**

COs	Description
CO1	Learn the skill needed to assess the ill or injured person dealing with an emergency, first aid related with respiratory system, heart, blood and circulation, wounds and Injuries, Bones, Joints Muscle related injuries skill development and employability.
CO2	Learn the skills to provide CPR to infants, children and adults, First aid related with Nervous system and Unconsciousness, Gastrointestinal Tract, Skin, Burns, Poisoning, Bites and Stings, sense organs, specific emergency satiation and disaster management employability.
CO3	Learn the basic sex education help young people navigate thorny questions responsibly and with confidence male-female similarities and differences, sex without love — harassment, sexual abuse, and rape; Prevention of sexually transmitted diseases, facts, attitudes, and myths about LGBTQ+ issues and identities employability.
CO4	Learn the skill to identify Mental Health status and Psychological First Aid, first Aid for Panic Attacks as national and international medical bodies suggests , Traumatic events; understanding disorders in which Psychosis may occur, learn crisis first aid for acute psychosis, understanding substance, use disorder, crisis first Aid for overdose, withdrawal, using mental health First Aid skill development and employability.

Course Code	**BCOM VOC 201**
Course Name	**Tally ERP 9**

COs	Description
CO1	Understand the basics of accounting and of tally and learn the operations of company in tally and maintaining the charts of accounts and SKU in tally skill development and employability.
CO2	Understand how to enter day to day transactions in tally and to maintain purchase and sales cycle, accounts receivables and payable management banking in tally entrepreneurship.
CO3	Learn how to manage MIS report and payroll accounting employability.
CO4	Understand about the tally administration and to use tally for taxation in nation skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCOM 301
Course Name	Business Environment

COs	Description
CO1	Understand relationship between environment and business; sector knowledge for better employability in industry.
CO2	Understand national and International Economic, Socio-Cultural and Technological Environment sector knowledge for better employability in industry and understanding for entrepreneurial skill.
CO3	Know state policies, Nation Economic legislations and Economic reforms laid by the government understanding for entrepreneurial skill.
CO4	Demonstrate an understanding of the interface between the organization and its environment, the role of uncertainty and the impact that the environment has on management decisions understanding for entrepreneurial skill.

Course Code	BCOM 302
Course Name	Financial Management

COs	Description
CO1	Demonstrate the applicability of the concept of financial management and time value of money to improve the decision-making at local, national and global level skill development and employability.
CO2	Analyze the capital budgeting process to manage the long-term financial position of any business and calculate cost of capital entrepreneurship.
CO3	Understand the concept of dividend& dividend theories and its application at National and global level; factors determining capital structure and its importance in making decisions entrepreneurship skill development and employability.
CO4	Know and understand the concept of working capital and apply the methods of calculating working capital requirement according to the size of the business and the process of maintaining cash, inventory and receivables of the organization employability

Course Code	BCOM 303
Course Name	Business Statistics

COs	Description
CO1	Understand the meaning, nature, functions of Statistics and also understand the meaning of data, classification and tabulation and preparation of diagrams and graphs skill development and employability.
CO2	Understand the meaning and practical applications of Measures of Central

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Tendency and Measures of Dispersion, students will also be able to understand the meaning and application of Skewness entrepreneurship.
CO3	Understand the meaning and applications of Correlation and Regression analysis entrepreneurship.
CO4	Understand the meaning and applications of Probability with its laws and various distribution theorems related to local , national and global levels for skill development and employability.

Course Code	BCOM 304
Course Name	Company Law

COs	Description
CO1	Understand the background of the new Company Act 2013, kinds of company, registration of companies in the nation, commencement of business, certificate of incorporation vs. certificate of commencement skill development and employability.
CO2	Understand MOA, AOA and Prospectus entrepreneurship.
CO3	Understand the qualifications of director, Appointment, remuneration, removal, legal position, powers, duties and liabilities of directors, managing directors and managers, Prevention of Oppression and Mismanagement employability.
CO4	Understand the process of Winding up of the Companies guiding by national law. Types of shares, Issue of shares, legal provisions regarding share certificates and share warrants; Debentures skill development and employability.

Course Code	BCOM 401
Course Name	Cost Accounting

COs	Description
CO1	Define the various components of total cost, methods and techniques of cost analysis, installation of costing system and preparation of cost sheet methods applied in nation skill development and employability.
CO2	Determine various levels of material, pricing of material issues entrepreneurship.
CO3	Use methods of time keeping and manage idle & over time, method of costing employability.
CO4	Determine the concept of cost record by the help of integral and non-integral system, cost audit. skill development and employability.

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCOM 402
Course Name	Environmental Studies

COs	Description
CO1	Articulate the basic structure, functions, and processes of key social systems affecting the environment for better skilling of entrepreneurship.
CO2	Understand how interactions between organisms and their environments drive the dynamics of individuals, populations, communities, and ecosystems for skill development.
CO3	Design and evaluate national and international strategies, technologies, and methods for assessment and sustainable management of environmental systems and for the remediation or restoration of degraded environments for employability.
CO4	Understand legislation governing environmental research and the environment in India for entrepreneurship.

Course Code	BCOM 403
Course Name	Human Resource Development

COs	Description
CO1	Understand the role of HRD in effective business administration ; develop knowledge on the importance and functions of implementing HRD techniques in organizations; concept of Human Capital and Human Resource Accounting (HRA) skill development and employability.
CO2	Know the features and tools of HRP used by national and International companies along with job related features; Outline the concept, current theory and practice of recruitment and selection entrepreneurship.
CO3	Understand the strategies to build a stronger workforce; to analyze the strategic issues and strategies required to performance Appraisal and Training to develop manpower resources employability.
CO4	Understand the Concept of job enrichment comprehensively to improve supervisor-subordinate relationship; understand the importance of Industrial Relations skill development and employability.

Course Code	BCOM 404
Course Name	Indian Banking System

COs	Description
CO1	Understand banking with its function's skill development and employability.
CO2	Understand the role of banking in Indian economy entrepreneurship.
CO3	Comprehensive the role of development bank for the development of

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	nation skill development and employability.
CO4	Understand Banking Regulation Act for skill development and employability.

Course Code	**BCOM UDM**
Course Name	**Disaster Management**

COs	Description
CO1	Understand about the disaster, types, causes and impact of disaster, global trends in disaster skill development and employability skill development and employability.
CO2	Understand disaster management theory (cycle, phases, risk, crisis, emergency, disasters, resilience), role of community in successful Disaster Risk Reduction entrepreneurship.
CO3	Understand the impact of development project, Climate Change Adaptation, IPCC scenario, role of international cooperation skill development and employability.
CO4	Create Technological innovations used in International Countries GIS in Disaster Risk Reduction, Disaster management Act and policy Hazard issued for national and international companies and vulnerable profile of India employability entrepreneurship.

Course Code	**BCOM 501**
Course Name	**Principles of Insurance**

COs	Description
CO1	Understand meaning of insurance and concept of principles of insurance, economic development through insurance and contract of insurance skill development and employability.
CO2	Understand the meaning, principles and types of life insurance, present structure and growth of insurance in India entrepreneurship.
CO3	Understand the meaning, principles and types of life insurance employability.
CO4	Understand to Meaning, concept and functions of insurance intermediaries, Regulations followed in nation regarding Insurance services- main Acts and salient features skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCOM 502
Course Name	Marketing Theory and Practice

COs	Description
CO1	Define marketing and its various concepts skill development and employability.
CO2	Differentiate between segmentation, targeting and positioning entrepreneurship.
CO3	Describe marketing mix, product, price, distribution and the elements of promotion mix employability.
CO4	Understand and apply the concept of marketing research and marketing information system followed by national and international companies in taking various marketing related decisions employability.

Course Code	BCOM 503
Course Name	Management Accounting

COs	Description
CO1	Understand the concept of management accounting and implement its tools for effective decision- making at all levels of management skill development and employability.
CO2	Know the meaning of marginal costing, CVP analysis, break-even analysis for controlling the overall cost of the organization entrepreneurship.
CO3	Critically examine the process to calculate variances between standard cost and actual cost to provide recommendation for improving the operations of organizations, through the application of variance analysis employability.
CO4	Understand the concept of budget and budgetary control and prepare various budgets according to the need of the national and international organization skill development and employability.

Course Code	BCOM 504
Course Name	Business and Industrial Laws

COs	Description
CO1	Describe the environment, scope, ecological system, human activities, and effects of human activities on environment and environmental impact analysis skill development and employability.
CO2	Explain natural resources, renewable & non-renewable resources, conventional and non-conventional energy sources available in nation, alternative future sources of energy entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Explain different types of pollutions like water, soil, marine, noise, thermal and solid waste management, their causes & related effects employability.

Course Code	BCOM 506
Course Name	Corporate Tax

COs	Description
CO1	Discuss the concept of corporate tax in India, Types of companies, residential status of companies and minimum alternate tax for better skill development.
CO2	Understand the concept of Direct and Indirect Taxes – State Power to Levy Tax – Tax System – Provision of Income Tax Act 1961issued by national authority of Finance for skill development and employability.
CO3	Providing the information of Tax Planning in relation to Business income, Capital gains and other sources for entrepreneurship.
CO4	Describe the concept of tax management, tax palling for new business and forms of organization for employability and entrepreneurship.

Course Code	BCOM 507
Course Name	Working Capital Management

COs	Description
CO1	Describe Principles of Working capital: Introduction to Working capital, Concept of Working Capital Need for Working capital for skill development.
CO2	Discuss Accounts Receivables Management and Factoring, Credit Policy of nation, Nature and Goals, credit evaluation of individual accounts and its monitoring receivables for entrepreneurship.
CO3	Understand the concept of Nature of Inventories, Need to hold inventories, objectives of inventory management, inventory Management techniques for entrepreneurship.
CO4	Understand the Cash Management and Working capital finance for entrepreneurship and employability.

Course Code	BCOM 508
Course Name	International Business

COs	Description
CO1	Understand the nature and scope of International business; Modes of entry into International Business Multinational Corporations and their

Sanjeev Dhawan
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	involvement in International Business for skill development.
CO2	Describe the concept of Balance of Payment Account, Concept and significance of balance of payments account; Current and capital account for entrepreneurship.
CO3	Discuss the concept of Global Trading and Investment Environment, Tariff and non-tariff barriers, impact on trade and investment flows for employability and entrepreneurship
CO4	Providing information of WTO, WTO and Developing Countries, IMF, World Bank, UNCTAD for employability and entrepreneurship.

Course Code	BCOM 509
Course Name	Security Analysis and Investment Management
COs	**Description**
CO1	Providing information related to Indian Financial System. Capital Market & Money Market. Risk and Return; Types of Securities for skill development.
CO2	Mechanics of Investing; Primary Market, Secondary Market; Trading Mechanism, Stock Market Terminologies, Market Indices and Return for employability and entrepreneurship
CO3	Describe the concept of The Return &Risk and the Investment Decision for national companies, Equity Research Reports for employability and skill development.
CO4	Determine the Stock Market Analysis – Fundamental Analysis: Economic, Industry & Company Analysis, Technical Analysis for entrepreneurship.

Course Code	BCOM 510
Course Name	Foreign Trade Of India
COs	**Description**
CO1	Understand the nature and scope of International business; Modes of entry into International Business Multinational Corporations and their involvement in International Business for skill development.
CO2	Describe the concept of Balance of Payment Account, Concept and significance of balance of payments account; Current and capital account for entrepreneurship.
CO3	Providing information of WTO, WTO and Developing Countries, IMF, World Bank, UNCTAD for employability and entrepreneurship.
CO4	Discuss the concept of Global Trading and Investment Environment, Tariff and non-tariff barriers, impact on trade and investment flows for employability and entrepreneurship

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCOM 511
Course Name	Consumer Behavior

COs	Description
CO1	Understand the concepts and theories of consumer behavior, consumer behavior models and their significance in business, and consumer decision-making processes. for entrepreneurship & employability
CO2	Understand the individual and group influences on consumer behavior and consumer decision making process. For skill development, entrepreneurship & employability
CO3	Relate to national and International consumer behavior theories, models and concepts to marketing decisions and and understanding their implications & analyzing the environmental influences on consumer behavior and differentiating individual buying from industrial buying. For entrepreneurship & employability
CO4	Applying most appropriate consumer behavior models and techniques for appropriate market solutions. for skill development for entrepreneurship & employability.

Course Code	BCOM 601
Course Name	Auditing

COs	Description
CO1	Articulate knowledge of fundamental audit concept, qualities of an auditor, audit planning, internal audit and outline the role of auditing skill development and employability.
CO2	Acquire knowledge of audit procedure followed in national companies' entrepreneurship.
CO3	Comprehend the knowledge about appointment, rights, duties and responsibility of auditor; acquire knowledge of auditor's report- content and types skill development and employability.
CO4	Acquire knowledge of audit documentation and audit evidence, knowledge acquire of audit of various sector employability.

Course Code	BCOM 602
Course Name	Public Finance and Budgeting

COs	Description
CO1	Familiarize themselves with the public sector reform agenda with a focus on public finance issues skill development and employability.
CO2	Argue the theoretical basis of public revenue and public expenditures and to analyze their types and economic effects entrepreneurship.

Sanjeev Bhardwaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Analyze the functioning of modern public finance guidelines issued in nation and to identify the types of public needs and the mechanisms of their financing skill development and employability.
CO4	Classify public revenues and expenditures through the budget and to analyze the instruments and objectives of budgetary policy employability.

Course Code	BCOM 603
Course Name	Financial Markets, Institutions and Services

COs	Description
CO1	Understand the evolution of Indian Financial System; describe the recent developments in Indian Financial System and the role of RBI for national growth skill development and employability.
CO2	Understand the structure of Capital Market and Money Market; describe the methods of issuing shares and role of SEBI in the financial Market employability.
CO3	Get thorough knowledge of various financial services provided by banking as well as non- banking financial corporation entrepreneurship.
CO4	Understand the necessity of financial services and also explain the concept of mutual funds in India skill development and employability.

Course Code	BCOM 604
Course Name	Income Tax

COs	Description
CO1	Understand the provisions of Income Tax Act, 1961 of India and various terminologies used in the process of calculating tax liability of a particular person and also to know the concept and process of determine the residential status of a person skill development and employability.
CO2	Calculate the taxable income of a particular assessee from Income from Salary and Income from House Property head entrepreneurship.
CO3	Understand and calculate the taxable income of a particular assessee from Business or Profession head, Capital Gains head and Income from Other Sources head regarding to national and International organizations employability.
CO4	Define the provisions of Income Tax Act, 1961 with reference to deductions u/s 80 (C) to 80 (U), Set-off and Carry Forward of Losses, Clubbing of Incomes and their practical applicability, calculate tax liability of a particular person, and understand the applicability of the concept of tax planning, tax avoidance and tax evasion skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCOM 606
Course Name	Corporate Restructuring

COs	Description
CO1	Discuss the concept of Financial Strategy and Planning, Risk Evaluation and Capital Budgeting, Dividend and Retention Policies for skill development
CO2	Mergers & acquisitions concept, Regulatory framework of mergers and acquisitions for employability and entrepreneurship.
CO3	Determine corporate restructuring, Methods of payment for M & A and Calculations of exchange ratio and valuation approach for skill development and employability.
CO4	Discuss Financial Restructuring & Divestiture, Funding Options for national and international companies in M&A. Strategic Alliances & Joint Ventures for entrepreneurship.

Course Code	BCOM 607
Course Name	Investment Analysis and Portfolio Management

COs	Description
CO1	Discuss the Conceptual framework of risk and return analysis, Investment, Speculation, Gambling, Hedging, Securities, Security Analysis, Portfolio Management for employability and skill development.
CO2	Concepts of Risk, Return, Uncertainty Risk and Return Relationship Components of Return – Risk Elements – Systematic and Unsystematic Risk and measurement of risk for entrepreneurship.
CO3	Determine Monetary Policy and Liquidity, Inflation, Interest Rates, Standard industrial classification, Links between the economy and industry sectors regarding to national and international companies for employability and entrepreneurship.
CO4	Understand portfolio management and selection, Capital Assets Pricing Model, Growth investing, Value investing for skill development

Course Code	BCOM 608
Course Name	Tax Procedure and Planning

COs	Description
CO1	Describe the nature of tax planning and Difference between Tax Planning and Tax Evasion for skill development.
CO2	Providing information Difference between Tax Planning and Tax Management Areas of Tax Management, Payment of Tax. Advance Payment of Tax Deduction at source for entrepreneurship.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Describe and discuss the method of tax planning for salaried persons and tax benefit of income from house property related to Local and National companies for entrepreneurship.
CO4	Providing the information related to long term capital gain and deduction under section 80C for employability.

Course Code	BCOM 609
Course Name	International Finance

COs	Description
CO1	Providing information related to International Accounting Standard Board and IFRS Foundation, Extant standards of the IASB, The framework is for skill development.
CO2	Discuss the IAS 1, Presentation of financial statements, IFRS 15, Revenue from contracts with customers, IAS 8 is for employability.
CO3	Discuss the IAS 16, IAS 40, IAS 23, IAS 38, IAS 36 AND IFRS 5 for skill development and employability.
CO4	Describe the Group accounting IFRS 10, Consolidated Financial Statements; IAS 27 (revised 2011), Separate financial statements IFRS 3, Business Combinations for employability and entrepreneurship.

Course Code	BCOM 610
Course Name	E-Filing of Returns

COs	Description
CO1	E-Filing of Returns
CO2	Providing information related to filing, difference between e-filing and regular filing of returns for national and International companies employees context and types of e-filing is for skill development.
CO3	Discuss the income tax basic terminology, types of assessee, income taxable under different heads and instructions for filing out form ITR-1, ITR-2, ITR-3, ITR-4, ITR-4s, ITR-5, ITR-6 for better skill development and entrepreneurship.
CO4	Determine the concept of TDS, provision regarding returns of TDS for better employability.

Course Code	BCOM 611
Course Name	Multinational Business Finance

COs	Description
CO1	Providing information related to global financing strategy institutional Structure - Euro Currency Loan, International Equity Markets for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Discuss about Issues involved in Investment Analysis, Capital Asset Pricing Model (CAPM) – International Asset Pricing Model (IAPM) for employability and entrepreneurship.
CO3	Determine about international capital budgeting, cost of capital and capital structure for better entrepreneurship.
CO4	Providing information related to Multinational Working Capital Management and International cash Management: - Inventory Management for employability.

PROGRAMME NAME – Bachelor of Commerce (Honours)

Course Code	BCOM (H) 101
Course Name	Business Organization and Management

COs	Description
CO1	Understand business organizations along with their characteristics, objectives and classifications skill development and employability.
CO2	Understand the concept of Make in India Movement entrepreneurship.
CO3	Identify Local, National and Global Business Sectors & Forms of Business Organizations employability.
CO4	Explain the concept of Business Combinations with objectives nature as well as functions of management skill development and employability.

Course Code	BCOM (H) 102
Course Name	Financial Accounting

COs	Description
CO1	Understand the meaning, nature, functions, branches of accounting and also understand to basic terminologies used in accounting in local and national companies, accounting concepts and conventions, distinguish between book keeping and accounting, double entry system, basis of accounting, accounting standards and also about the preparation of Journal and Ledger skill development and employability.
CO2	Understand the meaning and preparation of subsidiary books of accounts and of Bank Reconciliation Statement entrepreneurship
CO3	Gain knowledge about the rectification of errors, trial balance, and about the meaning and preparation of Financial Statements employability
CO4	Gain a thorough knowledge about provisions and reserves and be able to understand about the meaning of Depreciation and about the accounting treatment of depreciation skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCOM (H) 103
Course Name	Legal Aspects of Business

COs	Description
CO1	Understand the basic knowledge of Contract and Agreement, kinds of contract, about free consent, quasi contract and discharge of contract; skill development and employability.
CO2	Know the role of sales of goods Act in Business with goods, price, condition and warranty, ownership of goods, transfer of property, performance of sales and right of an unpaid seller in context of national companies for entrepreneurial
CO3	Describe the role of Partnership Act with its features, partnership deed, registration of firm, relation of partners and dissolution of firm employability
CO4	Explore the advantages of Negotiable instruments with its types, parties involved in it, dishonor, and discharge of negotiable instruments, understand the concept of cheque, bill of exchange skill development and employability.

Course Code	BCOM (H) 104
Course Name	Business Communication

COs	Description
CO1	Understand the basic elements involved in communication process skill development and employability
CO2	Identify the various types of Communication with their pros and cons Entrepreneurship.
CO3	Compose the various applications, letters and documents used in national and international companies for business correspondence Employability.
CO4	Become a good speaker and presenter skill development and employability.

Course Code	BCOM (H) 105
Course Name	Micro Economics

COs	Description
CO1	Understand the fundamentals of microeconomics; the choices made by a rational consumer; consumer behavior and analysis of their decision making process; optimal distribution of resources skill development and employability.
CO2	Get knowledge about the mechanism of demand and supply in working of markets and how changes in demand and supply affect national and

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	international companies markets entrepreneurship.
CO3	Learn main types of costs, short run and long run cost functions, revenue analysis and their application in decision making; to explain relationships between.production and costs employability
CO4	Understand key characteristics, consequences of different forms of markets & to know how to Make production and pricing decisions in various market structures; how the firms may compete & maintain potential equilibriums; to be aware with pricing and profit management skill development and employability

Course Code	B.COM (H) 107
Course Name	Money and Banking
COs	**Description**
CO1	Know the concept on money, role of money in capitalist socialist and system of note issues to gain knowledge for employability;
CO2	Explore the various aspects of commercial bank with its credit creation and recent reforms in banking sector in India for better employability;
CO3	Understand the importance of central bank in nation development , role and functions of reserve bank of India for developing skills and employability;
CO4	Know the importance of money and capital market with its importance and limitation for employability skill.

Course Code	B.COM (H) 108
Course Name	Management of Banking Operations
COs	**Description**
CO1	Know the basics of accounts with understanding business and self-help group for entrepreneurial and skill development;
CO2	Explore the various aspects of account opening process in context with national and international firms , with KYC formalities for better employability;
CO3	Understand the importance of facilitation and execution of transactions for employability;
CO4	Appreciate on going services, handle collection of loan repayments and investments for entrepreneurial skills.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCOM (H) 201
Course Name	Corporate Accounting

COs	Description
CO1	Understand the methodology of issue, forfeit, redemption and buy back of shares and debentures in a Joint Stock Company skill development and employability
CO2	Understand the preparation of financial statements of corporate entities entrepreneurship
CO3	Get in-depth knowledge of AS-14 and accounting treatment of Amalgamation and Internal Reconstruction for local and national companies employability
CO4	Get thorough knowledge about the methods of valuation of Goodwill and shares skill development and employability

Course Code	BCOM (H) 202
Course Name	Company Law

COs	Description
CO1	Understand the background of the new Company Act 2013, kinds of company, registration of companies, commencement of business, certificate of incorporation vs. certificate of commencement skill development and employability
CO2	Understand MOA, AOA and Prospectus entrepreneurship
CO3	Understand the qualifications of director, Appointment, remuneration, removal, legal position, powers, duties and liabilities of directors, managing directors and managers, Prevention of Oppression and Mismanagement employability
CO4	Understand the process of Winding up of the Companies. Types of shares, Issue of shares, legal provisions regarding share certificates and share warrants; Debentures in relation with national and global firms skill development and employability.

Course Code	BCOM (H) 203
Course Name	Business Mathematics

COs	Description
CO1	Apply basic mathematics to solve business application problems for skill development and employability
CO2	Solve applied business math problems using differentiation for entrepreneurship

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Apply different set operations to solve business related problems for employability
CO4	Understand the computations and applications of matrices to solve industrial problems faced by national and international firms for skill development and employability

Course Code	BCOM (H) 204
Course Name	Environmental Studies

COs	Description
CO1	Articulate the basic structure, functions, and processes of key social systems affecting the environment skill development and employability
CO2	Understand how interactions between organisms and their environments drive the dynamics of individuals, populations, communities, and ecosystems for entrepreneurship
CO3	Design and evaluate strategies, technologies, and methods for assessment and sustainable management of environmental systems and for the remediation or restoration of degraded environments in context of national and international companies for employability
CO4	Understand legislation governing environmental research and the environment in India for skill development and employability.

Course Code	BCOM (H) 205
Course Name	Macro Economics

COs	Description
CO1	Learn the basic theoretical framework underlying the field of macroeconomics; aggregate measures of economic activities; macroeconomic equilibrium to understand how aggregate demand and aggregate supply interact to drive a free market economy skill development and employability
CO2	Understand the basics of national income accounting, related factors, calculation methods & problems associated entrepreneurship
CO3	Understand the classical economic theory, tenets & implications of Keynesian Economics and their application through the aggregate demand and supply model; consumption function & Investment function for employability.
CO4	Understand the causes and consequences of economic disequilibrium (business cycle, inflation & deflation); role of fiscal and monetary policy in fighting and combating economic disequilibrium related to national and international companies for skill development and employability

Sanjeev Bhatnagar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCOM (H) 207
Course Name	Principles of Management

COs	Description
CO1	Able to understand the concept of manager and entrepreneur with sole proprietorship and other business organization in context with national and international firms for entrepreneurial skill;
CO2	Understand the concept of planning, strategic management for better decision making for skill development;
CO3	Able to understand the importance of organising so that work can be divided among the employees well for better result for employability and entrepreneurial skills;
CO4	Appreciate the concept of controlling so that unexpected work can be avoided for skill development.

Course Code	BCOM (H) 208
Course Name	Economics of Growth and Development

COs	Description
CO1	Know the concept of development, distinction between growth and development and environmental sustainability for better entrepreneurial skills;
CO2	Explore the various aspects of population and human resources and urbanization with its cause and effects for skill development;
CO3	Understand the concept of underdevelopment local and national companies so that the corrective actions can be taken for skill development;
CO4	Explore the concept of poverty, inequality so that proper decision can be taken for employability.

Course Code	BCOM (H) 301
Course Name	Human Resource Management

COs	Description
CO1	Develop the understanding of the concept of human resource management, its relevance and the roles an HR manager has to play in organizations skill development and employability.
CO2	Understand the strategies required to forecast the need of human resources and further select the manpower in the organizations procedure adopt by national and international firms employability
CO3	Develop, analyze and apply advanced training and appraisal strategies and specifications for the delivery of training and appraisal programs

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	entrepreneurship.
CO4	Understand the nature and sources of grievance and explain the different strategies and approaches used in the resolution of grievance and further, integrate the knowledge of HR concepts to take correct business decisions skill development and employability.

Course Code	BCOM (H) 302
Course Name	Indian Economy

COs	Description
CO1	Understand the concept of economic growth and development, Indian Economy and its problems; factors contributing to and detract from long-term economic growth better entrepreneurial skills
CO2	Understand structure, growth, relevant issues, and policies of Indian agriculture sector; agriculture reforms; contribution in national economic development. Employability and better entrepreneurial skills
CO3	Learn about the process of Industrialization in India, Rationalization of industries, industrial policy; interrelation and contribution in economic development. better entrepreneurial skills
CO4	Understand the concepts of national income, economic & financial sector reforms, Philosophy and strategy of economic planning better entrepreneurial skills

Course Code	BCOM (H) 303
Course Name	e-Commerce

COs	Description
CO1	Understand the basics of e-Commerce and the role of internet in e-commerce skill development and employability.
CO2	Identify different Business Models in context with national and international and understand their operations employability
CO3	Understand the concept of e-Payment, e-CRM and various aspects of Online Banking entrepreneurship
CO4	Define the concept, features of ERP and cyber security-related concerns and issues skill development and employability.

Course Code	BCOM (H) 304
Course Name	Company Law

COs	Description
CO1	Understand the evolution of company legislation in India, objectives and features of the Companies Act, 2013; Classification of companies on the

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	basis of- liability, number of members, control and ownership; Formation of company- incorporation, certificate skill development and employability.
CO2	Understand the concept of Memorandum of Association, Articles of Association, Relationship between Articles and Memorandum, Doctrines of Constructive Notice, Doctrines of Indoor Management, Doctrines of Intra-vires and Doctrines of Ultra-vires; Prospectus: meaning, nature and contents; Mis- statement in prospectus and consequences thereof, statement in lieu of prospectus entrepreneurship.
CO3	Understand General provisions, qualifications and disqualifications of directors, number of directors and directorship, appointment, remuneration, removal, legal position, powers, duties and liabilities of directors, managing directors and managers; prevention of oppression and mismanagement employability.
CO4	Share Capital- Types and characteristics; Issue of Shares at Par, Premium and Discount; Forfeiture and Re-issue of forfeited shares, legal provisions regarding share certificates and share warrants; Debentures- classification of debentures, provisions regarding issue of debenture, winding up of a company rules apply for national and international companies , mode of winding up, liquidator skill development and employability.

Course Code	**BCOM (H) 305**
Course Name	**Cost Accounting**

COs	Description
CO1	Understand nature, scope and concept of cost accounting, its methods, techniques along with cost audit skill development and employability.
CO2	Understand meaning of Material control, concepts and techniques and Pricing of material issues, Treatment of material losses employability.
CO3	Analysis of Labor cost, Idle time and overtime, Methods of wage payment schemes adopted by national and international companies entrepreneurship.
CO4	Understand Overheads, -under and over absorption treatment, Cost Ascertainment and Cost Records skill development and employability.

Course Code	**BCOM (H) 306**
Course Name	**Auditing**

COs	Description
CO1	Understand the principles and practices of auditing and also understand the generally accepted auditing standards skill development and employability.

Sanjeev Agrawal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the audit procedure and distinguish between vouching and verification entrepreneurship.
CO3	Get thorough knowledge of qualifications, disqualifications, appointment, removal and remuneration of auditor along with the contents & types of auditor's report employability.
CO4	Understand the basic considerations of audit in EDP environment and also understand the concept of Tax and Management audits, the practical application of Auditing & Assurance standards followed by national companies' skill development and employability.

Course Code	BCOM (H) 401
Course Name	Banking Law and Practice

COs	Description
CO1	Define Banking with the functions of a bank, relationship between banker and customer, commercial banks, nationalized and private banks, central banks and its functions skill development and employability.
CO2	Understand negotiable instruments with cheques, bill of exchange, endorsement and valid endorsement entrepreneurship.
CO3	Describe banking instruments, banker's credit, overdraft, letter of credit, confirmed and unconfirmed bankers credit, acceptance credits and documentary credit employability.
CO4	Define Bank lending and its importance, secured advances with lien, pledge, mortgage and hypothecation, unsecured loan with guarantees, duties of banker in context of national companies' skill development and employability.

Course Code	BCOM (H) 402
Course Name	Principles and Practices of Insurance

COs	Description
CO1	Understand the purpose, need, principles, and practices of Insurance in India skill development and employability.
CO2	Understand the Life Insurance and Life insurance principles of Insurance entrepreneurship
CO3	Understand the general insurance and types of general insurance employability.
CO4	Understand the functioning of insurance intermediaries' in relation with national and international context skill development and employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCOM (H) 403
Course Name	Goods & Services Tax (GST)

COs	Description
CO1	Understand the concept of Goods & Services Tax (GST) in Indian scenario, understand the GST structure/ framework in India skill development and employability.
CO2	know the applicability of procedure of registration under GST regime, surrender and cancellation of registration employability.
CO3	know the various procedure and special provisions GST and the functional activities under the GST entrepreneurship.
CO4	Understand the concept of collection of GST, payment process and various methods of payment in GST followed by national companies skill development and employability.

Course Code	BCOM (H) 404
Course Name	Entrepreneurship Development

COs	Description
CO1	Understand the concept of entrepreneur, entrepreneurship and its evolution & development in India skill development and employability.
$CO2_1$	Understand the current state, policies, problems of Small-Scale Industries and the remedial measures taken by nation government employability.
CO3	Understand the procedure and challenges being faced by small and medium sized enterprises (SMEs) in setting up their operations entrepreneurship.
CO4	Learn the concept and importance of Business Plan & its formulation skill development and employability.

Course Code	BCOM (H) 405
Course Name	Corporate Accounting

COs	Description
CO1	Understand the methodology of issue, forfeit, redemption and buy back of shares in a Joint Stock Company skill development and employability.
CO2	Understand the methodology of issue and redemption and types of debentures in a Joint Stock Company employability.
CO3	Get in-depth knowledge of AS-14 and accounting treatment of Amalgamation and Internal Reconstruction for national and international companies entrepreneurship.
CO4	Get thorough knowledge about the methods of valuation of Goodwill and shares skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCOM (H) 406
Course Name	Financial Management

COs	Description
CO1	Understand the principles of financial management; the role of finance manager and also understand the concept of time value of money skill development and employability.
CO2	Understand the concept of capitalization and capital structure; and also describe the various sources of finance for local and national companies entrepreneurship.
CO3	Calculate common investment criteria and project cash flows associated with corporate project evaluation and apply measures of cost of capital and financial leverage to form long-term financial policies for business employability.
CO4	Get thorough knowledge of management of earnings; describe the models influencing dividend decision and also understand the management of working capital skill development and employability.

Course Code	BCOM (H) UDM
Course Name	Disaster Management

COs	Description
CO1	Understand about the disaster, types of disaster causes and impact of disaster, global trends in disaster skill development and employability.
CO2	Understand disaster management theory (cycle, phases, risk, crisis, emergency, disasters, resilience), role of community in successful Disaster Risk Reduction entrepreneurship and employability.
CO3	Understand the impact of development project, Climate Change Adaptation by international companies, IPCC scenario, role of international cooperation entrepreneurship.
CO4	Create Technological innovations GIS in Disaster Risk Reduction, Disaster management Act and policy Hazard and vulnerable profile of India employability
CO5	To understand the vulnerabilities, to work on reducing disaster risks, and to build a culture of safety students along with teacher could work on ways of addressing these vulnerabilities, preparing plans and consultation with local administration or NGOs skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCOM (H) 501
Course Name	Business Ethics

COs	Description
CO1	Conduct self-examination of one's own values, and appreciate the relevance of personal values for skill development and employability
CO2	Apply the principles of business ethics and corporate social responsibility in context with national and international business decisions for entrepreneurship
CO3	Understand the broader ethical issues in the modern society employability
CO4	Understand the ethical dimension of Indian scriptures and traditions for skill development and employability

Course Code	BCOM (H) 502
Course Name	Management Accounting

COs	Description
CO1	Understand concept and importance of management accounting, and its relationship with cost and financial accounting for skill development and employability
CO2	Develop the know-how and concept of marginal costing with practical applications for entrepreneurship
CO3	Apply the concept of budgeting in business decision-making context and understand its various types for employability
CO4	Understand the concept, scope and applications of standard costing and perform variance analysis in context with local and national firms for employability

Course Code	BCOM (H) 503
Course Name	Financial Markets and Institutions

COs	Description
CO1	Define the conceptual framework of Indian Financial System; understand the Financial Sector Reforms and role of financial markets in economic development for skill development and employability
CO2	Understand the types & functioning of financial markets, role of RBI, regulation of credit flow through various policies and debt & equity market for entrepreneurship
CO3	Get the knowledge of Financial Institutions and its categorization, also understand Insurance and NBFCs for employability
CO4	To acquire an understanding of various concepts for national and globally

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY,
MORADABAD

	firms related to leasing, hire purchase, factoring, bill discounting, VC and Merchant banking for skill development and employability

Course Code	BCOM (H) 504
Course Name	Advertising and Sales Management

COs	Description
CO1	Understand the meaning of communication and explain the process of communication; Advertising objectives; DAGMAR Approach; Determination of target audience and positioning; Advertising budget -- factors influencing budget decision and methods for skill development and employability
CO2	Understand the meaning of advertising and various approaches to determine the target audience followed by national companies ; Analyse the advertising media and take media decisions for entrepreneurship
CO3	Understand the meaning of personal selling and salesmanship, managing ethics in selling environment; Role of personnel selling in customer relationship management for employability
CO4	Understand the meaning of sales forecasting methods and sales force management process, Sales quota; Role of IT in sales planning, Relationship of sales department with other departments; Distribution networks relationship for skill development and employability

Course Code	BCOM (H) 505
Course Name	Income Tax Law and Practice

COs	Description
CO1	Understand the meaning and concept of Income tax and provisions of Income Tax Act,1961,and also the concept of Income, agricultural income, casual income, AY, PY, GTI, Total Income, Tax evasion, avoidance and tax planning skill development and employability
CO2	Understand the meaning of residential status of individual, HUF, Firm and Company and also the incidence of tax with its applications for entrepreneurship.
CO3	Understand the meaning and practical applications of Income from Salaries, House Property, Capital Gains, Business and Profession and from Other Sources for employability
CO4	Gain knowledge about the deemed income, set off and carry forward of losses, assessment procedures, PAN, TDS and procedure of e-filling of return, computation of tax liability, and deductions u/s 80(C) to 80(U) for local , national and international firms for skill development and employability

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCOM (H) 506
Course Name	Environmental Studies

COs	Description
CO1	Describe the environment, scope, ecological system, human activities, effects of human activities on environment and environmental impact analysis in context with national and international companies for skill development and employability
CO2	Explain natural resources, renewable & non-renewable resources, conventional and non-conventional energy sources, alternative future sources of energy for entrepreneurship
CO3	Explain different types of pollutions like water, soil, marine, noise, thermal and solid waste management, their causes & related effects for employability.
CO4	Describe various social issues like population growth, global warming, Urbanization, Acid rain, ozone layer depletion, NGOs and environmental protection for skill development and employability

Course Code	BCOM (H) 508
Course Name	Currency Banking and Exchange

COs	Description
CO1	Provide information related to Forms of Money, E-Money. Quantity Theory of Money (Fisher's), monetary standard and Indian money market is better for skill development and entrepreneurship.
CO2	Discuss the concept of meaning and significance of credit, credit creation by bank, credit control by RBI for national companies for employability.
CO3	Describe the types of Bank, Central Bank, and Commercial Banks and Regional Rural Banks. E-Banking & Postal Banking is for entrepreneurship.
CO4	Discuss the concept of Foreign Exchange and Exchange Rate for employability and entrepreneurship.

Course Code	BCOM (H) 509
Course Name	Banking Operations

COs	Description
CO1	Provide information is related to Spreading awareness, marketing campaign, identify prospective customers, understand their business and promote self-help group for skill development and entrepreneurship.
CO2	Discuss the KYC formalities, Facilitate filling up of loan application forms and submission of necessary document applicable for national and

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	international companies, Communicate account details to the Customers handover deliverables like smart card/debit card is for employability and skill development.
CO3	Facilitation and Execution of Transactions, Handle cash receipts and payments, accept small value deposits, disburse small value loans, effect remittance transactions and authenticating transactions for entrepreneurship.
CO4	On-Going Services, Schedule post sale follow up visits, Guide customers about accessing different services of the bank, Guide customers on managing their finances for entrepreneurship and employability.

Course Code	BCOM 510
Course Name	E-Filing of Returns

COs	Description
CO1	Providing information related to filing, difference between e-filing and regular filing of returns and types of e-filing is for skill development.
CO2	Discuss the income tax basic terminology, types of assessee, income taxable under different heads and instructions for filing out form ITR-1, ITR-2, ITR-3, ITR-4, ITR-4s, ITR-5, ITR-6 for better skill development and entrepreneurship.
CO3	Determine the concept of TDS, provision regarding returns of TDS concern to local and national firms for better employability.
CO4	Discuss the concept of service tax, relevant notifications regarding e-filing of service tax returns, steps for preparing service tax returns for entrepreneurship and employability.

Course Code	BCOM (H) 511
Course Name	International Business

COs	Description
CO1	Understand the nature and scope of International business; Modes of entry into International Business Multinational Corporations and their involvement in International Business for skill development.
CO2	Describe the concept of Balance of Payment Account, Concept and significance of balance of payments account; Current and capital account for entrepreneurship.
CO3	Discuss the concept of Global Trading and Investment Environment, Tariff and non-tariff barriers, impact on trade and investment flows for employability and entrepreneurship
CO4	Providing information of WTO, WTO and Developing Countries, IMF, World Bank, UNCTAD for employability and entrepreneurship

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCOM (H) 512
Course Name	Service Marketing

COs	Description
CO1	Demonstrate an extended understanding of the similarities and differences in service based and physical product based marketing activities used by national and global companies for skills development
CO2	Demonstrate a knowledge of the extended marketing mix for services and develop & justify marketing planning and control systems appropriate to service-based activities for the learning of entrepreneurial skills
CO3	Conduct an investigation of service delivery systems, collecting, analysing data, and synthesising information to provide valid conclusions for entrepreneurship and employability
CO4	C04: Demonstrate integrative knowledge of marketing issues associated with service productivity, customer satisfaction and loyalty for better employability in the industry

Course Code	BCOM (H) 513
Course Name	Rural Marketing

COs	Description
CO1	Progress the understanding of the Indian rural economy Irradiate and interpret Rural Marketing Evolution and Structure increase skills for better employability
CO2	Able to execute the concepts and techniques of marketing management and their application in rural marketing for better entrepreneurial skills
CO3	Able to recognise the differentiate and design marketing strategies followed by local and national companies for rural specific products. Evaluate and interpret the relevance of pricing and distribution strategies for employability and entrepreneurship
CO4	Able to recognise the challenges and opportunities in the field of rural marketing for the budding managers and also expose the students to the rural market environment and the emerging challenges for the learning of entrepreneurial skills.

Course Code	BCOM (H) 601
Course Name	Corporate Governance And Social Responsibility

COs	Description
CO1	Understand the concept of Corporate Governance for skill development and employability

Sanjeev Dawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the Corporate Governance Framework in India for national companies including the functions of different Board Committees for entrepreneurship
CO3	Comprehend major codes & standards on Corporate Governance and Whistle blowing for employability
CO4	Recognize the Concept of CSR for skill development and employability

Course Code	BCOM (H) 602
Course Name	Public Finance

COs	Description
CO1	Familiarize themselves with the public sector reform agenda with a focus on public finance issues for skill development and employability
CO2	Argue the theoretical basis of public expenditures and to analyze their types and economic effects for entrepreneurship
CO3	Examine the concept of public debt and integrate them into the fiscal and tax system in context to national firms for employability.
CO4	Classify public revenues and expenditures through the budget and to analyze the instruments and objectives of budgetary policy for skill development and employability

Course Code	BCOM (H) 603
Course Name	Corporate Tax Planning and Management

COs	Description
CO1	Understand the principles and practices of Taxation in India and residential status of Indian companies or national companies' skill development and employability.
CO2	Understand the basic concept of tax management, tax evasion and tax avoidance entrepreneurship.
CO3	Determine the various financial management decisions with numerical problems employability.
CO4	Get through knowledge of tax planning- TDS, E-TDS and Tax refund skill development and employability.

Course Code	BCOM (H) 604
Course Name	Indian Banking System

COs	Description
CO1	Understand the evolution of banking system in India skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand various policies framed by RBI and GoI for local , national and international companies for entrepreneurship.
CO3	Distinguish between Monetary Policy and Fiscal Policy employability.
CO4	Get thorough knowledge of Commercial Banking skill development and employability.

Course Code	BCOM (H) 605
Course Name	Security Analysis

COs	Description
CO1	Know the basics of Investment in national and global companies, its types along with the Indian Securities Market skill development and employability.
CO2	Understand the Equity analysis and the different tools used for the same entrepreneurship.
CO3	Comprehend the fundamentals of Bonds with the strategies to manage them employability
CO4	Get hold of the regulatory framework associated with the Indian Securities Market for skill development and employability

Course Code	BCOM (H) 606
Course Name	Labour Welfare and Social Security

COs	Description
CO1	Know the conceptual framework of Labour Welfare in India skill development and employability.
CO2	Relate with the various measures taken under Labour Welfare in accordance with the ILO entrepreneurship.
CO3	Appreciate the provisions and laws pertaining to Social Security in India followed by national companies' employability.
CO4	Know the diverse schemes related to Social Security and Social Insurance for skill development and employability.

Course Code	BCOM (H) 608
Course Name	Selling & Advertising

COs	Description
CO1	Discuss the concept of advertisement. Importance of advertising in modern marketing, role of advertising in the national economy for skill development.
CO2	Determine the commercial and non-commercial advertising, primary

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	demand and selective demand advertising for employability.
CO3	Providing information related to sales management, difference between Selling and Marketing, Sales Budgeting Process. Sales Force Management for entrepreneurship and skill development.
CO4	Discuss the Concepts, need, objectives, Personal Selling vs. Advertising, Types of Sales Promotion, Sales Promotion Strategies used by local, national and international firms helpful in employability and entrepreneurship.

Course Code	BCOM (H) 609
Course Name	Foreign Trade of India

COs	Description
CO1	Understand the nature and scope of International business; Modes of entry into International Business Multinational Corporations and their involvement in International Business for skill development.
CO2	Describe the concept of Balance of Payment Account, Concept and significance of balance of payments account; Current and capital account for entrepreneurship.
CO3	Providing information of WTO, WTO and Developing Countries, IMF, World Bank, UNCTAD for employability and entrepreneurship
CO4	Discuss the concept of Global Trading and Investment Environment, Tariff and non-tariff barriers, impact on trade and investment flows for employability and entrepreneurship.

Course Code	BCOM (H) 610
Course Name	Information System & E Commerce

COs	Description
CO1	Discuss the elements of a Computer System, types of Computers and their features, , types of software, networking and Internet and business applications and benefits of computerization for improving skill and employability.
CO2	Providing information related to information system and Supply Chain Management Systems followed by national and international firms , Customer Relationship Management Systems for entrepreneurship.
CO3	Discuss the concept of Database and Database Management System and implementing Information Systems as planned organizational change for employability and entrepreneurship.
CO4	Providing information related to E-commerce, Digital Markets and Digital Goods, advantages and disadvantages of transacting online for employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCOM (H) 611
Course Name	Multinational Business Finance

COs	Description
CO1	Providing the information related to insurance as a social security tool; Insurance and economic development; Principles of insurance for skill development.
CO2	Discuss the Principles and types of general insurance; Contracts and Insurable Interests for skill development.
CO3	Discuss the concept of life insurance and Life insurance contracts-nature and characteristics for improving skill and employability.
CO4	Determine Meaning and functions of Global agents, procedure for becoming global agent, Regulations regarding insurance services- main acts and salient feature for employability and entrepreneurship.

Course Code	BCOM (H) 612
Course Name	International Finance

COs	Description
CO1	Providing information related to Multinational Financial Management and Globalized world and goal and organizational structure of the MNC for skill development.
CO2	Discuss about International financial market, balance of payment, Foreign Exchange Market and interest rate parity for employability and skill development.
CO3	Discuss about International debt financing, International equity financing and The international capital market equilibrium for entrepreneurship.
CO4	Providing information related to foreign exchange rate, measuring and managing real exchange risk and, Forward markets and transaction exchange risk for employability and entrepreneurship.

Course Code	BCOM (H) 613
Course Name	Project Management

COs	Description
CO1	Providing information related to project management, tools & techniques of project management for skill development and employability.
CO2	Discuss about project formulation and preparation, demand forecasting, and Technical factors-material inputs, technology, production context with national and international companies for employability and entrepreneurship.

Sanjeev Agarwal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Determine Project appraisal, Technical, Economic, Financial, Legal and Social appraisal of the Industrial Projects and social cost for better employability.
CO4	Providing information about Implementation, Monitoring and Control of Projects and Project management teams and coordination is better for employability

PROGRAMME NAME – M.Com (Masters of Commerce)

Course Code	MCOM 101
Course Name	**Advanced Financial Management and Policy**

COs	Description
CO1	Understand the concept & importance of financial management in Indian scenario for developing skill; know about the key functions of finance manager in any organization and also the process of long-term financial planning in systematic way.
CO2	Critically examine the process of working capital and inventory management used by national organization for employability as per its need and also analyze its practical implications.
CO3	Understand the applicability of techniques of managing cash and receivables in current scenario for the growth of any organization and for developing entrepreneurial skill.
CO4	Know and understand the concept of corporate restructuring and implementation of its various forms in Indian corporate scenario and also the concept of venture capital financing for entrepreneurship.

Course Code	MCOM 102
Course Name	**Managerial Economics**

COs	Description
CO1	Get basic knowledge about Managerial Economics; to understand the process of managerial decisions and the various objectives that the firms try to fulfill to develop skill; understand the choices made by a rational consumer.
CO2	Get knowledge about the mechanism of demand and supply in working of markets & how changes in demand and supply affect markets of local and national companies for skill development; Application of demand analysis in managerial decision making.
CO3	Learn about cost & revenue analysis their application in decision making for entrepreneurship & employability; to explain relationships between production and costs; to define different forms of market structures their production and pricing decisions; how the firms may compete & maintain

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	potential equilibriums; to be aware with pricing and profit management.
CO4	Understand basic theoretical framework of macro-economics, national income, factor pricing, impact of cyclical fluctuations and inflationary pressures on business decisions for entrepreneurship.

Course Code	MCOM 103
Course Name	Quantitative Techniques in Business

COs	Description
CO1	Understand the meaning and use of statistical terms used in business statistics for skill development, and applies descriptive statistical for national boundaries measures to business situations.
CO2	Apply the statistical tools in business, and commercial areas with the help of time series and index numbers to develop skill.
CO3	Understand key concept of operation research, formulate and solve linear programming problems for business situations and for skill development and employability.
CO4	Solve Transportation, Assignment and Sequencing Problems, and use CPM / PERT techniques, to plan, schedule, and control project activities skill development and entrepreneurship.

Course Code	MCOM 104
Course Name	Marketing Management

COs	Description
CO1	Understand the basic concepts related to markets, marketing and its environment & distinguish it from sales to develop skill.
CO2	Appreciate the concept and application of Segmentation, Targeting and Positioning in marketing for entrepreneurship.
CO3	Understand the concept and process of New Product Development and concept of Product Life Cycle for skill development and entrepreneurship.
CO4	Learn the key concepts related to marketing mix elements viz. Price, Place and Promotion along with contemporary themes in marketing used by local, national and international firms for developing skill, provide employability & entrepreneurial skill.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCOM 105
Course Name	Organizational Behavior

COs	Description
CO1	Understand the conceptual framework and models of the discipline of OB and its practical applications in the organizational set up to develop skill.
CO2	Deeply understand the role of individuals in achieving organizational goals effectively and efficiently for employability.
CO3	Understand the concept group dynamics and team development and its implications within an organization for skill development;
CO4	Appreciate the cultural aspects of an national and international organization along with the particulars of conflict and stress management therein for skill development and entrepreneurship.

Course Code	MCOM 107
Course Name	Talent Management and HRIS

COs	Description
CO1	Know about talent management so that students enhance their skills by knowing the advantages of it for better entrepreneurial skills
CO2	Explore the various aspects talent management by doing planning, understanding the value of knowledge and how to implement their skills for better result for employability
CO3	Understanding talent acquisition, develop high potential employee and how to develop talent for entrepreneurial skills
CO4	Appreciate talent retention with SMR model used by national companies for developing better skills.

Course Code	MCOM 108
Course Name	Management of Competency Mapping

COs	Description
CO1	Know the basics of competency and its importance in the field of HRM for effective employability.
CO2	Explore the various aspects of HRM apply by national companies with competency and its importance for developing better skills for industry;
CO3	Understand the importance HR competency modelling and understand the importance of job position for employability.;
CO4	Know the importance of design and implementation of competency model for better entrepreneurial skills.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCOM 201
Course Name	Human Resource Management

COs	Description
CO1	Understand the basics of HRM along with its evolution; role and responsibilities of HR managers for employability;
CO2	Know the features and tools of HRP along with job related features for skill development and employability; Outline the concept, current theory and practice of recruitment and selection;
CO3	Comprehend the tools and methods employed in HRD; understand the strategies to build a stronger workforce for entrepreneurship & employability; to analyze the strategic issues and strategies required to performance appraisal and training to develop manpower resources;
CO4	Grasp the functionality of disciplinary mechanism and job related aspects to develop skill; understand the Concept of job enrichment used by national and global firms comprehensively to improve supervisor-subordinate relationship.

Course Code	MCOM 202
Course Name	Strategic Management

COs	Description
CO1	Understand the meaning, nature, scope and importance of strategic management for entrepreneurship, strategic management process;
CO2	Understand the meaning, nature, characteristics and categorization of environmental factors strategic management for skill development and entrepreneurship;
CO3	Understand the analysis of internal resources, audit of resources, value chain approach and SWOT analysis done by national companies for employability;
CO4	Understand the formulation of strategy, BCG model, evaluation of strategy, diversification and retrenchment for developing skill, providing employability & entrepreneurial skills.

Course Code	MCOM 203
Course Name	Advanced Corporate Accounting

COs	Description
CO1	Understand the accounting for group companies for skill development and employability;
CO2	Understand the accounting for corporate restructuring for developing skill,

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	providing employability & entrepreneurial skills;
CO3	Understand the concept of Lease accounting for developing skill, providing employability & entrepreneurial skills;
CO4	Describe the concept of Human resource accounting and the methods of valuation of Intangible assets used by national companies for skill development and employability

Course Code	MCOM 204
Course Name	International Business Environment
COs	**Description**
CO1	Understand the meaning of International Business, related concepts and its key theories for skill development;
CO2	Learn the different dimensions of International Business Environment and the various modes available for entering a foreign market for better skilling of entrepreneurship;
CO3	Understand FDI, its key theories and the concept of Globalization in Indian context for skill development;
CO4	Elaborate on the role, policies and importance of WTO & various MNCs in International Trade along with key concepts of International Financing for entrepreneurship & employability.

Course Code	MCOM 205
Course Name	Computer Applications in Business
COs	**Description**
CO1	Understanding the concept of Functional components, Memory and Classification of Computers and also describing Number System and basic arithmetic operations for skill development;
CO2	Perform common functional operations in MS Office &understands the different functions provided by Operating System at different level to develop skill, provide employability & entrepreneurial skills;
CO3	Recognize the technological trends of Computer Networking used in international companies and discuss the key technological components of the Network and Internet for skill development and employability;
CO4	Demonstrate the basic elements of a relational database management system and identify the data models for relevant problems for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCOM 207
Course Name	**Integrated Marketing communication**

COs	Description
CO1	Understand the concept of IMC with its role, importance and difference between communication and IMC for understanding entrepreneurial skill.
CO2	Explore the various aspects of communication process, AIDA model and consumer involvement activities done by national and international companies for employability;
CO3	Understand the importance of marketing communication, its objectives with DAGMAR approach for entrepreneurial skills;
CO4	Know about IMC with the help of planning and development for employability and entrepreneurial skills.

Course Code	MCOM 208
Course Name	**Emerging Economies and Markets**

COs	Description
CO1	Understand the concept of emerging markets, ethical issues of trade and foreign investment for entrepreneurial skills
CO2	Explore the various aspects of National and International economic environment with infrastructural gap for skill development
CO3	Understand the concept of merging market, rural development and importance of business model to develop better skill development
CO4	Explore the entry in emerging market, bidding for global tenders and licensing for entrepreneurial skills.

Course Code	MCOM FC 01
Course Name	**Advanced Financial Accounting**

COs	Description
CO1	Demonstrate the ability to perform complex accounting techniques and methods as required by the relevant accounting standards to develop skill, offer employability & entrepreneurial skills; differentiate between not-for-profit and profit accounting.
CO2	Explain the consolidation process and prepare the consolidated financial statement based on relevant accounting standards for employability.
CO3	Understand the governmental accounting objectives and reporting requirements, comparing them to for-profit entities and know the role of Comptroller and Auditor of India in context with national companies for

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	entrepreneurship.
CO4	Know the emerging concept in accounting e.g. Responsibility accounting, Social accounting, Human Resource accounting and Environmental accounting for skill development and entrepreneurship.

Course Code	**MCOM FC 02**
Course Name	**Cost and Management Accounting**
COs	**Description**
CO1	Understand the meaning, nature, functions and importance of cost accounting and that of management accounting too and be familiar with the preparation of cost sheet and elements of cost for entrepreneurship.
CO2	Understand the meaning and practical applications of Marginal Costing, Absorption Costing and Break-Even Analysis used by local and national firms for skill development and employability.
CO3	Understand the meaning, essentials, advantages and limitations of budgetary control for skill development and employability, preparation of various budgets, and meaning, need, advantages and limitations of standard costing, variance analysis and its practical applications.
CO4	Gain knowledge about the meaning, importance and principles of responsibility accounting and about the meaning and applications of transfer pricing for skill development and employability.

Course Code	**MCOM FC 03**
Course Name	**Project Planning and Control**
COs	**Description**
CO1	Identify Project Planning, monitoring and control of investment projects, market and demand analysis done by national and global companies, and technical analysis for skill development and employability.
CO2	Understand the Financial Analysis and Profitability and Financial Projections for entrepreneurship & employability.
CO3	Understand the Appraisal Criteria and Appraisal Process for entrepreneurship & employability and Social Cost Benefit Analysis.
CO4	Understand the Network Techniques for Project Implementation, Monitoring and Control for skill development and entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCOM FC 04
Course Name	**Income Tax Law and Practice**

COs	Description
CO1	Understand the concept of Income tax and provisions of Income Tax Act, 1961 and also to determine the residential status of a particular person to develop skill.
CO2	Calculate the taxable income of five heads of income i.e. Income from Salary, Income from House Property, Profits or Gains from Business or Profession, Capital Gains and Income from Other Sources with advance cases in context to national and international firms for skill development and employability.
CO3	Calculate the taxable income and tax liability of various persons and also to understand the applicability of provisions regarding clubbing of income to develop skill, provide employability & entrepreneurial skill, set-off and carry forward of losses, deductions of section 80(c) to 80(u).
CO4	Know about the legal provisions as related to income tax authorities, return of income, procedure of assessment interest and penalties, refund of tax, etc. for employability.

Course Code	MCOM FC 05
Course Name	**Corporate Financial Accounting**

COs	Description
CO1	Understand the methodology of accounting use by Insurance and Banking Companies to develop skill;
CO2	Get the depth knowledge of AS-14 (revised) for employability;
CO3	Distinguish between Amalgamation and Internal Reconstruction for skill development and entrepreneurship;
CO4	Get thorough knowledge of the use of accounting information for investment decisions and functioning of corporate reporting and information disclosure in context with national firms for entrepreneurship & employability.

Course Code	MCOM FC 06
Course Name	**Security Analysis and Portfolio Management**

COs	Description
CO1	Apply the concepts of Investment analysis in theory as well as in a real-life situation to develop skill;

Sanjeev Bhargav
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Carry out Fundamental Analysis (that involves Economy Analysis, Industry Analysis and Company Analysis) to study the intrinsic strength of a national and international firm and make investment decisions based on the study for skill development and employability;
CO3	Identify numerous investments related risks that an investor is subject to while investing in financial securities to develop skill, offer employability & entrepreneurial skills;
CO4	Differentiate between various classes of financial securities such as Equities, Fixed Income Securities, and Derivatives and learn various techniques to value and analyze these securities for entrepreneurship & employability.

Course Code	**MCOM FC 07**
Course Name	**Financial Markets and Institutions**
COs	**Description**
CO1	Understand the evolution of Indian Financial System to develop skill;
CO2	Understand the structure of Capital Market and Money Market in support to national and international firms to develop skill, provide employability & entrepreneurial skill;
CO3	Get thorough knowledge of various financial services provided by banking as well as non-banking financial corporation to develop skill, provide employability & entrepreneurial skill;
CO4	Have basic understanding about life and non-life insurance industry in India for employability.

Course Code	**MCOM FC 08**
Course Name	**Corporate Tax Planning and Management**
COs	**Description**
CO1	Define the concept of tax planning, tax evasion, tax management, determine the concept of corporate tax and exemption of corporate tax for entrepreneurship;
CO2	Know the provisions of Income Tax Act, 1961 relating to setting up new business basis on location and nature of business to develop skill and determine the various financial management decisions for business;
CO3	Understand the provisions regarding the tax planning with reference of free trade zone, special economic zones etc. for skill development and employability;
CO4	Understand the provisions relating to tax planning with reference of

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	various managerial decisions to setting up of new business, tax issues and planning in respect of Amalgamation of companies related to national companies to develop skill, provide employability & entrepreneurial skill.

Course Code	MCOM FC 09
Course Name	**Security Laws and Capital Management**

COs	Description
CO1	Providing information related to Securities and Exchange Board of India Act, 1992, depositary system in India for skill development.
CO2	Discuss about mutual fund, Key players in Mutual Funds, collective investment scheme and SEBI regulation scheme, 2003 for improving the skills,
CO3	Discuss about the role of primary market and its investment institutions in employability.
CO4	Development of Stock market in India; Stock market & its operations and various policies on stock market and various national companies for entrepreneurship

Course Code	MCOM FC 10
Course Name	**Financial Planning and Wage Management**

COs	Description
CO1	Discuss about financial planning, Cash flow and debt management, planning to finance education for skill development.
CO2	Determine Risk management and insurance decision in personal financial planning for better employability.
CO3	Providing Retirement need analysis techniques, Development of retirement plan, retirement schemes such as Employees Provident Fund (EPF) and investment planning used by big national companies, Portfolio construction and management is for employability.
CO4	Income-tax computation for Individuals, Companies, Trusts and other bodies, Deduction and Allowances for increasing entrepreneurship.

Course Code	MCOM FC 11
Course Name	**International Finance**

COs	Description
CO1	Providing information related to international finance, Bretton Woods

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Conference and afterwards, IMF and the World Bank for skill development.
CO2	Discuss about foreign exchange market, Interest rate parity theory; International currency forecasting for improving employability.
CO3	Determine foreign exchange risk and management is better for employability.
CO4	Discuss GDRs, ADRs, IDRs, Euro Bonds, Euro Loans, Repos, CPs, International Indebtedness; Structure of Balance of Payment for entrepreneurship

Course Code	**MCOM FC 12**
Course Name	**International Business and Trade**
COs	**Description**
CO1	Understand the nature and scope of International business; Modes of entry into International Business Multinational Corporations and their involvement in International Business for skill development.
CO2	Describe the concept of Balance of Payment Account, Concept and significance of balance of payments account; Current and capital account for entrepreneurship.
CO3	Discuss the concept of Global Trading and Investment Environment, Tariff and non-tariff barriers, impact on trade and investment flows for employability and entrepreneurship
CO4	Providing information of WTO, WTO and Developing Countries, IMF, World Bank, UNCTAD for employability and entrepreneurship.

Course Code	**MCOM FC 13**
Course Name	**Accounting for Managerial Decision**
COs	**Description**
CO1	Providing information related to Management Accounting-Concept, Nature, Objectives and Functions and financial statement helpful for skill development.
CO2	Discuss about fund flow statement, cash flow statement and marginal costing is improving employability.
CO3	Discuss about budgetary control and types of budget for improving employability.
CO4	Working Capital Management, Introduction and methods used by local and national business , Management Information System for entrepreneur

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCOM FC 14
Course Name	Corporate Financial Reporting

COs	Description
CO1	Discuss about Generally Accepted Accounting Principles in India, Overview of Accounting Standards (AS) for improving skill.
CO2	Providing information related to Types of merger, methods of accounting, treatment of Goodwill arising on merger, Purchase consideration and settlement, Accounting for investment in subsidiary, Accounting for Mergers / Acquisitions for employability.
CO3	Determine about Purposes of consolidated financial statements prepared by local and national companies, Consolidation procedures, Goodwill, Treatment Pre-acquisition profit and Post acquisition profit and concept of Fair value at the time of acquisition and Consolidated Income Statement for employability.
CO4	Discuss about Recent trends in Financial Reporting, Valuation, Accounting and Reporting of Financial Instruments and Recognition & Valuation Financial Instruments for better entrepreneurship.

Course Code	MCOM FC 15
Course Name	Retail banking and Financial Inclusion

COs	Description
CO1	Discuss about History and definition, role within the bank operations for skill development.
CO2	Determine the Retail Products Overview done by local and national companies - Customer requirements, Products development process, Liabilities and Assets Products/ Description of Liability products for employability.
CO3	Discuss about MIS and Accounting, Retail Strategies, Institutions for Personal loans/ Credit cards/ Educational loans, Branch, Extension counters, ATMs, Internet Banking for employability.
CO4	Providing information related to Securitization, mortgage based securities.

Course Code	MCOM FC 16
Course Name	Asset Liability Management

COs	Description
CO1	Discuss about Asset Liability Management Interest Rate Risk, Foreign Exchange Risk, Commodity Risk, stock Market Risk for skill

Sanjeev Bhargava
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development.
CO2	Providing basic knowledge about Strategic Framework, Organizational Framework, Operational Framework, Analytical Framework, technology Framework for employability.
CO3	Introduction to Gap, Gap Report, Introduction to Simulation, Measuring Risk Positions for better employability.
CO4	National and International companies Strategies for Internal Risk Management, Calculation of Basis Point Value for On-Balance Sheet Items and convexity for better entrepreneurship.

Course Code	MCOM FC 17
Course Name	**Financial Services Management**

COs	Description
CO1	Discuss about financial system and market, Types, Constituents and functioning, SEBI- Role and functions is helpful for skill development.
CO2	Discuss the role of primary and secondary market for national companies, Money market, Merchant banking services including new issue management for employability.
CO3	Providing knowledge mutual fund organization, Leasing and Hire purchase, Venture capital financing for employability.
CO4	Consumer Finance, Plastic Money and Housing finance, Securitization in India for improving entrepreneurship.

Course Code	MCOM FC 18
Course Name	**Accounting Standards and Corporate Financial Reporting**

COs	Description
CO1	Discuss about Generally Accepted Accounting Principles in India and International Financial Reporting Standards for skill development.
CO2	Providing knowledge about types of merger, methods of accounting, treatment of Goodwill arising on merger, Purchase consideration and settlement, Accounting for Mergers / Acquisitions in context with national and international companies, Corporate Financial restructuring for better employability.
CO3	Discuss the knowledge about Purposes of consolidated financial statements, Goodwill, Consolidated Income Statement, balance Sheet and Cash Flow Statements for employability.
CO4	Discuss about Recent trends in Financial Reporting, Valuation, Accounting and Reporting of Financial Instruments and Recognition & Valuation Financial Instruments for better entrepreneurship

Sanjeev Dawal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCOM FC 19
Course Name	**Computer Application in Accounting and Tax Returns**

COs	Description
CO1	Providing basic knowledge about fundamental of computers and software for better skill development.
CO2	Determine about the concept of financial accounting, company information, inventory information and voucher entry for employability in industry.
CO3	Providing knowledge about GST, TCS, CST, TDS and service tax for better employability.
CO4	Discuss about payroll system, transaction, Balance Sheet, Profit and Loss Account etc prepared by local, national and global companies. for better entrepreneurship

Course Code	MCOM FC 20
Course Name	**Financial Planning and Wealth Management**

COs	Description
CO1	Providing information related to Financial Planning / Communication, Financial Statements and Ratio Analysis for skill development.
CO2	Determine about wealth management, personal financial statement analysis and economic environment analysis in context with local, national and global firms for employability.
CO3	Discuss about Principles of Insurance, Functions and Characteristics of Insurance, life insurance, general insurance, investment planning and investment risk for better employability.
CO4	Providing knowledge about Calculation of Returns and income tax planning for entrepreneurship.

Course Code	MCOM FC 21
Course Name	**Financial Modelling Using Excel**

COs	Description
CO1	Learn basic information related to financial modelling, excel basics for skill development.
CO2	Discuss about Financial Modeling Using Excel, Using Formula Auditing Tools for Debugging, Financial Statements Forecasting for improving employability.
CO3	Provide basic information about financial planning and investment at

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	national and international level for better employability.
CO4	Determine the concept of Simulating Stock Prices, Review of Theory and Concepts, Modeling Examples, Options and Option Portfolios for enhancing entrepreneurial skills.

Course Code	MCOM FC 22
Course Name	**Analysis of Variables Income Security (Equity)**
COs	**Description**
CO1	Discuss role of Investment Decision and its Process, Investment instruments, Security Market and its operations and General valuation framework for better skill development.
CO2	Enhance knowledge about security analysis for better employability.
CO3	Determine about portfolio analysis and management at national level for better employability.
CO4	Provide knowledge about portfolio evaluation and behavioural finance for improving entrepreneurial skill.

Course Code	MCOM FC 23
Course Name	**Depreciation Policy Valuation of Assets and Liabilities**
COs	**Description**
CO1	Discuss about basic knowledge of depreciation and methods of depreciation for skill development.
CO2	Determine the concept of recognition at local and national level for better employability.
CO3	Enhance knowledge about measurement at recognition for improving entrepreneurial skill.
CO4	Provide information related to measurement after recognition for entrepreneurship.

Course Code	MCOM FC 24
Course Name	**Working Capital Management**
COs	**Description**
CO1	Determine the concept regarding working capital and need of working capital for skill development.
CO2	Discuss about Accounts Receivables Management and Factoring for better employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Discuss the concept of inventory management and tools and techniques of inventory management at local, national and international level for better employability.
CO4	Provide the basic knowledge of cash management, cash budgeting for improving entrepreneurial skill.

Course Code	MCOM BI 01
Course Name	**Insurance and Risk Management**

COs	Description
CO1	Understand various types of Risk for skill development;
CO2	Understand the nature and principles of Insurance for skill development and employability;
CO3	Explain the regulatory framework of insurance in India to develop skill, provide employability & entrepreneurial skill;
CO4	Comprehensive knowledge of techniques for risk and loss control followed by national and global firms for skill development and entrepreneurship.

Course Code	MCOM BI 02
Course Name	**Accounting for Banking and Insurance**

COs	Description
CO1	Understand the principles and practices of accounting to develop skill; and also understand the accounting process with practical application;
CO2	Learn the regulatory framework of Banks with special reference to its accounting to develop skill, offer employability & entrepreneurial skills;
CO3	Get thorough knowledge of Final Account of Banking Companies special context to local and national for employability;
CO4	Get thorough knowledge of Final Account of Insurance Companies for entrepreneurial skill.

Course Code	MCOM BI 03
Course Name	**Banking Law and Practice**

COs	Description
CO1	Explain the concept of bank, its types, functions, relationship with customers and about central bank of India and about reconstruction and reorganization of banking companies for skill development;

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Explain the negotiable instruments like promissory note, bill of exchange and cheque in brief for skill development and entrepreneurship;
CO3	Describe bank deposits, lending of bank, bank policy regarding loan, how loan application be evaluated, about priority sector lending and security investment policy issued to national companies for entrepreneurship & employability;
CO4	Describe the concept of lien, mortgage, hypothecation and debentures in secured advances and guarantees, precautions, duties of bankers, bankers credit, acceptance credit and documentary credit in unsecured advances for skill development and employability.

Course Code	**MCOM BI 04**
Course Name	**Indian Financial System**
COs	**Description**
CO1	Understand the role and function of the financial system in reference to the macro- economic environment to develop skill and to demonstrate an awareness of the current structure and regulation of the Indian financial services sector;
CO2	Describe the different components of a Money market and their role in economic development to develop skill;
CO3	Describe the concept of Capital market and the method of trading in stock exchange for national and international business to develop skill, provide employability & entrepreneurial skill;
CO4	Explain the concept of financial institution for skill development and entrepreneurship; Role of RBI; SEBI guidelines for financial market and latest development in Indian Banking system.

Course Code	**MCOM BI 05**
Course Name	**Insurance Company Operations**
COs	**Description**
CO1	Understand the concept of bank, banking regulation act 1949, government as a regulator of banks, licensing of banking companies, branch licensing, shareholding in banking companies, Appointment of additional directors and corporate governance rules followed by national and International firms and to develop skill;
CO2	Understand the concept of regulation of banking business with power of RBI, regulation of interest, internet banking guidelines, CRR, SLR and financial sector legislative reforms to develop skill, provide employability & entrepreneurial skill;

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the concept of IRDA Act 1999 with duties, functions, licensing, rights of policy holder and international trends in insurance regulation to develop skill, provide employability & entrepreneurial skill.
CO4	Understand the concept of insurance, LIC Act, General insurance business Act and Insurance laws act for entrepreneurship & employability

Course Code	**MCOM BI 06**
Course Name	**Principles and Practice of Life Insurance**

COs	Description
CO1	Understand the different life insurance products, Term Insurance plans, Endowment plans, Whole Life Insurance, Universal Life Insurance, and Investment- Linked Life Insurance for employability;
CO2	Understand the Need, want and necessity, Hierarchy of needs, Maslow's theory, and death & Living Benefit products to develop skill, offer employability & entrepreneurial skills;
CO3	Understand the Protection plans and Disability features used by national and international insurance companies , Unit Linked vs. Traditional Life Insurance Plans, Difference between ULIP and Mutual Funds for skill development and employability;
CO4	Understand the Life insurance product development, Comprehensive Business Analysis, Product Life Cycle and its Stages marketing for entrepreneurship.

Course Code	**MCOM BI 07**
Course Name	**Innovations in Banking and Insurance**

COs	Description
CO1	Understand the evolution of Indian Financial System to develop skill;
CO2	Understand the structure of Capital Market and Money Market available for national and global companies for employability;
CO3	Get thorough knowledge of various financial services provided by banking as well as non-banking financial corporation for skill development and employability;
CO4	Have basic understanding about life and non-life insurance industry in India for entrepreneurship.

Sanjiv Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCOM BI 08
Course Name	Marketing of Banking Services

COs	Description
CO1	Illustrate some of the frameworks and approaches that are helpful in marketing of financial services used by national financial services companies for skill development and employability;
CO2	Explain the contribution of marketing towards the success of modern financial institutions to develop skill;
CO3	Understand the difference between the marketing of services and marketing of financial services for entrepreneurship & employability;
CO4	Comprehensive Knowledge of customer relationship, Product and service quality and customer perception for entrepreneurship & employability.

Course Code	MCOM BI 09
Course Name	Principle and Practice in Banking

COs	Description
CO1	Define the concept of banking and uses of commercial banks for skills development
CO2	Inculcate a knowledge of Mandate and Power of Attorney, payment and collection of cheques for the learning of entrepreneurial skills
CO3	Demonstrate integrative knowledge of NPA management system appraisal techniques for better employability in the industry
CO4	Conduct an investigation of banking regulations and financial stability and banking policies for local and national business for entrepreneurship and employability

Course Code	MCOM BI 10
Course Name	Insurance Law and Practice

COs	Description
CO1	Validate an extended understanding of the life insurance, Convertible Plans, marketing activities for skills development
CO2	Inculcate a knowledge of all types of gratuity scheme & industrial life insurance to service-based activities for the learning of entrepreneurial skills
CO3	Demonstrate integrative knowledge of premium payments, lapse and renewal and customer satisfaction and loyalty for better employability in the industry

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Conduct an investigation of policy claims, IDRA regulations for local and national firms and information to provide valid conclusions for entrepreneurship and employability

Course Code	MCOM BI 11
Course Name	Role of IT in Banking

COs	Description
CO1	Inculcate a knowledge of the computer and control systems appropriate to service-based activities for the learning of entrepreneurial skills
CO2	Validate an extended understanding of the computer software and programming language or marketing activities for skills development
CO3	Conduct an investigation of service delivery systems, communication process, analysing data, and synthesizing information to provide valid conclusions for entrepreneurship and employability
CO4	Demonstrate integrative knowledge of Browser WWW, internet protocol, customer satisfaction and loyalty in context with local ,national and international firms for better employability in the industry

Course Code	MCOM BI 12
Course Name	Currency Banking and Exchange

COs	Description
CO1	Validate an extended understanding of banking procedures, gold standard and marketing activities done by national and international companies for skills development.
CO2	Inculcate a knowledge of the Credit Control by RBI. Inflation: Causes & Remedies service-based activities for the learning of entrepreneurial skills.
CO3	Demonstrate integrative knowledge of types of banks, E-banking, customer satisfaction and loyalty for better employability in the industry.
CO4	Conduct an investigation of foreign exchange and exchange control to provide valid conclusions for entrepreneurship and employability.

Course Code	MCOM BI 13
Course Name	Central Banking and Monetary Policy

COs	Description
CO1	Conduct an investigation of origin and evaluation of central banking to

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	provide valid conclusions for entrepreneurship and employability
CO2	Inculcate a knowledge of the Reserve Bank of India its functions and maintenance to service-based activities for the learning of entrepreneurial skills
CO3	Demonstrate integrative knowledge of para banking activities, Information about CIBIL, customer satisfaction and loyalty for better employability in the industry
CO4	Validate an extended understanding of the Non-Banking Financial Companies (NBFs), Revised framework and product-based marketing activities done by national companies for skills development

Course Code	**MCOM BI 14**
Course Name	**Banking Operations**

COs	**Description**
CO1	Demonstrate integrative knowledge of banking system in India, RBIs Acts, customer satisfaction and loyalty for better employability in the industry.
CO2	Inculcate a knowledge of the operational aspect of commercial banks in India context to national and international firms to service-based activities for the learning of entrepreneurial skills.
CO3	Conduct an investigation of mode of creating charge, basal norms, collecting, analysing data, and synthesizing information to provide valid conclusions for entrepreneurship and employability.
CO4	Validate an extended understanding the employment of funds by commercial banks and marketing activities for skills development.

Course Code	**MCOM BI 15**
Course Name	**International Banking and Finance**

COs	**Description**
CO1	Inculcate knowledge of the Global money market or importance of English Banking control systems appropriate to service-based activities for the learning of entrepreneurial skills.
CO2	Validate an extended understanding of the growth in different countries of federal reserve and physical product -based marketing activities for skills development.
CO3	Demonstrate integrative knowledge of European Monetary union or bank development procedure, customer satisfaction and loyalty for better employability in the industry.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Conduct an investigation of service delivery systems by Indian Banking or International new development of banks to provide valid conclusions for entrepreneurship and employability.

Course Code	MCOM BI 16
Course Name	HRM in Banking and Insurance

COs	Description
CO1	Validate an extended understanding of the Human Resource development procedure in banking and insurance marketing activities for skills development.
CO2	Conduct an investigation of service delivery systems, collecting, analysing data, and employee personnel policies, information to provide valid conclusions for entrepreneurship and employability.
CO3	Inculcate knowledge of the employee communication, personal policies in LIC to service-based activities for the learning of entrepreneurial skills.
CO4	Demonstrate integrative knowledge of human resource management in Banks and Financial Institutions, customer satisfaction and loyalty context at national and international bank for better employability in the industry.

Course Code	MCOM BI 17
Course Name	Regulatory Framework of Bank

COs	Description
CO1	Define the concepts of central banking and recent issues in context with national or global firms for skill development and employability.
CO2	Provide information relating to currency management system and new Gandhi series for analysis for entrepreneurship.
CO3	Describe and discuss different types of customer's rights, customer's rights repo, finance, gathering the resources for employability.
CO4	Provide information relating to banking sector development, digital banking and different situations with required evaluation and control for skill development and employability.

Course Code	MCOM BI 18
Course Name	Management of Commercial Banking

COs	Description
CO1	Validate an extended understanding of the different types of banks, key

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	trends affecting the banks marketing activities for skills development
CO2	Inculcate a knowledge of the bank regulatory environment to service-based activities done by national banks and international banks for the learning of entrepreneurial skills
CO3	Demonstrate integrative knowledge of organization and structure of commercial banking industry, customer satisfaction and loyalty for better employability in the industry
CO4	Conduct an investigation of service delivery systems, collecting, analysing data, and synthesising information to provide valid conclusions for entrepreneurship and employability

Course Code	**MCOM BI 19**
Course Name	**Treasury and Risk Management in Bank**
COs	**Description**
CO1	Validate an extended understanding of the asset liability management and RBI guidelines helps in activities done by national banks for skills development.
CO2	Inculcate a knowledge of the extended risk management in banking business, liquidity management, service-based activities for the learning of entrepreneurial skills.
CO3	Demonstrate integrative knowledge of base 1 norms, treasury management, customer satisfaction and loyalty for better employability in the industry.
CO4	Conduct an investigation of credit management, Loans credit to provide valid conclusions for better skilling in entrepreneurship.

Course Code	**MCOM BI 20**
Course Name	**Advanced Digital Banking**
COs	**Description**
CO1	Define the concepts of advanced digital banking, need for digital banking products knowledge for better employability in industry
CO2	Provide information relating to branchless banking, business facilitators, evaluating entrepreneurial options for increasing skills development
CO3	Describe and discuss different types of national banks marketing of digital banking products for better employability.
CO4	Provide information relating to Global payment systems and different situations with required evaluation and control for skill development and skills enhancing.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCOM BI 21
Course Name	**Retail Banking Liability Products and Services**

COs	Description
CO1	Validate an extended understanding of the history of retail banking, corporate banking for skills development.
CO2	Inculcate knowledge of the retails products overview and development process to service-based activities at local and national level for the learning of entrepreneurial skills.
CO3	Demonstrate integrative marketing or selling of retail products, customer satisfaction and loyalty for better employability in the industry.
CO4	Conduct an investigation of the issues to retail banking to provide valid conclusions for skills development and employability.

Course Code	MCOM BI 22
Course Name	**Money and Banking**

COs	Description
CO1	Know the concept on money, role of money in capitalist socialist and system of note issues to gain knowledge for employability;
CO2	Explore the various aspects of commercial bank with its credit creation and recent reforms in banking sector in India for better employability;
CO3	Understand the importance of central bank, role and functions of reserve bank of India. for developing skills and employability;
CO4	Know the importance of money and capital market with its importance and limitation at local and national level for employability skill.

Course Code	MCOM BI 23
Course Name	**Business Analysis and Forecasting**

COs	Description
CO1	Validate an extended understanding of Business analytics, Analytics the New Path to Value for skills development
CO2	Inculcate a knowledge of the data classifications, the dark side of customer analytics to service-based activities for better employability
CO3	Demonstrate introduction to data mining tools, customer satisfaction and loyalty at local, national and international level for skills development.
CO4	Conduct an investigation of the decision modeling, capital budgeting, risk types of problems to provide valid conclusions for skills enhancement and employability

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCOM BI 24
Course Name	Treasury & Foreign Exchange Management

COs	Description
CO1	Validate an extended understanding of the foreign exchange rates, Direct , indirect and cross rates for better employability
CO2	Inculcate knowledge of the currency futures and option markets and development process to service-based activities at local and national level for the learning of skills development.
CO3	Determination of exchange rates, supply and demand view of exchange rates, customer satisfaction and loyalty for better employability in the industry.
CO4	Conduct an investigation of foreign exchange exposure or risk and its nature to entrepreneurship and employability

PROGRAMME NAME - Bachelor of Hotel Management & Catering Technology (BHMCT)

Course Code	BHMCT 101
Course Name	Food Production Foundation – I

COs	Description
CO1	Understand the food production department meaning and scope in culinary, learn some basic culinary terms for skill development and employability.
CO2	Know the kitchen organization, duties and responsibilities of kitchen staff, workflow, and kitchen equipment and Layout of receiving, service and wash up areas for entrepreneurship.
CO3	Prepare simple Indian and European dishes and understand the various classical ingredients of Indian and European dishes, their importance, taste and texture for employability.
CO4	Learn about the different sauces and its derivatives used in cooking and understand the basic of bakery & confectionery used by national and international hotels for skill development and employability.

Course Code	BHMCT 102
Course Name	Food & Beverage Services Foundation – I

COs	Description
CO1	Know the origin, growth and development of F&B Service in a hotel industry, Role of catering establishment and other various food & beverage establishment for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the national and international organizational structure of a hotel in F&B service department and their roles and responsibility, Interdepartmental coordination for entrepreneurship.
CO3	Know about the different areas of food & beverage service in a hotel industry for employability.
CO4	Learn the different types of equipment in F&B service department and their uses, Knowledge of ancillary departments for skill development and employability.

Course Code	**BHMCT 103**
Course Name	**Front Office Operations Foundation – I**

COs	**Description**
CO1	Explain the national and international front office departments and its organizational structure in a hotel and understand the protocol for pandemic situation & role and contribution of front office in hotel operations for skill development and employability.
CO2	Know the front office hierarchy and its roles and responsibility. Understand the size of hotel, location, service, standards, and types of guests for entrepreneurship.
CO3	Describe the different type of guest room rates and the meal plans, classification of hotels on their ownership basis for employability.
CO4	Understand the Cooperation & Coordination with other departments of hotel and know how to prepare and work on Billing Machine, Folio Well, PABX, EPABX, and Fax for skill development and employability.

Course Code	**BHMCT 104**
Course Name	**Housekeeping Operations Foundation – I**

COs	**Description**
CO1	Learn the housekeeping department, its hierarchy and its roles and responsibility, layout of housekeeping department different areas for skill development and employability.
CO2	Understand application and correct use of cleaning agents on various surfaces of hotel, care and storage of housekeeping equipment, use of Polishes on Metal, furniture and floor for entrepreneurship.
CO3	Explore the correct use of cleaning equipments, their storage and care, Automation in housekeeping functions for employability.
CO4	Describe the efficient functioning of national and international hotel operations with reference to housekeeping operational aspects in cleaning and giving different service in making up of a guest room for skill development. and employability.

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BHMCT 105
Course Name	Introduction to Hospitality Industry and Tourism

COs	Description
CO1	Understand the meaning, nature and concept of tourism & tourist, tourism destination in India, element types and typology of tourism used by national and International countries, Interrelation and interdependence between tourism, hotel and hospitality for skill development and employability
CO2	Learn about the organization infrastructure of tourism in India at different level, an overview on different travel organization as WTO, IATA, PATA etc for entrepreneurship.
CO3	Know the hospitality introduction of different type of hotel industry, types and forms of hotel and their rooms for employability.
CO4	Elaborate the role of public sector, MNCs and state development is developing hotel industry and hospitality sector in India. Challenges and present status of hotel business in India for skill development and employability.

Course Code	BHMCT 106
Course Name	Basics of Communication

COs	Description
CO1	Brush up the basics of English grammar and apply it in their day to day English language for skill development and employability
CO2	Learn the dos and don'ts of etiquettes in hospitality industry for skill development and employability
CO3	Understand the basics of effective speaking in order to become good presenters and conversationalists used in national and international hotels for entrepreneurship.
CO4	Compose various types of business letters and other business related documents for skill development and employability.

Course Code	BHMCT 107
Course Name	Case Study in Hospitality Management

COs	Description
CO1	Differentiate between the 3 typical types of Case Studies - Follow a given methodology to solve problem/ decision-case studies for entrepreneurship & employability.
CO2	Use a variety of diagnosis tools - Clearly formulate a problem statement for skill development and employability.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Answer managerial challenges by using rational problem solving/ decision making tools and creative approaches used by national and international hotels for entrepreneurship.
CO4	Formulate prescriptions and recommendations in written and verbal forms for skill development and employability.

Course Code	BHMCT 201
Course Name	Food Production Foundation – II

COs	Description
CO1	Learn the different methods and objective of cooking, and its benefits for skill development and employability
CO2	Know the classification of soups with their recipes and role of egg in cookery for entrepreneurship.
CO3	Understand Raw material like- Cereals, Pulses (Source, Cultivations, Importance), and significant recipe based on Cereals and Pulses for employability.
CO4	Learn the importance of hygiene and sanitation in kitchen department used by international hotelswith principles of HACCP for skill development and employability.

Course Code	BHMCT 202
Course Name	Foods & Beverage Services Foundation – II

COs	Description
CO1	Learn the pre activities to open a restaurant in context of national and international hotels and learn the different styles or method of service across the globe for skill development and employability
CO2	Understand the different types of meal and the non-alcoholic beverages & Health Drinks for entrepreneurship
CO3	Explain the different types of menu & know the General accompaniments, covers, Planning lunch and dinner Menu for employability.
CO4	Understand the manufacturing and service of cigar, cigarettes, and pipes & know the storage, brand names & their history for skill development and employability.

Course Code	BHMCT 203
Course Name	Front Office Operations Foundation – II

COs	Description
CO1	Understand the concept of guest cycle and guest handling procedure, check in and check out procedure for skill development and employability

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Learn the importance of guest reservation, channels and sources of reservation and how the front office staff monitors the complete process for entrepreneurship.
CO3	Learn about the pre-registration activities, different room rates, future blocks and various method of billing for individual, group or special program guest for employability.
CO4	Understand the procedure of issuing the room keys, fulfilling the guest special need or requests and room selling techniques used by national and international hotels for skill development and employability.

Course Code	BHMCT 204
Course Name	Housekeeping Operations Foundation – II

COs	Description
CO1	Understand the necessity of achieving high productivity in Housekeeping by applying techniques of conducting inventories used by international hotels & learn the formats for entrepreneurial skills;
CO2	Familiarize the importance of Desk Control and their roles and responsibility with front office and other department in handling of guest queries, problems and requests for skill development;
CO3	Identify different types of fibers and methods of fabric construction, need to understand fibers, synthetic filaments, silk filaments for employability;
CO4	Provide benchmarks for management linen nature and classification, Selection criteria for the linen items, Activities of the linen room, equipment and layout of a linen room for skill development.

Course Code	BHMCT 205
Course Name	Nutrition And Food Science

COs	Description
CO1	Explain the meaning of food, nutrition, food science, Food chemistry& food microbiology for skill development and employability.
CO2	Describe bacteria, yeast, moulds, food spoilage and putrefaction, Food borne Illnesses; food poisoning and Food Spoilage. Know their beneficial and harmful effects on food protection strategies by reputed national and international hotels for entrepreneurship.
CO3	Understand nutrition, dietary sources, and functions, effects of dietary, deficiency and Balanced diet for employability.
CO4	Know the food preservation & Food spoilage methods, Food standards, food adulteration for employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BHMCT 206
Course Name	Environmental Science

COs	Description
CO1	Understand the concept of environmental science, scope, Physical & Biotic Components, and Environment Policy Aspects for skill development and employability.
CO2	Learn the operative guidelines and audit checklist for various departments in a hotel for entrepreneurship.
CO3	Define the importance of Energy Management & Water Conservation, Waste control & management, and Hazardous chemical reaction & safeguards used by reputed national and international hotels for employability.
CO4	Learn the environment legislation of The Air pollution act, The Water Pollution and The Noise Pollution act for skill development and employability.

Course Code	BHMCT 207
Course Name	Food Safety Practices

COs	Description
CO1	To provide the basic knowledge in hygiene, food safety & nutrition in line with International standards for skill development and employability.
CO2	To enable the candidates to manage any hospitality, tourism and other allied industries for entrepreneurship.
CO3	To develop the right skills necessary in hospitality and allied industries in context to national and international hotels so as to meet the requirements according to the industry expectations for employability.
CO4	To develop the required skills in Food & Beverage Production used by for skill development and employability.

Course Code	BHMCT 301
Course Name	Food Production – III

COs	Description
CO1	Understand the history of Indian Cookery and the different spices used in Indian cookery for skill development and employability.
CO2	Know the different regional cuisine and culture of Indian cookery, and also learn the preparation of popular dishes from the cuisines of India for entrepreneurship.
CO3	Know the various cuisines from south part of India and Central areas and also learn the preparation of popular dishes from the south Indian cuisine

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	for employability.
CO4	Learn the different raising agent and shortening used in Indian kitchen and learn about ingredients used in the bakery & confectionary special concern to national reputed 5 star hotels for skill development and employability.

Course Code	BHMCT 302
Course Name	Food & Beverage Services – III

COs	Description
CO1	Understand the alcoholic beverage classification, manufacturing of beer, type of different beers, international brands of beers, service of beers (bottle & Draught), other winemaking beverages for skill development and employability.
CO2	Learn the pot still & patent still production of spirits, Different types of spirits production for entrepreneurship.
CO3	Learn the different type, brands and services of cheese, manufacturing methods (traditional & modern) used by good national hotelsfor employability
CO4	Overview of gueridon trolley service, billing method of duplicate and triplicate system of KOT & BOT for skill development and employability

Course Code	BHMCT 303
Course Name	Front Office Operations - III

COs	Description
CO1	Understand the concept, types, method of accepting Credit Cards &how accounting is conducted for hotel room division for skill development and employability
CO2	Learn the bookings, execution and closure formats in a hotel for entrepreneurship
CO3	Define the Cashier's Reports, Credit Control & Method of settling guest's accounts for employability
CO4	Understand the regulation related to foreign exchange, Encashment certificate, accepting foreign exchange, and Exempted guests policy used by national and international hotels for skill development and employability

Course Code	BHMCT 304
Course Name	Housekeeping Operations – III

COs	Description
CO1	Describe commercial laundry set up and operations in hotel, flow process

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	of Industrial laundry, Stages in wash cycle; dry cleaning, role and classification of laundry agents, Guest Laundry services; collection and delivery used by international hotels for skill development and employability.
CO2	Identify stain removing technique for different nature of stains and fabrics, methods of removing stains, their limitations, and describe various types of beds and mattresses for entrepreneurship.
CO3	Analyse various cleaning routine in guest rooms and public area (Lifts, elevators, staircases, corridors, and, front and Back Areas) for employability.
CO4	Understand various pests and their treatment, responsibility of housekeeping in pest control, and learn areas of infestation and consequences of infestation for skill development and employability.

Course Code	**BHMCT 305**
Course Name	**Nutrition and Food Science**
COs	**Description**
CO1	Explain the meaning of food adulteration and nutrition and differentiate between hygiene and malnutrition for skill development and employability.
CO2	Describe bacteria, yeast and moulds, their beneficial and harmful effects on food hygiene for entrepreneurship.
CO3	Understand nutrition used by international hotels and its types for employability.
CO4	Understand the science of food methods and food chemistry for skill development and employability.

Course Code	**BHMCT 306**
Course Name	**Computer Applications**
COs	**Description**
CO1	Identify basic terms, concepts, and functions of computer system components and demonstrate various peripherals devices and the usage of various storage devices for skill development and employability.
CO2	Understand file management and accomplish creating word processing documents with their properties for entrepreneurship.
CO3	Accomplish creating worksheets, presentations with their properties for employability.
CO4	Access and evaluate Internet-based information used by national and international hotels and use e-mail to communicate with others for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BHMCT 307
Course Name	Diet Plan

COs	Description
CO1	Explain the meaning of food and nutrition and differentiate between balanced diet and malnutrition for skill development and employability
CO2	Describe bacteria, yeast and moulds, their beneficial and harmful effects on food for entrepreneurship.
CO3	Understand nutrition and its types for employability.
CO4	Understand the meal planning methods used by reputed national and international hotels and food standards for skill development and employability.

Course Code	BHMCT 308
Course Name	Management Information System

COs	Description
CO1	Understand fundamentals of tourism from the management, marketing and financial perspectives for skill development and employability
CO2	Understand the concepts of travel and tourism, the framework of the system in context international countries for entrepreneurship.
CO3	Types and form of tourism as well as the impacts of tourism for employability.
CO4	Describe the different types tourism resources of India, their importance in tourism and management for skill development and employability.

Course Code	BHMCT UDM
Course Name	Disaster Management

COs	Description
CO1	Understand about the disaster, types of disaster causes and impact of disaster, global trends in disaster for skill development and employability
CO2	Understand disaster management theory (cycle, phases, risk, crisis, emergency, disasters, resilience), role of community in successful Disaster Risk Reduction for entrepreneurship.
CO3	Understand the impact of development project, Climate Change Adaptation by international hotels , IPCC scenario, role of international cooperation for employability
CO4	Create Technological innovations GIS in Disaster Risk Reduction, Disaster management Act and policy Hazard and vulnerable profile of India for skill development and employability.
CO 5	Understand the vulnerabilities, to work on reducing disaster risks, and to build a culture of safety students along with teacher could work on ways

Sanjiv Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	of addressing these vulnerabilities, preparing plans and consultation with local administration or NGOs for skill development and employability.

Course Code	BHMCT 309
Course Name	Hospitality Law

COs	Description
CO1	Understand the basic structure of the U.S. legal system for skill development and employability
CO2	Analyze National and International potential legal issues in the hospitality industry for entrepreneurship.
CO3	Create a simple employment contract for employability.
CO4	Examine the legal obligations to guests and visitors in the hospitality industry for skill development and employability.

Course Code	BHMCT 310
Course Name	Hotel Maintenance Management

COs	Description
CO1	Understand the importance of maintenance department in Hotel Industry its Hierarchy, and job description of maintenance department for skill development and employability.
CO2	Understand the types, source, and use of fuel in hotels, and their precautions and learn the maintaining procedure of air conditioning, vertical transportation, elevators, and escalators for entrepreneurship.
CO3	Learn the Fire Fighting technique, handling of fire extinguishers, and how to do water disposal and recycling technique used by national and international hotels for employability.
CO4	Understand the maintenance of Audio-visual equipment's, and requirements of contracts, types and limitations for skill development and employability.

Course Code	BHMCT 401
Course Name	Food Production – IV

COs	Description
CO1	Understand the concept of Continental cuisine in term of Geographical and learn its cooking technique, Famous Recipe, and cooking terminologies for skill development and employability.
CO2	Understand the concept of Larder kitchen and learn the different cold preparation for entrepreneurship
CO3	Widened knowledge on International Cuisine (Regional cuisine, Influence, Signature Recipes and culinary term) for employability

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the Bakery Arts- Pastry (Types, uses, preparations, precautions) and learn the different Bread Making Method for skill development and employability.

Course Code	BHMCT 402
Course Name	Food & Beverage Services – IV
COs	**Description**
CO1	Learn the wines classification, Viticulture methods, Vinification, wine regions, Wine Glasses and Equipment's, and understand Storage and service of wines, Food and Wine Harmony; vine diseases, Wine Terms for skill development and employability
CO2	Learn the different types of bar, Layout of Bar, Bar Planning, Designing, Bar Menu, Bar Equipment and Bar Control for entrepreneurship.
CO3	Understand how to prepare classic cocktails & mocktails & know the Recipes, Equipment's & Glassware, Garnishes and Decorative accessories for employability.
CO4	Understand the difference between Aperitif & Liqueurs and understand the banquet concept and functions in a international hotel for skill development and employability.

Course Code	BHMCT 403
Course Name	Front Office Operations - IV
COs	**Description**
CO1	Understand the different computer application, software use in front office, their scope, advantage and disadvantage for skill development and employability.
CO2	Learn how to handle a guest complaint, the different types of complain, follow up procedures of complain understand by national and international hotels and Importance of feedback to make correction of mistake for entrepreneurship.
CO3	Learn the concept of communication with guest, staff and inter-department for special request of any guest and know about handling mail & packages for employability.
CO4	Understand the check-out procedure, account settlement and updating the front office records, learn about the key control and access control system for hotel and guest securities for skill development and employability

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BHMCT404
Course Name	**Housekeeping Operations – IV**

COs	Description
CO1	Identify various types of elements and principles of interior design, role of colour in Interior designing, Lighting systems in Hotels, and window treatments for skill development..
CO2	Apply techniques of arrangements of various elements of interior decoration, special consideration for rooms for physically handicapped and disabled, Redecoration and refurbishing of guest rooms for entrepreneurial skill.
CO3	Apply principles of design (use of furniture, carpets, lighting, and colour) in context of real situations, Care and maintenance of furniture, Types of Joints in furniture and fixtures for better employability in industry.
CO4	Know various functions of Horticulture department; Essential components of Horticulture, Landscaping, and Indoor Plants decoration strategy used by national and international hotel in the Hotel Properties for entrepreneurship & employability

Course Code	BHMCT 405
Course Name	**Hotel Engineering**

COs	Description
CO1	Understand the importance of maintenance department in Hotel Industry its Hierarchy, and job description of maintenance department for skill development and employability.
CO2	Understand the types, source, and use of fuel in hotels, and their precautions and learn the maintaining procedure of air conditioning, vertical transportation, elevators, and escalators for entrepreneurship.
CO3	Learn the Fire Fighting technique, handling of fire extinguishers, and how to do water disposal and recycling techniques used by international hotels for employability.
CO4	Understand the maintenance of Audio-visual equipment's, and requirements of contracts, types and limitations for skill development and employability.

Course Code	BHMCT 406
Course Name	**Research Methodology**

COs	Description
CO1	Understand the concept, types and significance of research in contemporary business environment for skill development and employability.
CO2	Apply the research problem in a structured manner and design the

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	research process scientifically for entrepreneurship.
CO3	Identify the right respondents, and decide the sample size and methods of data collection for employability.
CO4	Process the data and apply appropriate analytical tools to draw meaningful inferences required for solving the research problem / decision making for starting national or international hotel for skill development and employability.

Course Code	BHMCT 407
Course Name	Supply Chain Management

COs	Description
CO1	Understand the fundamentals of elements and functions of supply chain, role of drivers and demand forecasting. for entrepreneurship
CO2	To apply various techniques of inventory management and their practical situations handled by national and international hotels for skill development and employability.
CO3	Analyze how supply chain decisions related to facility location can be applied to various industries and designing the supply chain for employability.
CO4	How various warehousing management system and transportation can be practiced in various industries for skill development and employability.

Course Code	BHMCT 408
Course Name	Hotel Operation Research

COs	Description
CO1	Understand the fundamentals of elements and functions of hotel operation research, role of drivers and demand forecasting. for entrepreneurship
CO2	To apply various techniques of operation management and their practical situations for skill development and employability.
CO3	Analyze how national and international hotel operation decisions related to facility location can be applied to various industries and designing the supply chain for employability.
CO4	How various warehousing management system and transportation can be practiced in various industries for skill development and employability.

Course Code	BHMCT 409
Course Name	Management and Organizational Behavior

COs	Description
CO1	Learn about the various models, challenges and opportunities for OB.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Ability, Learning, Values, Attitudes Personality of Individual Behaviour for skill development and employability
CO2	Learn about national and international hotel operations Maslow's need hierarchy, McClelland's theory. Vroom's expectancy theory. Management by objectives for entrepreneurship.
CO3	Learn about the Group Dynamics & Behavior, Leadership theories styles, Managerial grid, and Fiedler model for employability.
CO4	Learn about Concept of Organizational climate, concept of Organizational Development (OD), step in OD, OD intervention techniques for skill development and employability.

Course Code	BHMCT 410
Course Name	Strategic Management
COs	**Description**
CO1	Describe the primary functions of strategic management and the roles of managers for entrepreneurship
CO2	Describe the work of national and international major contributors to the field of management for skill development and employability.
CO3	Explain the components and considerations of strategic management for employability.
CO4	Identify common organizational structures and the advantages and disadvantages of each for skill development and employability.

Course Code	BHMCT 601
Course Name	Food Production – V
COs	**Description**
CO1	Understand the principles of Bulk cooking, layout of Large Kitchen, Hierarchy, and Equipments used in large kitchen for skill development and employability
CO2	Know about the food costing, Yield management, key points of purchasing, Inventory control, standard recipe (Evaluation, Developing) for entrepreneurship.
CO3	Know the introduction of commodities, Agents used in production, overview on dairy products (Milk, cream, Cheese and other byproducts of milk) for employability.
CO4	Learn about the Bakery Arts (Pastry (Introduction, Types, and Preparations) used by International hotels, Breads and role of leavening agents in Bakery for skill development and employability.

Sanjeev Bhanot
REGISTRAR

IFTM UNIVERSITY
MORADABAD

Course code	BHMCT 602
Course name	Food & Beverage Services – V

COs	Description
CO1	Know the concept of F&B Operations & meal experience and the size & scope of F&B operations for skill development and employability.
CO2	Understand the planning, Feasibility Study, investment &facility designing of F&B operation area followed by national and international hotels for entrepreneurship.
CO3	Define types of Menus, Menu Pricing, and Menu Merchandising & Menu Engineering for an F&B outlet for employability.
CO4	Explain the study of Purchasing, Receiving, Storing, & Issuing, Yield Management. Understand the Techniques of food and beverage Cost Control for skill development and employability.

Course code	BHMCT 603
Course name	Front Office Operations - V

COs	Description
CO1	Understand how to handling special situations in hotels like group arrival & departure, room change, VIPs, overbooking, drunk guest or theft, etc. for skill development and employability.
CO2	Learn the methods for fixing room rate and different room rate structure and social economic benefits of tourism destination for entrepreneurship.
CO3	Understand the concept of yield management, different rates of rooms, doing forecasting booking and rate availability restrictions for employability.
CO4	Gain the knowledge of different software used in International hotel operations (Opera, Galileo and Oracle) for skill development and employability

Course code	BHMCT 604
Course name	Housekeeping Operations – V

COs	Description
CO1	Identify various types of Floral Arrangements and its Purpose & Types of flower arrangement and its level of placements and describe Principles of Flower arrangement for skill development and employability.
CO2	Describes the housekeeping Budgeting and its importance and Procedure of preparing departmental budget prepared by National and International hotels and how to maintained and controlled it for

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	entrepreneurship.
CO3	Describe the various stages of planning of Staff Uniform and its Selection, Design, Quantity and Distribution and Staff Scheduling or Work card- its purpose and procedure for employability.
CO4	Understand operations of housekeeping department related to staff scheduling and preparation of various purchase and personnel records for skill development and employability.

Course code	BHMCT 605
Course name	Contemporary Ecological And Environmental Issues
COs	**Description**
CO1	Understand the role of environment, components, concepts, EMS, Policies Aspects and Environment management programme for skill development and employability.
CO2	Learn operative guidelines and audit checklist for various departments in a hotel (Public areas back areas internal and external part of hotels for entrepreneurship.
CO3	Understand the importance of Energy Management, waste control, pollution control, Eco purchasing, rain harvesting Indoor air quality, solid waste management for employability.
CO4	Understand environment legislation and regulatory framework Air Pollution (Prevention, Control) Water Pollution (Prevention, Control), Noise Pollution policy framed by National and International Hotels (Regulation Control) for skill development and employability.

Course code	BHMCT 606
Course name	Principles of Management
COs	**Description**
CO1	Understand the scope, objectives, evolution and key responsibilities in management as applied in practice for managing national and global hotels for skill development and employability.
CO2	Examine the managerial function of planning and organizing and its impact on the organizational effectiveness for entrepreneurship.
CO3	Understand the managerial function of staffing and directing and also learn about the role of leadership, motivation and communication in an organization for employability.
CO4	Develop an insight towards the coordination and control process in the organizations and the challenges faced by of modern managers in the field on management for skill development and employability.

Sanjeev Dawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course code	BHMCT 607
Course name	Concept of E-Hotels

COs	Description
CO1	To understand emerging business models in hotel industry for skill development and employability
CO2	To study the impact of Information Technology on hospitality sector for entrepreneurship.
CO3	To explore the scope of entrepreneurship in the national and International emerging e-hotel business for employability.
CO4	To understand the functional areas of hotel for skill development and employability.

Course code	BHMCT 608
Course name	Fundamental of Business

COs	Description
CO1	Will be able to understand basic functions of food and beverage operations for skill development and employability.
CO2	To understand the functional areas of hotel for entrepreneurship.
CO3	To learn the effective usage of equipment's for employability.
CO4	To understand the functional areas of local, national and global hotels for entrepreneurship.

Course code	BHMCT609
Course name	Hotel Interior Decoration

COs	Description
CO1	Identify various elements & principles of Interior Decoration and explain care to be taken for plants and floral material for skill development and employability.
CO2	Describe Furniture, Soft Furnishings and Floor Furnishings found in hotel guestrooms and elaborate on the selection of furnishing fabrics for entrepreneurship.
CO3	Select appropriate colour schemes suitable for an area dependent on the usage of the room and its architectural features and identify the selection criteria for various kind of Furniture, Soft Furnishings and Floor Finishes for employability.
CO4	Anticipate guest preferences with regards to room interiors and creating a WOW effect for the guest at every moment strategies adopted by International hotels for skill development and employability.

Sanjeev Bajpai
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course code	BHMCT 610
Course name	Business Planning and Strategies

COs	Description
CO1	Acquainted with the impact of technology on travel which has become even more significant due to the application of new IT services for skill development and employability.
CO2	Acquire knowledge of the International online travel market and the increasing digitalization of the travel industry for entrepreneurship.
CO3	Appreciate that NDTs are online networks connecting suppliers - such as airlines, hotels, or cruise lines to providers, like travel agencies and online travel agencies for employability.
CO4	Have complete knowledge of this system giving them an edge to their profile for skill development and employability.

Course Code	BHMCT 701 E1A1
Course Name	Kitchen Management

COs	Description
CO1	Understand the basic operations of a professional kitchen with regard to safety procedures and Define methods of cooking and its importance in food production department for skill development and employability.
CO2	Describe the kitchen organization, Planning & Layout, Modern Equipment used in production and learn how to manage the inventory, store, purchasing, receiving and selection of supplies for entrepreneurship.
CO3	Know about the managerial aspects for international hotel operations in kitchen management and Kitchen Control and its Yield management for employability.
CO4	Understand quality and Portion control and Food production for Different types of catering Operations, and Fast Food uses in current trend for skill development and employability.

Course Code	BHMCT 701 E1A2
Course Name	Bar Management

COs	Description
CO1	Understand the roles and responsibility, qualities, personal presentation and customer handling of bartender, selling techniques and do & don'ts for professional refusal of service in a bar for skill development and employability.
CO2	Learn the different types of bar, different design of bar, Major Equipment, Bar Utensils, Checklist of Bar Equipment, glasses, machines used in bar department for international hotel operations and

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	care of glasses for entrepreneurship.
CO3	Know about the closing and opening duties of bartender, Authority & eligibility for a liquor license, License & permit required for a Bar and frauds in bar operations for employability.
CO4	Learn the different types of gueridon trolley service in F&B service area. Equipments used in gueridon service, Safety and precaution to be taken while performing gueridon service for skill development and employability.

Course Code	BHMCT 701 E2A1
Course Name	Front Office Operations
COs	**Description**
CO1	Define Room rate structure, criterion of establishing room rates, The Rule of Thumb Approach& Hubbert's Formula for skill development and employability
CO2	Understand the theoretical and practical application planning and evaluation of revenue management concept followed by national and International hotels for entrepreneurship.
CO3	Understand the concept and importance of Yield Management, and learn the calculation of yield management for employability.
CO4	Know the various managerial roles and functions to increase staff productivity and strategies of selling in high and low season for employability.

Course Code	BHMCT 701 E2A2
Course Name	Housekeeping Operations
COs	**Description**
CO1	Define the various stages of planning and staff management in housekeeping department, and Leadership in Housekeeping, Employee Welfare and Discipline policy followed by International hotels for skill development and employability.
CO2	Know how to initialize operations of housekeeping department, starting up Housekeeping and Countdown for entrepreneurship.
CO3	Apply renovation in hotels as per market trends& demand, subsidiary process in Renovation for employability.
CO4	Understand the policies, certification and advantage of an Ecotel start up and evaluate various strategic options and trending amenities and product used in housekeeping for skill development and employability

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BHMCT 702
Course Name	Hospitality Marketing

COs	Description
CO1	Explain marketing and selling with basic understanding of service marketing matrix, difference between Goods & Services Marketing, Service Marketing Matrix for skill development and employability.
CO2	Describe the customer behavior and expectations from services, Customer Expectation of Services, Customer Perception of Services, and Building Customer Relationships activities followed by national and international hotels for entrepreneurship.
CO3	Design and develop the service standards and creating service offers, positioning Hotel in Market Place, Creating the Service Offer and Adding Value, Pricing Strategies for Hotels for employability.
CO4	Understand the delivery systems in Hospitality industry, enhancing hotel value by improving Quality and Productivity, Managing people in Hotel Organization for skill development and employability.

Course Code	BHMCT 703
Course Name	Human Resource Management

COs	Description
CO1	Understand HRM, its purpose, evolution and scope in effective hotel administration Identify aspects related to Human Resource Planning for skill development and employability
CO2	Understand the role that HRM has to play in manpower planning, job analysis, recruitment, and selection and forecast the human resource requirements for entrepreneurship.
CO3	Understand training, development and performance management system and appraisals for employability.
CO4	Explain Compensation, health and safety of employees and the roles of the employer and the employee in enforcing health and safety policies and procedures to maintain good industrial relations followed by global hotels for skill development and employability.

Course Code	BHMCT 704
Course Name	Hotel Law

COs	Description
CO1	Understand basic knowledge of Contract and Agreement, Hotel laws, legal compliance, regulations and legislations, Role of sales of goods Act in Business for skill development and employability.
CO2	Learn rights of guest regards to (Accommodation, F&B service, safety and security, COC) in the context of national and International hotels

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	for entrepreneurship.
CO3	Understand different types of license (Bar& Liquor) Permits, premises, F&B law, food adulteration, food inspector duties for employability.
CO4	Understand laws related to contract, sales and goods acts, partnership acts, Industrial laws for skill development and employability.

Course Code	**BHMCT 705**
Course Name	**Facility Planning**
COs	**Description**
CO1	Classify the different category of national , international hotels, gradation/monitoring/periodic assessment and heritage hotels for skill development and employability.
CO2	Know the design consideration, attractive appearance, efficient plan, good location, suitable material, Sound financing & Competent Management for entrepreneurship.
CO3	Understand the bar designing, planning &basic layout of kitchen, restaurant design and project management. Explain the network models (CPM /PERT) & Project Cost Analysis for employability.
CO4	Identify and describe Systematic Layout Planning pattern (SLP), Planning Consideration, Flow process & Flow diagram, Architectural Consideration, Estimation of water / electrical load gas & ventilation for skill development and employability.

Course Code	**BHMCT 706**
Course Name	**Entrepreneurship Development**
COs	**Description**
CO1	Understand the insight on key aspects and challenges of being an entrepreneur and Qualities and functions of entrepreneurs, Role and importance of entrepreneur in economic growth for skill development and employability.
CO2	Understand the key management issues that entrepreneurs face in general and women entrepreneurs concern to national and International hotel or business in particular and competing theories of entrepreneurship and entrepreneurial development programme in India for entrepreneurship.
CO3	Gain knowledge of systems and techniques to manage and strategically position ventures in market and, create solutions and develop action plans for this standard problems /opportunities for employability.
CO4	Understand the skills and the intricacies involved in starting an entrepreneurial venture and Preparation of Feasibility Reports and Legal Formalities & Documentation for employability.

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BHMCT 707
Course Name	Bar Operations

COs	Description
CO1	Understand the alcoholic beverage classification, manufacturing of beer, type of different beers, international brands of beers, service of beers (bottle & Draught), other winemaking beverages for skill development and employability.
CO2	Learn the pot still & patent still production of spirits, Different types of spirits production for entrepreneurship.
CO3	Learn the different type, brands and services of cheese, manufacturing methods (traditional & modern) for employability.
CO4	Overview of gueridon trolley service, billing method of duplicate and triplicate system of KOT & BOT for skill development and employability.

Course Code	BHMCT 708
Course Name	Hospitality Management System

COs	Description
CO1	Understanding the classification of hospitality industry and its function. Educating students on the evolution of hospitality industry for skill development and employability
CO2	This Module is prescribed to appraise students about the important departments of a classified hotel and to teach various aspects related to accommodation Industry for entrepreneurship.
CO3	To impart a comprehensive idea about the operations of international hotel or chain of hotels in nation, Resort and other catering out lets of a hotel for employability.
CO4	To examine the role of organizations and its functions in hotel industry for skill development and employability.

Course Code	BHMCT 709
Course Name	Principles of Bartending

COs	Description
CO1	Understand the alcoholic beverage classification, manufacturing of beer, type of different beers, international brands of beers, service of beers (bottle & Draught), other winemaking beverages for skill development and employability.
CO2	Learn the pot still & patent still production of spirits, Different types of spirits production for entrepreneurship.
CO3	Learn the different type, brands and services of cheese, manufacturing methods (traditional & modern) for employability

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Overview of gueridon trolley service, billing method of duplicate and triplicate system of KOT & BOT for skill development and employability.

Course Code	BHMCT 710
Course Name	Laundry Management

COs	Description
CO1	Understand how to manage laundry operation, the process of laundry and chemical used with their records, formats and legal issues in operation for skill development and employability
CO2	Learn the technique of handling guest and their complaints and the process guest laundry with different methods of bill settlement used by reputed hotel in nation for entrepreneurship.
CO3	Know about the dry cleaning management, its importance, process, machinery and handling damage and color bleeding for employability
CO4	Learn about the different methods of stain treatment on linen and different areas of hotel for skill development and employability

Course Code	BHMCT 711
Course Name	Learning and Development

COs	Description
CO1	Study training programs and processes in different organizations and analyze their effectiveness for skill development and employability
CO2	Students to design a training program for a specific job role. Students are expected to conduct a mock training session including need identification and a set of for entrepreneurship
CO3	Students to evaluate the effectiveness of the same. Give a training needs analysis case and ask the students to find out the training needs for employability.
CO4	Implement various training methods in national and International hotel with concern to employees, observe and submit a report on its effectiveness for skill development and employability.

Course Code	BHMCT 712
Course Name	Administrative Law

COs	Description
CO1	Understand the basic structure of the U.S. legal system for skill development and employability
CO2	Analyze potential legal issues in the hospitality industry concern to national and international hotels for entrepreneurship.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Create a simple employment contract for employability.
CO4	Examine the legal obligations to guests and visitors in the hospitality industry for skill development and employability

PROGRAMME NAME – Master of Tourism and Travel Management (MTTM)

Course Code	MTTM 101
Course Name	**Tourism Products and Resources**

COs	Description
CO1	Describe the nature & characteristics of travelers, Visitors, Excursionist, Tourist, Transit visitor and know the Protocol for pandemic situation for skill development
CO2	Describe the geographical, social, economic & cultural effects on domestic, international, inter-regional, intra-regional tourism & its typology; for better employability and skilling.
CO3	Understand the Tourism system in marketing with theories and present trends in National and Global tourism in MNC's of Tourism Industry; for Skill Development and Employability
CO4	Know the role and functions of World Tourism Organization (WTO), FHRAI, IHA, IATA, IATO and others important tourism organizations. for Skill Development and Employability and entrepreneurship

Course Code	MTTM 102
Course Name	**Tourism Principles, Policies and Practices**

COs	Description
CO1	Describe the nature & characteristics of travelers, Visitors, Excursionist, Tourist, Transit visitor and know the Protocol for pandemic situation to include skill, provide employability & entrepreneurial skills
CO2	Describe the National and Global geographical, social, economic & cultural effects on domestic, international, inter-regional, intra-regional tourism & its typology for Skill Development Employability
CO3	Understand the Tourism system in marketing with theories and present trends in Domestic and Global tourism in MNC's of Tourism Industry for better employability and skilling
CO4	Know the role and functions of World Tourism Organization (WTO), FHRAI, IHA, IATA, IATO and others important tourism organizations for Skill Development and Employability and entrepreneurship

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MTTM 103
Course Name	Tourism and Transportation

COs	Description
CO1	Understand the overview of adventure tourism and challenges in adventure tourism. Know the land based adventure tourism with their equipment tools for Skill Development, Employability, and Entrepreneurship Development
CO2	Know the air-based adventure and water-based adventure tourism with their tools and equipment used in adventure tourism for Skill Development, Employability Entrepreneurship Development
CO3	Overview he introduction to Indian cultural and heritage. Different religions of India, cultural diversity for entrepreneurship;
CO4	Cultural and heritage management, global approach on heritage management, role of UNESCO, ASI, ICOMOS in Conservation and preservation of cultural and heritage site. For Skill Development Employability Entrepreneurship Development

Course Code	MTTM 104
Course Name	Adventure, Sports, Cultural and Heritage Tourism

COs	Description
CO1	Understand the overview of adventure tourism and challenges in adventure tourism nationally and globally. Know the land based adventure tourism with their equipment tools for Skill Development, Employability, and Entrepreneurship Development
CO2	Know the air-based adventure and water-based adventure tourism with their tools and equipment used in adventure tourism for Skill Development, Employability Entrepreneurship Development
CO3	Overview he introduction to Indian cultural and heritage. Different religions of India, cultural diversity for entrepreneurship;
CO4	Cultural and heritage management, global approach on heritage management, role of UNESCO, ASI, ICOMOS in Conservation and preservation of cultural and heritage site. For Skill Development Employability Entrepreneurship Development

Course Code	MTTM 105
Course Name	Hospitality, Hotel and Hoteliering

COs	Description
CO1	Understand the overview of Hospitality Management & the Hotel business with the nature of accommodation available, knowledge about different type accommodation available in market; For Skill Development, Employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the function of Front Office management in guest handling of Individual and Groups, Solving Guests' Problems, Automation/ CRS in Front Office & Travel Desk; Skill Development, Entrepreneurship Development
CO3	Understand the function of housekeeping operations in hotels nationally and globally and their Housekeeping Practices, co-ordination with Other Departments For Skill Development, Employability Entrepreneurship Development
CO4	Understand the function of food & beverage service operations, organization structure of department and the various outlets with their service methods. For Skill Development, Employability

Course Code	**MTTM 106**
Course Name	**Communication for Tourism and Hospitality**
COs	**Description**
CO1	Learn the dos and don'ts of business etiquettes in hospitality industry; For Skill Development
CO2	Develop improved listening and reading skills; For Skill Development
CO3	Understand the basics of effective speaking in order to become good presenters and conversationalists for Skill Development, Employability Entrepreneurship Development
CO4	Compose various types of business letters and other business related documents followed by national and International Hotels for Skill Development , Employability Entrepreneurship Development

Course Code	**MTTM 107**
Course Name	**Tourism Media Management**
COs	**Description**
CO1	Learn about the various concepts of inbound, outbound, domestic, maintenance of tourism products, Alternative tourism, Mass tourism, Special Interest Tourism for employability
CO2	Learn about tour Packaging Management Concept, Origin and development of Tour Packaging, Types of Tour, Component of a Standard Package Tour for better understanding of employability.
CO3	Learn about the Concept, Need, Objective and Tourism Goals of Tourism Planning Policy and Development for better understanding of employability.
CO4	Learn about Concept of Concept and Significance, HRD systems, models and Practices in Travel Industry special concern to national and Global operated companies, Tourism Manpower Strategies, Training and Development for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MTTM 108
Course Name	Personality Development

COs	Description
CO1	Understand, analyse develop and exhibit accurate sense of self for better understanding of employability.
CO2	Think critically. To make students know about self-awareness, life skills, soft skills, need for personal development etc. for better understanding of employability.
CO3	Demonstrate knowledge of personal beliefs and values and a commitment to continuing personal reflection and reassessment for employability.
CO4	Learn to balance confidence with humility and overcome problems associated with personality requirement for making career in International hospitality Industry for skill development.

Course Code	MTTM 201
Course Name	Ethical and Regulatory Aspects of Tourism Business

COs	Description
CO1	Explain social responsibility of tourism business and also describes the non-moral standards, Ethics law and Ethical issues in tourism business for Skill Development and Employability
CO2	Understand the legislation for Tourism Legislation Sources of Tourism Law in Indian Scenario, Laws related to Ancient Monuments Act and it's Regulations and guidelines special concern for global countries for Skill Development and Employability
CO3	Understand the laws for tourism and Business in India for domestic and international traveler and rules & regulation for traveling of foreigner for Skill Development and Employability
CO4	Describe environmental protection act for the Law of Safeguarding Health and well-being of Customers and Consumer Protection Act or Right to Information for Skill Development

Course Code	MTTM 202
Course Name	Indian Tourism Geography and Ecology

COs	Description
CO1	Learn the importance of Geography in tourism of Climatic variations and climatic regions of world and understand the Physical and political features of India; For Skill Development Employability
CO2	Know the seasonal incidents and political features of India, preparation of brochure of a native tourist destination and a festival calendar of the

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	locality / area; for skilling.
CO3	Understand the Tourism and Environmental Change, Know the Characteristics of Eco-tourism in India, Potential benefits from alternative tourism & Sustainable Tourism for Skill Development Employability
CO4	Define the Nature Tourism, Ecotourism, National Parks, Wild life sanctuaries, Tiger Reserves, cultural, historical and religious tourist regarding marketing activities done by national and International countries for Skill Development Employability

Course Code	MTTM 203
Course Name	**Global Tourism Geography**

COs	Description
CO1	Understand the Global tourism of Asia, Physiography of Asia, Malaysia, Singapore, Thailand and India; for Skill Development & Employability
CO2	Know the North & South America tourism and physiographic of North America and South America; for Skill Development & Employability
CO3	Define main tourist attractions of EUROPE its Physiography of Europe; for Skill Development & Employability
CO4	Explain the Physiography of Australia, and Main countries & capitals and main tourist attractions of Australia and New Zealand for Skill Development & Employability

Course Code	MTTM 204
Course Name	**Destination Planning and Development**

COs	Description
CO1	Define the destination tourism planning and its characteristics, types, process, destination visioning and planning toolkits for Skill Development, Employability
CO2	Learn about the product development and strategies models, challenges of destination branding and role of DMO's in destination marketing followed by global counties ; for Skill Development, Employability
CO3	Understand the purchasing behavior of travelers, market segment with potential growth and emerging tourism paradigms; for Skill Development, Employability,
CO4	Understand the major communities and there prospective of tourism planning, know about national action plan and tourism polices for skilling

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MTTM 205 A
Course Name	Tourism Marketing

COs	Description
CO1	Define the concept of Marketing for Hospitality and Tourism, evaluation, able to differentiate between service marketing and product marketing, understand the micro & macro environment of tourism marketing for Skill Development Employability
CO2	Know the factors affecting customers buying behavior and know about market segmentations, targeting and positioning for Skill Development Employability
CO3	Know the pricing strategies in market, changing price in different channel and resolving complaints for customer satisfaction strategy used by National and International countries for Skill Development Employability
CO4	Understand the tourism product promotional mix and how to buildup public relation to growth of tourism product in market. for skilling

Course Code	MTTM 205 B
Course Name	Financial Management in Tourism

COs	Description
CO1	Understand the basics of financial management and financial planning, and apply the concept of Time value of money; for Skill Development Employability
CO2	Learn about the different source of finance by long-term source of finance and short-term finance like, Equity share, preference shares, debentures, retrained income; for Skill Development & Employability
CO3	Understand the concept of Capital structure, Working capital Management and Financial Leverage, EBIT – EPS Analysis, Estimation of Working Capital in Tourism Business; for Skill Development & Employability
CO4	Know about the National financial policies, overview of (T.F.C.I), Financing by UNWTO, ITDC, MOT and JKTDC towards different projects and Case Studies of Financial Statements of different hotels context to national and International hotels for Skill Development

Course Code	MTTM 205 C
Course Name	Rural Tourism

COs	Description
CO1	Learn about the various rural tourism statistics, planning & development, Tourism types and Political aspects of the International travel for Skill Development & Employability

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Learn about the role of the Government and Rural Tourism Bodies, and know National Tourism Organization concept its Functions and Administrative set up for Skill Development.
CO3	Learn about the need for planning and management - rural tourism: the planning and management process for Skill Development & Employability
CO4	Learn about sustainable rural tourism development, Community involvement in rural tourism, Partnerships in rural tourism development , Visitor management techniques used by local and national travel and tourism companies for Skill Development.

Course Code	MTTM 301
Course Name	International Tourism Studies

COs	Description
CO1	Learn about the various international travel and tourism statistics, planning & development, Tourism types and Political aspects of the International travel for skill development.
CO2	Learn about the role of the Government and International Tourism Bodies, and know National Tourism Organization concept its Functions and Administrative set up for better employability in industry.
CO3	Learn about international travel formalities, IATA traffic conferences, Airport rules and regulations different type of Visa and its rules for India for entrepreneurial skill.
CO4	Learn about major tourist destinations in India for entrepreneurial skill.

Course Code	MTTM 302
Course Name	Economics of Tourism

COs	Description
CO1	Understand the Concept of Economics in Tourism, its development in Indian perspective, and analysis the Economics of Consumer for skill development.
CO2	Understand the Supply of Tourism Services, Price and Non-Price factors, Supply and elasticity and Concept of Price determination for better employability in industry
CO3	Understand the economic contribution of tourism and the Impacts of tourism on nation - direct, indirect, induced and negative for entrepreneurial skill.
CO4	Understand to forecasting approaches. Concept of break-even point, Principal sectors of Indian economy with special reference to tourism-ITDC, State tourism Development Corporation for entrepreneurship & employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MTTM 303
Course Name	Financial Management in Tourism

COs	Description
CO1	Understand the basics of financial management and financial planning, and apply the concept of Time value of money for skill development.
CO2	Learn about the different source of finance by long-term source of finance and short-term finance like, Equity share, preference shares, debentures, retrained income for better employability in industry.
CO3	Understand the concept of Capital structure, Working capital Management and Financial Leverage, EBIT – EPS Analysis, Estimation of Working Capital in Tourism Business context to national companies for entrepreneurial skill.
CO4	Know about the National financial policies, overview of (T.F.C.I), Financing by UNWTO, ITDC, MOT and JKTDC towards different projects and Case Studies of Financial Statements of different hotels for entrepreneurship & employability.

Course Code	MTTM 304
Course Name	Sustainable Tourism & Current Trends

COs	Description
CO1	Develop the understanding of sustainable tourism development, & role of different agencies in Sustainable Tourism for skill development.
CO2	Describe the principles of sustainability, Key Characteristics, tools of sustainability, the global approaches and its development for better employability in industry.
CO3	Learn about the role of WTTC, UNWTO, PATA, UNEP, IUCN, Standardization and Certification for Tourism Sustainability for entrepreneurial skill.
CO4	Learn the new trends and emerging patterns in tourism, and understand the Community Based Tourism, and ethical concerns in tourism for entrepreneurship & employability.

Course Code	MTTM 305
Course Name	Computer Applications in Tourism

COs	Description
CO1	Understand the role and importance of computers and application of Computer in tourism business for skill development.
CO2	Understand the concept of MIS, networking and different network topologies, and learn the usage of internet for customer satisfaction used by national and international companies for better employability in

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	industry.
CO3	Describes the various travel and tourism software available, its importance, usage and features for entrepreneurial skill.
CO4	Describes hotel software CRS, IDS, Opera, Host and Fidelio and its importance and their characteristics in hotel business for entrepreneurship & employability.

Course Code	MTTM 306
Course Name	**Summer Training Report Evaluation And Viva-Voce**

COs	Description
CO1	Develop knowledge and understanding of different stakeholders of tourism industry for entrepreneurship & employability.
CO2	Analyze and appraise a particular form of tourism and tourism business at a specific destination for better employability in industry.
CO3	Develop the ability and expertise from where to conduct a review/situational/observational analysis of the tourism industry at the National/regional level for entrepreneurial skill.

Course Code	MTTM 307
Course Name	**Learning and Development**

COs	Description
CO1	Study training programs and processes in different organizations and analyze their effectiveness at national level for skill development.
CO2	Students to design a training program for a specific job role. Students are expected to conduct a mock training session including need identification and a set of for better employability in industry
CO3	Students to evaluate the effectiveness of the same. Give a training needs analysis case and ask the students to find out the training needs for entrepreneurship & employability
CO4	Implement various training methods, observe and submit a report on its effectiveness for entrepreneurial skill

Course Code	MTTM 308
Course Name	**Tourism Information System**

COs	Description
CO1	Learn about the various rural tourism statistics, planning & development, Tourism types and Political aspects of the International travel for skill development.
CO2	Learn about the role of the Government and Rural Tourism Bodies, and

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	know National Tourism Organization concept its Functions and Administrative set up for better employability in industry
CO3	Learn about the need for planning and management - rural tourism: the planning and management process at local and national level for entrepreneurship & employability
CO4	Learn about sustainable rural tourism development, Community involvement in rural tourism, Partnerships in rural tourism development, Visitor management for entrepreneurial skill

Course Code	MTTM 309
Course Name	Management Information System

COs	Description
CO1	Understand fundamentals of tourism from the management, marketing and financial perspectives for skill development.
CO2	Understand the concepts of travel and tourism, the framework of the system for better employability in industry
CO3	Types and form of tourism as well as the impacts of tourism at local and national level for entrepreneurship & employability
CO4	Describe the different types tourism resources of India, their importance in tourism and management for entrepreneurial skill

Course Code	MTTM 310
Course Name	Tourism Development

COs	Description
CO1	Learn about the various concepts of Tourism Policy Planning Institutional framework and the principal lines of public tourism policy for skill development.
CO2	Learn about National Administration and Tourism Policy, Policy making bodies and its process at national levels for better employability in industry
CO3	Learn about approach and process of Tourism Planning Techniques of Plan Formulation at national level; Planning for Tourism Destinations- Objectives for entrepreneurship & employability
CO4	Learn about Concept of Leadership Styles, Process of Communication. Control Process- methods, Tools and Techniques – Choices in Control for entrepreneurial skill

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MTTM 401
Course Name	Management and Organizational Behavior

COs	Description
CO1	Understand the role of organizational behavior and its challenges & opportunities in tourism industry for skill development.
CO2	Learn the customer or consumer behavior by different theories of learning attitude, perception, perceptual model, and theories of Motivation for better employability in industry.
CO3	Understand the concept, factors influencing Group Behavior, and apply the concept of Transactional Analysis (TA) in organization for entrepreneurial skill.
CO4	Know the Organizational Development & Change in intervention techniques, resistance to change and overcoming resistance to change used by global and national business for entrepreneurship & employability.

Course Code	MTTM 402
Course Name	Human Resource Management in Tourism

COs	Description
CO1	Define Human Resource Management and its Concept, Objectives & Functions, and Challenges to HRM in Tourism Industry for skill development.
CO2	Attain in depth knowledge about growth, development, Factors affecting, and Barriers to HR Planning for better employability in industry.
CO3	Know the recruitment with special reference to national and International Tourism Industry and describes in details the selection factors and procedures for entrepreneurial skill.
CO4	Acquire special skills required for human resources working in Hotels, and different methods of performance appraisal in Tourism Industry for entrepreneurship & employability.

Course Code	MTTM 403
Course Name	Strategic Tourism Management

COs	Description
CO1	Define strategic tourism management, General Environment Analysis (DPEST), Industry Environment Analysis & Internal Environment Analysis for skill development.

Sanjeev Dawar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the concept of corporate level strategies, Expansion, Retrenchment, Generic Business, and Strategic Analysis for better employability in industry.
CO3	Know the Functional Strategies (Marketing, Finance, HR, Production, and Technology) in National and International Tourism industry and their strategic implementation for entrepreneurial skill.
CO4	Understand the basic strategic control tools, barriers of evaluation in Tourism and different corporate level strategies for entrepreneurship & employability.

Course Code	MTTM 404
Course Name	**Research Methodology in Tourism**
COs	**Description**
CO1	Understand the relevance of research, and use of qualitative and quantitative Research in Tourism for skill development.
CO2	Understand the techniques of analyzing Data, and Report writing, and learn different steps in report writing for better employability in industry.
CO3	Learn about the data collection, survey, interviews and questionnaire and know the methods for data analysis by hypothesis testing followed by national and International companies for entrepreneurial skill.
CO4	Understand the structure of report, chapter formation, presentation of tables and figures and how to write bibliography for entrepreneurship & employability.

Course Code	MTTM 405
Course Name	**Tourism Impacts and Crisis Management in Tourism**
COs	**Description**
CO1	Know the tourism impact on Social, Cultural and Economic, and Environment for skill development.
CO2	Develop the detail understanding of Environmental impacts of tourism, its types, and control measures for better employability in industry.
CO3	Define crisis management, its concepts and approaches, and learn how to work with Crisis management team context to global companies for entrepreneurial skill.
CO4	Understand the role of risk assessment, risk management and risk communication in tourism for entrepreneurship & employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MTTM 406
Course Name	Entrepreneurship Development in Tourism

COs	Description
CO1	Understand the concept, theories of entrepreneurship and opportunities in Tourism, & factors affecting in growth of entrepreneurship in Tourism for skill development.
CO2	Apply concept of EDP and the reason for starting an enterprises and role of entrepreneurship/SSI in economic development for better employability in industry.
CO3	Develop the understanding of policy measures for tourism entrepreneurship in India and learn trade practices, and resource mobilization used by national companies for entrepreneurial skill.
CO 4	Identify the SWOT analysis of business, various subsidies and incentives offered to entrepreneurs for entrepreneurship & employability.

Course Code	MTTM 407
Course Name	Tourism Enterprise

COs	Description
CO1	Learn about the various concepts of Social Responsibilities of Business, Characteristics of a Sound Plan-Management by Objectives (MBO)-Decision Making for skill development.
CO2	Learn about finance & Control Concept of Financial Management, Risk-Return Trade off, Profit vs. Wealth, Dividend Policy, Capital structure, Book-keeping, Fundamentals of Financial Accounts for better employability in industry
CO3	Learn about the Principles and Concepts, Manpower Management, Salary and Wage Administration, Training and Development for entrepreneurship & employability
CO4	Learn about Concept of Leadership Styles, Process of Communication at local, national and international level. Control Process- methods, Tools and Techniques – Choices in Control for entrepreneurial skill

Course Code	MTTM 408
Course Name	Diet Plan

COs	Description
CO1	Explain the meaning of food and nutrition and differentiate between nutrition and malnutrition for skill development and employability.
CO2	Describe bacteria, yeast and moulds, their beneficial and harmful effects on food for entrepreneurship for better employability in industry
CO3	Understand nutrition and its types for employability & entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the food preservation methods and food standards at local, national and international level for skill development and employability for entrepreneurial skill.
Course Code	**MTTM 409**
Course Name	**Disaster Management**

COs	Description
CO1	Understand about the disaster, types, causes and impact of disaster, global trends in disaster skill development and employability;
CO2	Understand disaster management theory (cycle, phases, risk, crisis, emergency, disasters, resilience), role of community in successful Disaster Risk Reduction at national level for entrepreneurship;
CO3	Understand the impact of development project, Climate Change Adaptation, IPCC scenario, role of international cooperation skill development and employability;
CO4	Create Technological innovations GIS in Disaster Risk Reduction, Disaster management Act and policy Hazard and vulnerable profile of India for entrepreneurship;

Course Code	**MTTM 410**
Course Name	**Business Planning and Strategies**

COs	Description
CO1	Acquainted with the impact of technology on travel which has become even more significant due to the application of new IT services for skill development.
CO2	Acquire knowledge of the online travel market and the increasing digitalization of the travel industry at local, national and international level for better employability in industry.
CO3	Appreciate that NDTs are online networks connecting suppliers - such as airlines, hotels, or cruise lines to providers, like travel agencies and online travel agencies for entrepreneurship & employability.
CO4	Have complete knowledge of this system giving them an edge to their profile for entrepreneurial skill.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

SCHOOL OF ENGINEERING & TECHNOLOGY

PROGRAMME NAME – B.Tech. (Civil Engineering)

Course Code	TECE 101
Course Name	Environmental Science
COs	**Description**
CO1	Understand the issues and challenges related to environmental and ecosystem for global, national and international importance due to some human activities, it will develop the skills of students.
CO2	Understand about the different sources of air pollution and their impact on human health. it will develop the skills of students
CO3	Understand about the quality parameter for water and standards related to water, and make the students employable.
CO4	Know about different types of pollution and their sources it will develop the skills of students.
CO5	Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world, at local and global level it will develop the entrepreneurship skill of student.

Course Code	TEPH101
Course Name	Engineering Physics-I
COs	**Description**
CO1	Develop skills to understand and learn Frame of reference, Lorentz transformation equation at local level
CO2	Develop skills to understand Statistical Mechanics, Maxwell-Boltzmann statistics and its application.
CO3	Understand De-Broglie Hypothesis, Davisson -Germer Experiment
CO4	Develop skills to attain basic knowledge on different types of LASERs and their applications.
CO5	Gain knowledge of optical fibre and its applications for national and international importance will develop skills.

Course Code	TEEE 101
Course Name	Electrical Engineering
COs	**Description**
CO1	Use basic electrical DC concepts and theorems to analyze circuits at local level for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Draw the relevant phase or diagrams and waveform diagrams of voltage and current along with the concepts of reactance and impedance and power factor. Use of resonance and implications for practical circuits for skill development and employability.
CO3	Understand the preference of poly phase system over single phase system, star and delta connections along with develops the knowledge of theoretical and mathematical principles of electrical measuring instruments for skill development, employability and entrepreneurship development.
CO4	Analyze magnetic circuit and differentiate magnetic and electric circuits at national levels and understand single phase transformer, auto transformer and three phase transformer for skill development and employability.
CO5	Understand the construction of D.C machine, different windings, their merits and demerits and the basic concept of Three-phase induction motor and its working principle instruments for facing global and national challenges for skill development, employability and entrepreneurship development.

Course Code	TEEE151
Course Name	Electrical Engineering Lab

COs	Description
CO1	Explain the concept of circuit laws and network theorems for local levels and apply them to laboratory measurements for skill development, employability and entrepreneurship development.
CO2	Systematically obtain the equations that characterize the performance of an electric circuit as well as solving both single phase and DC Machines for employability and entrepreneurship development.
CO3	Acknowledge the principles of operation and the main features of electric machines and their applications for facing national challenges for skill development and employability.
CO4	Discuss the starting methods of a single phase induction motor for employability and entrepreneurship development.
CO5	Acquire skills in using electrical measuring devices at local and global level for skill development and employability

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEMA101
Course Name	Engineering Mathematics –I

COs	Description
CO1	Remember the basics of matrices and apply the concept of rank for solving linear simultaneous at local level equations to develop skill.
CO2	Apply the concept to f limit, continuity and differentiability in the study of Rolle's, Lagrange's, Cauchy mean value theorem and Leibnitz theorem for skill development and employability.
CO3	Apply partial differentiation for evaluating extreme values, for facing global and national challenges expansion of function and Jacobian for skill development and employability.
CO4	Apply the methods of multiple integral for finding area, volume, centre of mass and centre of gravity for skill development and employability.
CO5	Apply the concept of vector for evaluating directional derivatives, tangent and normal planes, line, surface and volume integrals at local and national level for skill development and employability.

Course Code	TEPH151
Course Name	Engineering Physics Lab

COs	Description
CO1	Develop skills to understand principle, concept, working and application of technology and comparison of results with theoretical calculations at local level.
CO2	Apply the various procedures and techniques for the experiments to create employability scopes.
CO3	Develop skills to understand usage of instruments and real time applications in engineering studies for global and national importance.
CO4	Develop skills to understand the basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results.
CO5	Determine and analysis the wavelength of spectral lines using plane transmission grating for facing global challenges for developing skills

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TPSD101
Course Name	Professional Skill Development-I

COs	Description
CO1	Use grammar in their writing in English correctly for facing global and national challenges.
CO2	Have in-depth knowledge of action words, preposition and conjunction and to express their strong feelings and emotion for local and global importance.
CO3	Use clauses and phrases, write a sentence using Present, Past and Future Tense and to interchange the Voice (Active and Passive) and Narration (Direct and Indirect).
CO4	Write gist and paragraphs and to recall what is being read and listen including facts and main ideas at international and national level
CO5	Differentiate between Resume and Bio-data and to write letters for different reasons

Course Code	TEME102
Course Name	Materials & Manufacturing

COs	Description
CO1	Understand the importance of materials and manufacturing at local level, various properties of materials, plant layout and production for skill development.
CO2	Understand the ferrous and non-ferrous metals their alloys and application at local and global level, non-metals and their applications for skill development.
CO3	Able to get a brief knowledge of metal forming operations, working of machines and heat treatment process and their importance for skill development and employment.
CO4	Able to understand the methods and techniques associated with the process of metal cutting operations on various metal cutting machines for facing global and national challenges for entrepreneurship and skill development and employability.
CO5	Able to understand various type of welding process and their application n specific field for skill development.

Sanjeev Gaur
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEME152
Course Name	Materials & Manufacturing Lab

COs	Description
CO1	To define and use different manufacturing process e.g. casting
CO2	To define and use different welding processes e.g. gas welding and electric arc welding for skill development
CO3	To acquire thorough knowledge of carrying out various operations on lathe machine at national level for skill development
CO4	To acquire skills for creating different objects from raw materials for skill development
CO5	To acquire thorough knowledge of carrying out various operations on Sheet metals at local and national levels for skill development

Course Code	TEME153
Course Name	Engineering Graphics Lab

COs	Description
CO1	Use the drawing instruments effectively and able to dimension the given figures for facing global challenges for skill development and employability.
CO2	Appreciate the usage of engineering curves in tracing the paths of simple machine components for national importance skill development and employability.
CO3	Understand the concept of projection and acquire visualization skills, projection of point's skill development and employability.
CO4	Able to draw the basic views related to orthographic projections of Lines, Planes at local and national level skill development, employability and entrepreneurship.
CO5	Able to draw the basic views related to isometric projections of Lines, Planes skill development, employability and entrepreneurship

Course Code	TEME201
Course Name	Engineering Mechanics

COs	Description
CO1	Recognize different force systems, moments and couple for global importance for skill development
CO2	To draw Free Body Diagram and label the reactions on it for skill development and employability
CO3	Find centroid and Moment of Inertia of different bodies for skill

Sanjeev Dhand
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development and employability
CO4	To draw shear force diagram and bending moment diagram for skill development and employability
CO5	Understand Newton's law in motion at national and international level, and recognize different kinds of particle motions for skill development and employability

Course Code	TEME251
Course Name	Mechanical Engineering Lab
COs	**Description**
CO1	Describe the behavior of materials upon normal external loads skill development and employability.
CO2	Predict the behavior of the material under impact conditions for facing local and global challenges skill development and employability.
CO3	Recognize the mechanical behavior of materials at local level skill development and employability.
CO4	Recognize parts of IC engines skill development and employability.
CO5	Recognize components of boilers skill development and employability.

Course Code	TECH 201
Course Name	Engineering Chemistry
COs	**Description**
CO1	Gain knowledge about the basic concepts of chemistry and states of matter at local level for skill development.
CO2	Understand kinetic and electrochemical methods for various reactions to develop skill and employability.
CO3	Demonstrate the mechanism of different reactions and their characterization using spectroscopy to develop skill and employability..
CO4	Learn about the various kinds of polymers and their applications for global importance will develop skill.
CO5	Demonstrate knowledge of science behind impurities in water, methods to treat them and gain the basic knowledge of various types of Fuels, their properties for national importance to employability and entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TECH 251
Course Name	Chemistry Lab

COs	Description
CO1	Students are able to estimate the impurities present in water at local level for skill development and employability.
CO2	Ability to prepare advanced polymer materials for national importance for skill development.
CO3	Ability to know the strength of an acid present in secondary batteries to develops skill and entrepreneurship.
CO4	Ability to find the Fe^{+2}, Ca^{+2}& Cl^{-} present in unknown substances using titrimetric and instrumental methods for skill development and employability..

Course Code	TEEC 201
Course Name	Electronics Engineering

COs	Description
CO1	To Understand the basics of semiconductor technology at local level for skill development and Employability.
CO2	P-N junction diode and its applications for Employability.
CO3	To understand the basics of BJT and MOSFET for Employability.
CO4	To develop understanding of numbers system and basics of Logic Gates at local and global level for skill development.
CO5	To discuss the operational amplifier and its application for national importance and the need of modulation in the communication system for skill development.

Course Code	TEEC 251
Course Name	Electronics Engineering Lab

COs	Description
CO1	Measure voltage, current through multimeter at local level for skill development.
CO2	Understand the practical working of a diode for national importance for employability.
CO3	Understand the graph transitions of a transistor for skill development.
CO4	Understand the concept of logic gates at local and national level for employability.
CO5	To build clamper circuit using diode for skill development and employability

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEMA 201
Course Name	Engineering Mathematics – II

COs	Description
CO1	Apply differential calculus and higher order problems and necessary and sufficient condition for total differential equations at local level will develop skill and employability.
CO2	Students learn about the how to solve Legendre and Bessel, Legendre polynomials, Bessel's functions for skill development.
CO3	Know about Fourier series initial conditions and its applications for facing global challenges to different engineering models will develop skill and employability. .
CO4	Solve second and higher order linear Partial differential equations with constant coefficients and construct all solutions from the linearly independent solutions for global importance will develop skill and employability. .
CO5	Solve partial differential equations with methods & its Applications at local level will develop skills.

Course Code	TEPH 201
Course Name	Engineering Physics-II

COs	Description
CO1	Develop skills to understand Gauss law, Ampere's Law, Maxwell's equations and their applications at local level
CO2	Develop skills to study of Propagation of plane electromagnetic waves in free space for global importance.
CO3	Develop skills to understand Dielectric and magnetic properties of the materials.
CO4	Develop skills to explain intrinsic and extrinsic semiconductors and the construction, operation and characteristics of diodes.
CO5	Develop skills to understand concepts of superconductors, Properties of superconductors &applications of superconductors and the basic principle of nano science and technology and applications of nanotechnology for national and international importance.

Course Code	TECS 201
Course Name	Computer Fundamentals & Programming

COs	Description
CO1	Understanding the concept of input and output devices of Computers and how it works and recognize the basic terminology used in

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	computer programming for facing local and global challenges.
CO2	Write, compile and debug programs in C language and use different data types for writing the programs at national and international level for skill development and for employability and for better skilling of entrepreneurship.
CO3	Design programs using the concepts decision statements, loops, functions, arrays pointers etc
CO4	Understand the basics of memory allocation concepts at local level for skill development and for employability.
CO5	Understand the flowchart of various loops for skill development.

Course Code	TECS 251
Course Name	Computer Lab

COs	Description
CO1	Get the knowledge of the input and output devices of Computers and how it works and recognize the basic terminology used in computer programming for facing local and global challenges.
CO2	Write, compile and debug programs in C language and use different data types for writing the programs at national and international level for skill development and for employability and for better skilling of entrepreneurship.
CO3	Write programs using the concepts decision statements, loops, functions, arrays pointers etc
CO4	Understand the basics of memory allocation concepts at local level for skill development and for employability.
CO5	Understand the flowchart and execution path of various loops for skill development.
Course Code	ECE301
Course Name	Engineering Geology

COs	Description
CO1	Know about natural material like rocks and minerals and their usage as well as their availability and information about their formation at local level for skill development and employability.
CO2	Understand the influence of natural processes and geological factors of rock on civil structures and help them to take decision while planning, design and execution stage of the structures in their professional life for building models for skill development.
CO3	Get a diverse knowledge of earthquake and geological construction of Civil Engineering related projects for facing national and international challenges for enhancing entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Know the significance of geological investigations for civil engineering projects and site selection as well as for the preparation of feasibility reports and others analysis of skill development and employability.
CO5	Get the knowledge of subject will also help them to understand the geological maps and terminologies at national and international level for the discussion on underground water of earth surface and information about the geological hazard of the earth surface to build knowledge for skill development and entrepreneurship development

Course Code	ECE302
Course Name	Building Materials and Construction

COs	Description
CO1	Property, use, advantage and disadvantage of different materials used in building construction for national importance and to develop skill development and Employability.
CO2	Various components of building with their function and to help student to build their Entrepreneurship Development
CO3	Construction procedure of different components of building for national importance and to enhance Employability
CO4	Different types of plastering, and building maintenance techniques help in the analysis of skill development
CO5	Understanding about the insulating materials, its properties and types at local level and to build a model for skill development and Employability

Course Code	ECE303
Course Name	Surveying Practice – I

COs	Description
CO1	Apply the principle and knowledge of surveying at local level for distance and direction measurement which will helpful to make student employable.
CO2	Understand different types of leveling and determine elevation of different points for national importance and improve and develop the student's skills.
CO3	Draw different types of curves using various linear and angular approaches and make students employable
CO4	Use Theodolite and other instruments for various types of traverse and develop the skills of students
CO5	Demonstrate different methods of plane table surveying and their applications in Civil Engineering for facing global challenges which are helpful for entrepreneurship development

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECE304
Course Name	Fluid Mechanics

COs	Description
CO1	Understand the properties, behavior of fluids at local level and to select a suitable fluid for a particular requirement, it will develop the skills of students.
CO2	Understand the concept of fluid pressure, buoyancy and analyze the stability of submerged and floating bodies at national level that will develop the skills of students
CO3	Establish the relation between different heads of fluid flow and derive Bernoulli's Equation and applying it to calculate the discharge of fluid through various devices. It will help to make student employable.
CO4	To know about the various energy losses in pipe flow and establish the equations of motion for laminar flow through pipes and understanding entrepreneurship skills
CO5	Understand the concept of boundary layer flow and dimensional analysis for facing global challenges to establish and to inculcate skill and provide employability a relationship between different parameters involved in a physical phenomenon.

Course Code	ECE305
Course Name	Strength of Materials

COs	Description
CO1	Students will be introduced to mechanical properties at local level and able to handle the problems of stress and strain in different sections of various materials
CO2	Able to understand the importance of different elastic constants and their relationships followed by theories of principal stress and theories of failures at national level
CO3	Able to handle the problems related to load deflection
CO4	Students will be able to draw SFD& BMD of members under various loading and support conditions
CO5	Ability to understand the concept of structural stability at local and global level

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EMA301
Course Name	Engineering Mathematics – III

COs	Description
CO1	Develop the concepts of Laplace transformation & Inverse Laplace Transformation with its property to solve PDE at local level which is helpful in all engineering & research work for skill development and for employability.
CO2	Gain knowledge of Fourier series representation for even/odd functions and Z- transforms and its applications.
CO3	Apply the concept of analyticity and the Cauchy-Riemann equations for facing global challenges to analyze results on harmonic and including the fundamental theorem of algebra for skill development.
CO4	Learn about Cauchy's theorem and its uses in complex integration. Taylor's and Laurent's series in complex Form for skill development.
CO5	To be able to apply the knowledge of least square and curve fitting of straight lines for global importance for skill development.

Course Code	ECE351
Course Name	Engg. Geology Lab

COs	Description
CO1	To Identity different types of rocks and minerals at local and global level for skill development on the basis of their physical properties.
CO2	To draw and analysis topographic maps and contour maps of different terrain features for global importance to develop skills and employability.
CO3	To draw contour patterns of hills, valleys, rivers, plateau, saddle, topographic basin etc to develop skills and employability
CO4	To draw geological section from the given map at local level to develop skills and employability
CO5	To determine the strike & dip of rock formation to develop skills.

Course Code	ECE352
Course Name	Building Material Lab

COs	Description
CO1	Reproduce the basic knowledge of mathematics and engineering in evaluating the properties of building materials like cement, aggregates, bricks, etc. at local level it will develop the skills of students and Provide employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Use the techniques and testing methods of modern engineering necessary for building materials for facing global challenges that will help to make student employable.
CO3	Identify, formulate and solve engineering problems related to civil engineering materials, to inculcate skill and provide employability
CO4	Apply the principle of material testing for civil Engineering Applications. it will develop the skills of students
CO5	Write a technical laboratory report at local level that will develop the skills of students

Course Code	ECE353
Course Name	Surveying – I Lab

COs	Description
CO1	Understand the calculation of fly leveling with Auto / tilting level for facing global challenges to develop the skills of students.
CO2	Calculate area, distance, elevation, drawing plans and contour maps using different measuring equipment at field level, it will develop the skills of students
CO3	Measure horizontal and vertical height by direct and indirect measurement at local level to inculcate skill and provide employability
CO4	Apply the principle of surveying for civil Engineering Applications. it will develop the skills of students.
CO5	Write a technical laboratory report, at local level that will help to make student employable.

Course Code	ECE354
Course Name	Fluid Mechanics Lab

COs	Description
CO1	Understand the application of Bernoulli's theorem at national level to various flow measuring devices, it will develop the skills of students.
CO2	Understand the significance of Reynolds number, it will develop the skills of students
CO3	Learn the concept of surface tension of various liquids. It will help to make student employable.
CO4	To Understand the application of momentum equation in turbines and understanding entrepreneurship skills
CO5	Understand the concept of friction factor in pipe flow for national importance to inculcate skill and provide employability

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECE401
Course Name	Concrete Technology

COs	Description
CO1	Identify the functional role of ingredients of concrete material at national level and to build a model for skill development and Employability such as Cement and Admixtures and apply this knowledge to mix design philosophy.
CO2	Understand the theoretical concept of Concrete material which includes Aggregates, and to learn different types of aggregates, admixtures & know the mechanism of hydration of cement for global and national importance and develop strategic alliance for skill development and employability.
CO3	Understand of constituent materials for properties of fresh and hardened concrete properties and to do analysis for skill development.
CO4	Know the different mechanisms causing volume change from fresh (plastic settlement, shrinkage) via young (temperature, autogenously shrinkage) to hardened concrete (drying shrinkage) and to develop basic curing technology models (maturity, property development) at local level for Entrepreneurship Development
CO5	Get basic understanding of hydration as well as important physical and chemical properties of the hydration products for building skill development and Employability.

Course Code	ECE402
Course Name	Surveying Practice – II

COs	Description
CO1	Apply the knowledge of geometric principles of aerial and satellite remote sensing system for facing global and national challenges to solve the surveying problems and the skill development.
CO2	Use modern instruments to obtain geo-spatial data and analyze the same by developing the models for skill development and employability. Also to understand the concepts of Photogrammetry and compute the heights of objects.
CO3	Understand the basic concept of GIS and its applications at local, national and international level, to know different types of data representation in GIS and to Develop models for GIS spatial Analysis and employability.
CO4	Capture geodetic data to process and perform analysis for survey problems with the use of electronic instruments such as GPS and developing skills for Entrepreneurship Development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Perform some practical work model for skill development and employability by using advanced instruments and get more accurate and precise result by using Total Station & advanced surveying instruments for global and national importance.

Course Code	ECE403
Course Name	Structural Analysis-I

COs	Description
CO1	For skill development and employability, classify & discuss statically determinate & indeterminate structure at local level.
CO2	Apply & analyze the concept of influence lines for facing global challenges for deciding the critical forces and sections for skill development and employability while designing.
CO3	Apply the concept of strain energy to analyze beams and frame for skill development.
CO4	Identify, analyze, & solve problems using moment area method and conjugate beam method for skill development.
CO5	To understand the concept of redundant structures and their analysis at local, national and international level for skill development and employability.

Course Code	ECE404
Course Name	Estimation, Costing and Evaluation

COs	Description
CO1	Analyze and assess the quantity of materials at local, national and international level required for civil engineering works as per specification and develop the skills.
CO2	Evaluate & estimate the cost of expenditure and prepare a detailed rate analysis report, it will develop the entrepreneurship skill.
CO3	Construct detailed report on estimation and valuation process at local level and make students employable.
CO4	Financial Planning and Management for the construction project, Economical analysis and entrepreneurship development.
CO5	Utilize contracts and tenders in construction practices for global importance and it will develop the skills of students.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EMA401
Course Name	Computer Based Numerical & Statistical Techniques

COs	Description
CO1	Apply Numerical analysis which has enormous application in the field of Science and Engineering for national importance for skill development and for employability.
CO2	Understand numerical integration and differentiation, numerical solution of ordinary differential equations for skill development
CO3	Compare and analyze the methods statistical analysis for global importance and the omnipresent role of variability for better skilling of entrepreneurship.
CO4	Predict and evaluate the efficient design of studies and construction of effective sampling plans at local level
CO5	Exploratory data analysis and formal inference process for skill development and for employability.

Course Code	PSD401
Course Name	Professional Skill Development-II

COs	Description
CO1	Communicate effectively verbally and non-verbally at local, national and international level for skill development.
CO2	Develop and exhibit accurate sense of self and to demonstrate knowledge at local level of personal belief and values for skill development and for better skilling of entrepreneurship.
CO3	Work well with other people in teams or group formally and informally for facing global challenges and to face interview with confidence.
CO4	Learn to argue and argue to learn and to improve their reasoning/argumentative and presentation skills for skill development and for better skilling of entrepreneurship.
CO5	Gain not just a positive impression but also respect in the workplace and to know how to cope up according to the organization culture for skill development and for better skilling of entrepreneurship

Course Code	EHU401
Course Name	Disaster Management

COs	Description
CO1	Ability to understand major types of disaster in Indian context at local level, it will develop the skills in students.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understanding of approaches to reduce disaster risks to develop skill.
CO3	Capable of understanding relationship between development and disaster, Sustainable development and make students employable.
CO4	Develop skills to understanding of when an event becomes disaster and the phases to handle the situation for facing global challenges.
CO5	Ability to analyze how to handle a situation of disaster at local, national and international level by taking case studies of events in past, it will make students employable.

Course Code	ECE451
Course Name	Concrete Technology Lab

COs	Description
CO1	Get the practical knowledge of various types of testing on concrete at local level for skill development
CO2	Perform various tastings on cement and concrete to check its strength for skill development and employability.
CO3	Able to apply theoretical consideration in field and other engineering projects for global importance for employability and skill development
CO4	Operate various advanced instruments which will help in developing their skill and entrepreneurship development
CO5	Write a technical laboratory report at local, national and international level that will develop the skills of students

Course Code	ECE452
Course Name	Surveying – II Lab

COs	Description
CO1	Able to apply theoretical consideration in field and other engineering projects at local, national and international level for employability and skill development.
CO2	Interpret the aerial and terrestrial photographs and make some decision by analysis such photographs for skill development
CO3	Make measurements by instruments such as theodolite, auto level and tilting level for facing global challenges for skill development and employability.
CO4	Able to determine the location of any point horizontally and vertically using Tachometer for building their entrepreneurship skills.
CO5	Operate various advanced surveying instruments such as total station and GPS for national and international importance which will help in developing their skill and entrepreneurship development

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECE453
Course Name	Building Planning & Drawing Lab

COs	Description
CO1	Draw symbols used in civil engineering drawing at local level for skill development.
CO2	Draw masonry bonds, doors, windows and staircases for skill development and for better skilling of entrepreneurship.
CO3	Draw plumbing and electrical fittings at local and national levels for skill development
CO4	Draw the plan, section and elevation of buildings (residential and public) for skill development.
CO5	Prepare layout of different civil engineering projects for skill development and for employability.

Course Code	EMA451
Course Name	CBNST Lab

COs	Description
CO1	Apply Numerical analysis which has enormous application in the field of Science and Engineering of national importance for skill development and for employability.
CO2	Understand and implement using C language numerical integration and differentiation, numerical solution of ordinary differential equations for skill development
CO3	Compare and analyze the methods statistical analysis using C program for global importance and the Omni present role of variability for better skilling of entrepreneurship.
CO4	Predict and evaluate the efficient design of studies and construction of effective sampling plans using C program at local level
CO5	Exploratory data analysis and formal inference process for skill development and for employability.

Course Code	ECE501
Course Name	Environmental Engineering-I

COs	Description
CO1	Understand different types of water demand and different methods for population forecast methods at local, national and international level which will be helpful in development of skills of students.
CO2	Know different types of water sources and their applications and their limitations, and make the students employable.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand different characteristics of water, quality of water from different sources and issues related to polluted water for global importance and develop the skills of students.
CO4	Demonstrate different water treatment methods at national level and depends on the quality of raw water and desired used of treated water, it will develop the entrepreneurship skill of students.
CO5	Study and Establish the suitable distribution system for a locality and know the appurtenances used and develop the skills of students.

Course Code	ECE502
Course Name	Transportation Engineering-I

COs	Description
CO1	Basic concepts about highway engineering and its development for national and international importance.
CO2	Different types of traffic studies and traffic control devices for skill development.
CO3	Concepts and design of highway alignment and components of highway for facing global challenges for employability
CO4	Principles of highway geometrics design as per IRC standards for entrepreneurship development
CO5	Procedure and application of tests on various materials required for highway construction for global importance and for skill and entrepreneurship development.

Course Code	ECE503
Course Name	Geotechnical Engineering-I

COs	Description
CO1	Understand the theoretical and practical aspects of geotechnical engineering along with the design and management applications for Building at local, national and international level for skill development and Employability.
CO2	Understand basics principles of flow and soil permeability through porous media including Bernoulli's equation, Darcy's Law, and Hydraulic conductivity to build a model for skill development
CO3	Gain an experience in the implementation of Geotechnical Engineering on engineering concepts for facing global challenges which are applied in field Geotechnical Engineering for Entrepreneurship Development
CO4	Understanding the concept of effective stress principle at local level, effect of water table occurring in the soil and to enhance the skill development and Employability

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Study about the analysis of finite and infinite slopes in different soil conditions and to implement them for facing global challeneges for building skill development and Entrepreneurship Development

Course Code	ECE504
Course Name	Structure Analysis-II

COs	Description
CO1	Identify the concept of analysis of arch type structures and draw the influence lines for arches and to build a model at local level for skill development and employability.
CO2	Assess the results obtained for castigliano's method by solving above problems and analysis it for facing global challeneges for skill development
CO3	Know get the concept of moment of beam, settlement and rotation of support for enhancing skill and entrepreneurship development..
CO4	Analyze and determine slope and deflection of determinate trusses for national importance, beams and frames for strategic alliance of skill and entrepreneurship development.
CO5	Calculate the internal forces in cable and analysis the indeterminate structure for matrix for better employability.

Course Code	ECE505
Course Name	Reinforced Cement Concrete- I

COs	Description
CO1	To understand conceptually the difference between working stress method and limit state design method at local, national and international level for skill development.
CO2	To understand design of rectangular beam, L beams and T beams for singly and doubly reinforced for skill development, employability and entrepreneurship development by limit state design method as per I.S.456-2000.
CO3	To understand the behaviour of RC beam in shear, shear strength of beam with and without reinforcement for skill development and design of beam in shear.
CO4	To design one way slab & two way continuous slabs for global importance for skill and entrepreneurship development.
CO5	To understand the design of columns for skill development and employability by limit state design method.

Sanjeev Sharma
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECE506
Course Name	Open Channel Flow

COs	Description
CO1	Understand the common ways of classifying open channel flow (laminar or turbulent, steady state or unsteady state, uniform or non-uniform, and critical, subcritical or supercritical) at local, national and international level, Channel geometry and geometrical elements and to develop the models for skill development and employability.
CO2	Calculate open channel flow resistance, Manning equation, uniform and non-uniform flow, and develop strategic alliance for skill development.
CO3	Analysis of non-uniform flow and computation of flow profiles for facing global challenges for Entrepreneurship Development.
CO4	Formulate advanced models based on the governing equations for free-surface flows and to study different system of flow measurements for developing employability.
CO5	Gain knowledge about the unsteady flow for national importance, to study about the surge and its analysis for skill development and entrepreneurship development.

Course Code	ECE551
Course Name	Environmental Engineering. Lab

COs	Description
CO1	Operate and use of various equipments used for analytical analysis of water at local level which will be helpful in development of skills of students.
CO2	Know different types of water sources and their applications and their limitations, and make the students employable.
CO3	Determine various physical parameters of water such as turbidity, alkalinity, conductivity etc. for facing global challenges related to polluted water and develop the skills of students.
CO4	Determine various Chemical parameters of water such as hardness, DO, COD, BOD, chlorides etc. it will develop the entrepreneurship skill of students.
CO5	Study and Establish the suitable distribution system for a locality for national importance and know the appurtenances used and develop the skills of students.

Sanjiv Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECE552
Course Name	Transportation Engineering Lab-I

COs	Description
CO1	Identify the engineering properties of aggregate for national importance for their skill development
CO2	Perform crushing value, impact value, Los Angeles abrasion value and shape test on aggregates in evaluating the properties of aggregates to be used as construction material in high ways for employability and skill development
CO3	Carry out the surveys involved in planning and highway alignment at local, national and international level for building their entrepreneurship skills.
CO4	Conduct traffic studies for skill development (volume and speed studies) and for estimating traffic flow characteristics.
CO5	Calculate the design speed, maximum speed & minimum speed limits of a location through spot speed for facing global challenges for developing entrepreneurship skills.

Course Code	ECE553
Course Name	Soil Mechanics Lab-I

COs	Description
CO1	Understand the theoretical and practical aspects of geotechnical engineering at local level along with the design and management applications, skill development and Employability.
CO2	Determine various parameters such as water content parameters etc, for national importance for Employability Development
CO3	Determine various parameters such as specific gravity, for Entrepreneurship Development
CO4	Operate and use of various equipments related to geotechnical field for facing global challenges skill development and Employability Development
CO5	Determine the various implement them for building skill development and Entrepreneurship Development

Course Code	ECE554
Course Name	Structural Analysis Lab

COs	Description
CO1	Analyze and determine the Clark Maxwell's theorem at local and national level for skill development

Sanjeev Bhargava
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Determine and draw the influence lines for reactions, shears, and bending moments in beams to develop skills and employability.
CO3	Determine and draw the influence lines for horizontal thrust in a three hinged arch to develop skills and employability.
CO4	Analyze and determine slope and deflection of determinate trusses, beams and frames by experimental work for facing global challenges to develop skill and entrepreneurship.
CO5	Calculate the internal forces in cable and arch type structures for skill development and employability.

Course Code	ECE601
Course Name	Environmental Engineering-II

COs	Description
CO1	Understand water quality concepts, different types of waste and their disposal methods, their effect on treatment process selection and it will develop the skills of students for national importance.
CO2	Understand the characteristics of wastewater water and different types of sewers, joints and planning of sewerage system for facing global challenges it will improve the employability of the students.
CO3	Understand the different sewage treatment methods and design principle of the same, it will improve the employability of the students.
CO4	Understand the working principle and functioning of various water treatment components at local, national and international level that will helpful in the development of entrepreneurship skill.
CO5	Understand various disposal methods and components of sewage and their suitability, it will develop the skills of students.

Course Code	ECE602
Course Name	Transportation Engineering-II

COs	Description
CO1	Different types of highway pavements and their construction and to build model for global importance for skill development and employability
CO2	Knowledge of railway geometrics, signaling & interlocking Points, crossing and turnouts, etc at local, national and international level for skill development and entrepreneurship development.
CO3	Different terminology related to airport engineering- Layout, runway and parking of aircrafts for enhancing skill development.
CO4	Fundamentals of tunnel- its excavation methods, support systems, and executional aspects of tunnel for global importance for modeling

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability.
CO5	Concepts of docks and harbors- Layout, functions and requirements for skill development and employability.

Course Code	ECE603
Course Name	Hydrology

COs	Description
CO1	Understand the principles of hydrologic cycles at local, national and international level for building models for skill development and employability.
CO2	Understand basic concepts of hydrologic simulation modeling to evaluate potential impacts of management decisions and skill development.
CO3	fluxes and a critical awareness of the methods used to measure and for the analysis of skill development and employability.
CO4	Analyze and forecast their variability; frequency analysis for entrepreneurship development.
CO5	Get knowledge in the field of theory of hydrological processes and flood routing and their measurement for facing global challenges for strategic alliance of skill development.

Course Code	ECE605
Course Name	Reinforced Cement Concrete- II

COs	Description
CO1	To understand the concept of nature of stresses in flat slab and design of flat slab for global importance for skill and entrepreneurship development by limit state design method as per IS 456-2000
CO2	To understand the analysis and design of footings for skill and entrepreneurship development by limit state design method as per IS 456-2000.
CO3	To understand the analysis and design of retaining walls at local and national level for skill development and employability by limit state design method as per IS 456-2000.
CO4	To understand the design concept of circular tank, ground, underground and overhead tanks for skill and entrepreneurship development.
CO5	To understand the concepts of pre-stressed concrete and analysis of simple pre-stressed rectangular and T-section for skill and employability

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECE606
Course Name	Design of Steel Structures- I

COs	Description
CO1	Capable of using all loading and limit state design methods for steel structures at local, national and international level to develop model for skill development and Employability
CO2	Capable of elementary design of tension /compression members used in steel structures for enhancing the skill development.
CO3	Able to provide the design of beams and roof truss for building for global importance for Entrepreneurship Development.
CO4	Capable of understanding the types of structural fasteners with their behaviour and connections and help in the analysis of skill development and Employability.
CO5	Able to understand the design of industrial structures at local level for improving Entrepreneurship Development

Course Code	EHU601
Course Name	Human Values & Professional Ethics

COs	Description
CO1	Ensures students sustained happiness through identifying the essentials of human values and skills and to understand practically the importance of trust, mutually satisfying human behavior and enriching interaction with nature at global importance for developing models for employability and skill development.
CO2	Learn about the ethical responsibilities of the engineers for Entrepreneurship Development and to understand the time management and the different professional roles.
CO3	Demonstrate knowledge to become a social experimenter and to facilitate a correct understanding between profession and happiness for skill development and employability.
CO4	Create awareness about safety, risk & risk benefit analysis at local, national and international level and to provide knowledge on Intellectual Property Rights for skill development and entrepreneurship development.
CO5	Develop appropriate technologies for skill development and employability and to develop knowledge about global issues for global and national importance and management patterns to create harmony in professional and personal life.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECE651
Course Name	CAD – I Lab

COs	Description
CO1	Understand 2D and 3D commands used in AUTOCAD software for national importance for skill development.
CO2	Draw Plan, Elevation and section of small residential building using AutoCAD to employability and entrepreneurship.
CO3	Draw 2D views of singly and doubly reinforced beam using AutoCAD at local level to employability and entrepreneurship.
CO4	Draw 2D views one way slab, column and column footing using Auto CAD to develop skill and entrepreneurship.
CO5	Draw 3D model of steps, small residential building and column footing to develop skill and entrepreneurship.

Course Code	ECE652
Course Name	Transportation Engineering Lab- II

COs	Description
CO1	Perform penetration test, softening point test, stripping test, at local, national and international level for enhancing skill development
CO2	Determine the various ductility test and flash & fire point test on bituminous sample for evaluating for employability
CO3	Perform properties to be used in pavements for skill development and employability.
CO4	Perform CBR test for evaluating the bearing capacity of sub-grade soil for design of flexible pavement. For global importance for Entrepreneurship development
CO5	Different types of highway pavements and their construction and to build model for skill development and employability.

Course Code	ECE653
Course Name	Hydraulic Engineering Lab

COs	Description
CO1	Determine the quantities like co-efficient of discharge for venture meter, notches and orifice meter for national importance for skill development and employability
CO2	Calculated and build models for skill development by demonstrating the various types of losses in pipes.
CO3	Know about functioning and knowledge of various types of turbines for developing skills.

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Gain exposure to modern computational techniques in fluid dynamics at national level for their employability.
CO5	Gaining knowledge in calculating the performance analysis in turbines and pumps and can be used in power plants for building entrepreneurship skills.

Course Code	ECE701
Course Name	Geotechnical Engineering-II

COs	Description
CO1	Understand about behavior/nature of the soil and soil exploration methods to build models at local, national and international level for enhancing skill development and employability.
CO2	Understand about active and passive system of Earth pressure and to enhance skill development and entrepreneurship development.
CO3	Understand various types, analysis and design of foundation at national importance for skill development.
CO4	Understand reason behind the structure and deep foundation of bearing capacity, settlement of foundation at local as well as global level for improving knowledge of skill development and employability.
CO5	Understand about response of foundation of soil system to machine excitation and stability check for retaining walls and to build skill development

Course Code	ECE702
Course Name	Irrigation Engineering

COs	Description
CO1	Understand the basic concepts and terminology of irrigation engineering at local as well as global level to develop skill.
CO2	Understand types and design of canals at national level for employability.
CO3	Perceive the effects of water logging and adapt the preventive measures; describe importance and differentiation between lined and unlined canals.
CO4	Explain canal regulation works, canals falls and formulate their design; canal escapes at local level for skill development and employability.
CO5	Describe importance, necessity and types of rivers; river training works at local, national and international level for skill and entrepreneurship development.

Sanjeev Agrawal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECE703
Course Name	Design of Steel Structures- II

COs	Description
CO1	Able to design gantry girder, and roof trusses and to build at local, national and international for Entrepreneurship Development
CO2	Able to provide the design of plate girder, and design of different sections to create model at local as well as global for skill development and Employability.
CO3	Capable of detailed design of railway bridges including bracings and frames and Analysis of local well as global importance for skill development.
CO4	Able to provide the design of truss bridges including members, joints and stringers for enhancing skill development and Employability.
CO5	Competent enough to design of steel structures and able to provide the good quality control during the steel construction for building at local, national and international for Entrepreneurship Development

Course Code	ECE704
Course Name	Construction Planning & Management

COs	Description
CO1	Understand the basic principles of planning and building by laws for skill development and employability at local as well as global level
CO2	Understand the plants and equipment used in the construction industry for enriching skill development at local level.
CO3	Develop critical path method-based network and estimate various times and floats, and develop PERT network and find probability of completion of a project in specified duration for producing for importance of Entrepreneurship Development at national and international level
CO4	Understand the purpose, types, merit, and demerits of construction contracts to maintain at local for employability and entrepreneurship development
CO5	Gaining the knowledge about the tender, its notification and its acceptance and developing models at local level for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECE 706
Course Name	Earthquake Resistant Design

COs	Description
CO1	Gain an experience in the implementation of Earthquake Engineering on engineering concepts at local as well as global level for skill development and employability which are applied in field Structural Engineering.
CO2	Get a diverse knowledge of earthquake engineering for skill development practices and employability applied to real life problems at local as well as global importance.
CO3	Learn to understand the theoretical and practical aspects of earthquake engineering for skill development and employability at local and national level along with the planning and design aspects as per IS code 1426:1993
CO4	To explain the concept of seismic performance of reinforced concrete buildings, plan, elevation & stiffness irregularities and their effect, and ductile detailing detailing of reinforced concrete buildings and shear wall concept for skill development and entrepreneurship development at national and international level.
CO5	To explain the concept of seismics design philosophy as per IS code 1893:2002 and analyze the multistory structure for skill development and employability using different method.

Course Code	ECE751
Course Name	CAD- II Lab

COs	Description
CO1	Draw 3D views of irrigation structure, septic tank, manhole, small residential building and road pavement using AutoCAD and Auto LISP for national importance of skill development
CO2	Working of environmental engineering Software for analysis and Design of water & waste water treatment and distribution systems using water CAD / sewer CAD for skill development and employability at local as well as global importance.
CO3	Working of transportation engineering software/GIS software for pavement design and surveying for building entrepreneurship skills at national and international level.
CO4	Working of project management software (Primavera / MS project) at local as well as global level for developing their skills.
CO5	Working of geotechnical Software like geo-5 / Plaxis for soil analysis and design of foundation of local level for skill development and entrepreneurship skills.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECE752
Course Name	Geotechnical Engineering Lab
COs	**Description**
CO1	Measure of the critical water contents of a fine-grained soil by Atterberg limits of local level for skill development and employability.
CO2	Understand and determine shear parameters by various test such as direct shear test, for improving knowledge of skill development and employability at local as well as global importance.
CO3	Understand and determine unconfined Compression Strength test and to build skill development at local importance
CO4	Understand and determine the triaxial test of national and international level importance for enhancing skill development and entrepreneurship development.
CO5	Understand various types, analysis and strength of soil for employability development at local level.

Course Code	TECE755
Course Name	Structural Design and Detailing Lab
COs	**Description**
CO1	To understand the concept of nature of stresses in Beam and design of Beam of national and international level for skill and entrepreneurship development by limit state design method as per IS 456-2000
CO2	To understand the analysis and design of Column of local as well as global importance level for skill and entrepreneurship development by limit state design method as per IS 456-2000.
CO3	To understand the analysis and design of Footing for skill development and employability at local as well as global level importance by limit state design method as per IS 456-2000.
CO4	To understand the design and detailing of various components of RCC structures for skill and entrepreneurship development.
CO5	To understand the concepts of structural drawing of a building of national level for skill and employability.

Course Code	ECE705
Course Name	Rural Water Supply and Sanitation
COs	**Description**
CO1	Understand various rural water supply and sanitation programs in

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	India and challenges related to rural water supply it will of local level for develop the skills.
CO2	Understand various water supply approaches and different sources of water it will make student employable at local as well as global level.
CO3	Demonstrate various water filter and distribution techniques useful for rural water supply; it will develop the entrepreneurship skill at national as well international level.
CO4	Understand different methods for collection, disposal and treatment of waste water, sewage in rural areas, it will develop the skills at local level
CO5	Learn about different methods for disposal of Solid waste and related issues in rural sanitation it will develop the skills at local as well as global level

Course Code	ECE071
Course Name	**Transportation System and Planning**
COs	**Description**
CO1	Understanding the issues & challenges in the Transportation Sector of local as well as global level for skill development and employability
CO2	To develop skills required for Transport planning & formulation for skill development and employability at local level.
CO3	Understand optimization techniques for skill development and entrepreneurship development of transport Planning & Pricing.
CO4	Analysing the processes for skill development and employability of transport project execution and control at local as well as global level.
CO5	Demonstrating contracting process as applied in Transport projects for skill development and employability at national as well as international level.

Course Code	ECE072
Course Name	**Finite Element Methods for civil Engineering**
COs	**Description**
CO1	Identify the uses Finite Element Analysis in civil engineering for skill development at national as well as international level.
CO2	Describe different techniques and procedure for skill development and employability of the Finite Element Analysis in civil engineering.
CO3	Apply principles of different Finite Element Formulation Techniques of local level for skill development and employability.
CO4	Assess the Applications of FEM in civil engineering of local as well as global importance for skill development

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Apply the knowledge to solve problems using various software tools for skill development and entrepreneurship development at national as well as international level .

Course Code	ECE073
Course Name	Advanced Foundation Engineering
COs	**Description**
CO1	Identify and select suitable exploration techniques for different projects of local, global and national level importance for skill development and employability.
CO2	Evaluate the bearing capacity and settlement of shallow foundations for skill development and employability at local as well as global level.
CO3	Estimate the pile capacity and settlement of piles of local as well as global level importance for skill development and entrepreneurship development.
CO4	Understand the various components and forces acting on well foundation for skill development and employability at local level.
CO5	Gain knowledge for skill development and employability about different types of foundations in problematic soil at local as well global level importance.

Course Code	ECE074
Course Name	Industrial Pollution Control
COs	**Description**
CO1	Analyze and industrial activity and identify the environmental problems for skill development at local level..
CO2	Model the atmospheric dispersion of air pollutants for skill development at local level.
CO3	Plan strategies to control and reduce pollution for skill development and employability at local level.
CO4	Select the most appropriate technique of local as well as global level for skill development and employability to control and treat industrial pollution
CO5	Apply environmental management systems (EMS) to an industrial activity of local and national level for skill development and employability

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECE075
Course Name	**Pre-stressed Concrete Structures**

COs	Description
CO1	Understand the behavior of pre-stressed concrete for skill development and employability at local level.
CO2	Design pre-stressed concrete structures for skill development and employability at local level.
CO3	To define and determine the different types of losses of pre-stressed concrete for skill development and employability at local level as well as global level importance.
CO4	To define and determine method of pre-stressed concrete of local as well global for skill development and employability
CO5	Analysis the method and design and calculation under limits state for skill development and employability at national level

Course Code	ECE076
Course Name	**Analysis and Design of Hydraulic Structures**

COs	Description
CO1	Select hydraulic structural elements for skill development and employability at local level.
CO2	Evaluate surface water dam for skill development and employability at local level.
CO3	Be able to integrate relevant concept and methodologies in the area of hydraulics, hydrology and geotechnical engineering of local as well as global level for skill development and employability.
CO4	Be able to select the type of dam, design and to construct piles of local, national and international level for skill development and entrepreneurship development.
CO5	Understand the various types of spillway and capacity for skill development and employability at local level.

Course Code	ECE077
Course Name	**Principles of Town Planning and Architecture**

COs	Description
CO1	The course is intended to provide the students an overview and population of survey of local as well as global level for skill development and employability.
CO2	Understanding of the History of Town Planning Politics and policy making in modern cities and to assess modern and contemporary

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	theories of Town and Country Planning for skill development and entrepreneurship development at national as well as international level.
CO3	To get the knowledge of the architectural forms and functional for skill development and employability.
CO4	Knowledge of the process involved in a balance, scale and design problem with emphasis on town planning of local level for skill development and employability.
CO5	Understanding of the architectural drawing, and symbols design of different types of building for skill development and entrepreneurship development at local as well as national level.

Course Code	ECE078
Course Name	Precast and Modular Construction Practices

COs	Description
CO1	Understanding the for Building with Precast concrete components of local as well as global level for skill development and employability
CO2	To develop increased by leaps bounds and has taken industrialized form owing to skill development and employability at local level.
CO3	Understand optimization techniques and use for equipments in structure for skill development and entrepreneurship at national level importance.
CO4	Analysing the processes for skill development and employability for reliable proportioning concepts of local as well as global level.
CO5	Developers as it facilitates construction, factory production presents excellent for employability.

Course Code	ECE 079
Course Name	Ground Improvement Techniques

COs	Description
CO1	Analyze the practical applications for skill development of reinforced soil and grid reinforced soils for better strength and durability of soils
CO2	Understand the concepts for skill development and employability at local as well as global level of In-situ densification methods in granular soils.
CO3	Understand the concepts for skill development and employability at local as well as global level of In-situ densification methods in cohesive soils.
CO4	Understand the various grouting techniques and its applications for improving load bearing of beneath soilsfor skill development and entrepreneurship development at local as well as global level.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Will gain competence in properly devising alternative solutions to difficult and earth construction problems and in evaluating their effectiveness before, during and after construction for skill development and entrepreneurship development at local as well as global level.

Course Code	ECE 079(A)
Course Name	Tunnel Engineering
COs	**Description**
CO1	Compare various types and purpose of tunnels for skill development at local level.
CO2	Design tunnel reinforcement based on empirical, analytical and numerical assessment depending on complexity and acquire a holistic perspective on the design process for skill development and entrepreneurship development.
CO3	Evaluate tunnel excavation method from technical and production aspects for skill development.
CO4	Analyze cost and time for ordinary tunnels based on risks and construction management principles for skill development and employability. .
CO5	Analyse water ingress to tunnels and identify possible water related problems for excavation, as well as plan and implement suitable tunnel draining and/or grouting methods for facing global challenges and for skill development and employability.

Course Code	ECE079 (B)
Course Name	Rural Development Engineering
COs	**Description**
CO1	Understand the concepts for skill development and employability at local level of Rural Development Planning and Concept of Appropriate Technology.
CO2	Apply the concept of rural housing for low construction materials of national level for skill development and entrepreneurship development of national as well as international level.
CO3	Understands the concept of source of water, BIS & WHO water standards. And Quality, storage and distribution for rural water supply works for skill development and employability at local as well as global level.
CO4	To enhance critical thinking by making them participate in social activities and imbibe human values among them for skill development at local as well as global level.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	To encourage the students to participate in research at different levels through projects, interviews, surveys and field visits them for skill development and entrepreneurship development.

Course Code	ECE079 (C)
Course Name	River Engineering
COs	**Description**
CO1	Apply the governing principles of morphological processes for skill development at local as well as global level.
CO2	Estimate river shear stress, grain entrainment, dominant discharge and perform stream flow analysis for skill development and employability at national level importance.
CO3	Explain socio-cultural influences and ethics of stream restorations will skill development at local as well as global level.
CO4	Assess channel instability of local level importance for skill development and employability.
CO5	Assess different flood management techniques for skill development at local level.

Course Code	ECE079 (D)
Course Name	Modern Construction Materials
COs	**Description**
CO1	Understand the use of modern construction materials for skill development at local as well as global level.
CO2	Use geo synthetics and bituminous materials in constructions provide employability.
CO3	Apply knowledge of modern materials in production of variety of concrete help in skill development and employability at local as well as global level.
CO4	Apply knowledge of composites and chemicals in production of modern concrete for skill development and entrepreneurship at national and international level.
CO5	Use modern water proofing and insulating materials in constructions help in providing employability at local level.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECE079 (E)
Course Name	**Sensor and Instrumentation Technologies For Civil Engineering Applications**

COs	Description
CO1	Analyze the errors during measurements will helpful to make student employable at local level.
CO2	Describe the measurement of electrical variables develop the skills at local as well as global level.
CO3	Describe the requirements during the transmission of measured signals entrepreneurship development.
CO4	Construct Instrumentation/Computer Networks will helpful to make student employable at local level.
CO5	Suggest proper sensor technologies for specific applications develop the skills at local as well as global level.

Course Code	ECE079 (F)
Course Name	**Noise and Air Pollution Control**

COs	Description
CO1	Understand air pollutants and their impacts for building models for skill development at local as well as global level.
CO2	Explain air pollution chemistry and meteorological aspects of air pollutants of local as well as national level for entrepreneurship and skills development
CO3	Demonstrate methods for controlling particulate air pollutants for employability at local level
CO4	Demonstrate methods for controlling gaseous air pollutants for skill development and employability at local as well as global level. .
CO5	Understand automotive emission standards. Apply methods for controlling noise pollution for skill development at local as well as global level.

Course Code	ECE079 (G)
Course Name	**Railway Engineering**

COs	Description
CO1	Gain the knowledge about the basic concept of components of railway engineering for building skill and entrepreneurship development at local as well as global level.
CO2	Understand the concept related to theories related to creep of local as

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	well as national level for entrepreneurship and employability
CO3	Understand the concept of geometric design of railway track for developing models related to employability at local level.
CO4	Create the track layout concepts for skill development and entrepreneurship skills.
CO5	Understand about the signaling system concept for skill development at local as well as global level.

Course Code	ECE079(H)
Course Name	Airport Engineering
COs	**Description**
CO1	Gain the knowledge about the airport planning basic concept for skill development at local as well as global level.
CO2	Understand the concept of runway design for strategic alliance of entrepreneurship and skill development.
CO3	Understand the concept of structural design of airport pavement for building models for employability at local level.
CO4	Create the knowledge about the airport marking and lightning techniques for skill development at local as well as global level..
CO5	Understand the concept of airport grading and drainage scheme for entrepreneurship development and employability at national level.

Course Code	ECE079(I)
Course Name	Digital Image Processing
COs	**Description**
CO1	Know and understand the basics and fundamentals of digital image processing, such as digitization, sampling, quantization, and 2D-transforms for skill and entrepreneurship development at local as well as global level.
CO2	Operate on images using the techniques of smoothing, sharpening and enhancement will able to develop skill and employability at local as well as global level in students.
CO3	Understand the restoration concepts and filtering techniques to develop skills at local level in students
CO4	Implement the various Morphological operations on an image to develop skill and employability
CO5	Learn the basics of segmentation, features extraction, compression and recognition methods for color models for skill and entrepreneurship development at local as well as national level.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TECE079 (J)
Course Name	Advanced Geology and Remote Sensing

COs	Description
CO1	Gaining knowledge on concepts and applications leading to modeling of earth resources management using Remote Sensing to develop skills and employability at local as well as national level.
CO2	Acquire skills in handling instruments, tools, techniques and modeling for skill development and employability at national as well as international level while using Remote Sensing Technology
CO3	Fully equipped with concepts, methodologies and applications of Remote Sensing Technology will develop skills at local as well as global level.
CO4	Identify the earth surface features from satellite images of local, national and international level importance to develop skill and entrepreneurship
CO5	Analyse the basic components of GIS to develop skills at local, global as well as national level.

Course Code	TECE079(K)
Course Name	Industrial Waste Treatment

COs	Description
CO1	Gain the knowledge about the basic concept of industrial waste treatment for skill development at local as well as global level.
CO2	Understand the concept of cleaner production for developing entrepreneurship skills at local as well as national level.
CO3	Gain the knowledge about the basic concept of pollution emerging from industries and develop models for skill development at local as well as global level.
CO4	Understand the treatment concept and technology for employability at local level.
CO5	Understand the concept of hazardous waste management techniques and develop entrepreneurship skills and employability at local as well as global level.

Course Code	TECE079(L)
Course Name	Solid Waste Management

COs	Description
CO1	Identify the physical and chemical composition of solid wastes for building models for skill development at local as well as global level.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Analyze the functional elements for solid waste management for employability and entrepreneurship skills at local as well as national level
CO3	Understand the techniques and methods used in transformation, conservation, and recovery of materials from solid wastes for skill development at local as well as global level.
CO4	Identify and design waste disposal systems for building models for entrepreneurship development at local as well as national level
CO5	Gain the knowledge about the hazardous waste management concept for building entrepreneurship and employability

Course Code	TECE079 (M)
Course Name	Traffic Management & Design
COs	**Description**
CO1	Gain the knowledge about the concept of basics of traffic engineering for skill development at local as well as global level
CO2	Understand the concept of surveys and analysis for skill development and employability at local as well as national level
CO3	Understand the concept of traffic control for building models of national as well as international level importance for entrepreneurship skills
CO4	Create the geometric design concept for intersection and develop skills at local as well as national level
CO5	Gain the knowledge about the traffic management and develop employability at local level

Course Code	ECE801
Course Name	Water Resources Engineering
COs	**Description**
CO1	Different terminology related to water resources engineering for employability at local level
CO2	Establish the understanding of cross drainage works, diversion head works and their design for skill and entrepreneurship development.
CO3	Identify various types of dams and their design aspects for better employability at local as well as global level
CO4	Application of pumps and turbines in water resources engineering for employability and entrepreneurship development at national level
CO5	Concepts of watershed development, rain water harvesting and strategies for flood damage for entrepreneurship development at local as well as national level

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ECE802
Course Name	Bridge Engineering

COs	Description
CO1	To develop an understanding of local as well as global for employability and skill development and appreciation for basic concepts in proportioning and design of bridges in terms of aesthetics, geographical location and functionality.
CO2	Understand the load-carrying capacity of various types of bridges, upon learning the structural responses to different kinds of loads and producing the models for skill development and employability at local as well as global level.
CO3	Plan and design the superstructure of RCC bridges for analysis of skill development at local as well as global level.
CO4	Design the substructure, superstructure and bearing of the bridge for strategic alliance of local, national as well as international level importance for Entrepreneurship development.
CO5	Design short and medium span bridges, with confidence using existing codes of practice and to develop models for skill developments and employability at local as well as global level.

Course Code	EHU801
Course Name	Industrial Management

COs	Description
CO1	Understand the scope of Industrial Management for skill development and employability at local as well as global level
CO2	To apply various management tools in systems of different industrial configurations for skill development and employability at local as well as global level
CO3	To use various control charts to determine the product acceptability as per designed criteria for skill development and employability at local as well as global level
CO4	Get the Knowledge of chart and sequential sampling for entrepreneurship development at local as well as national level
CO5	To control environmental pollution by various management techniques for entrepreneurship development and skill development

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – M.Tech. (Civil Engineering)

Course Code	TMCE101
Course Name	Advanced Structural Analysis

COs	Description
CO1	Understand the concepts of the stuffiness and flexibility matrices at local level to develop model for skill development and employability.
CO2	Analyze skeleton structures having secondary effects using direct stiffness method for enhancing skill development.
CO3	Analyze truss element and structures using stiffness method for facing global and national challenges for strategic alliance of skill development and entrepreneurship development.
CO4	Derive stiffness by direct method on 2D and 3D elements for the analysis of skill development and employability.
CO5	Solve realistic engineering problems through the non linear structure analysis for national importance to plastic analysis for skill development.

Course Code	TMCE102
Course Name	Advanced R.C.C Design

COs	Description
CO1	Understand the concept of yield line theory at local, national and international level for building skills development and employability.
CO2	Know about the flat slabs, its components and its analysis for global importance for skill development.
CO3	Gain knowledge about the analysis of grid floors by Timoshenko's plate theory to enhance the knowledge of entrepreneurship development.
CO4	Know about the competency in design of advanced reinforced concrete structures such as Column, shear wall for building models of skill development and employability.
CO5	Determine the deflection and crack width in case of short term and long term at local level and to implement the knowledge for enhancing skill development and entrepreneurship development.

Course Code	TMCE103
Course Name	Advanced Concrete Technology

COs	Description
CO1	To analyze various constituents and properties of concrete at local

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and global level to develop skill and employability.
CO2	To understand the behavior and application of special concretes in construction for skill development and employability.
CO3	To explain and design different types of concrete mixes for global importance for skill development and employability.
CO4	To understand concept of concreting under extreme weather condition and fracture mechanics of concrete for skill development and employability.
CO5	To understand techniques in repairs and rehabilitation of old concrete structures for skill development and entrepreneurship.

Course Code	TMCE106
Course Name	Earth Retaining Structures
COs	**Description**
CO1	Understand Mohr-Coulomb failure theory, effective stress principle and tests on soils for national and international importance for skill development.
CO2	Understand earth pressure theories and computation of earth pressure; capability to calculate the forces on retaining walls and design the retaining walls employability.
CO3	Carry out Analysis and design of sheet pile walls at local level for skill development and employability.
CO4	Understand principle of construction of coffer dams and soil pressure on them.
CO5	Analyze stresses in shaft and earth tunnel for their construction for facing global challenges for skill and entrepreneurship development.

Course Code	TMCE011
Course Name	Soil Structure Interaction
COs	**Description**
CO1	Understand soil structure interaction concept and complexities at local level involved to develop employability and entrepreneurship development.
CO2	Evaluate soil structure interaction for different types of structure at local, national and international level under various conditions of loading and subsoil characteristics to develop models for skill developments and employability
CO3	Prepare comprehensive design oriented computer programs for interaction problems based on theory of sub grade reaction such as beams, footings, rafts etc. for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Analyze different types of frame structure founded on stratified natural deposits with linear and non-linear stress-strain characteristics for facing global challenges and its analysis for entrepreneurship development.
CO5	Evaluate action of group of piles considering stress-strain characteristics of real soils to develop the models analysis for skill development and employability.

Course Code	TMCE012
Course Name	Advanced Design of Steel Structures

COs	Description
CO1	Identify and compute the design loads on a typical steel building for developing models for skill development.
CO2	Identify the different failure modes of steel tension and compression members and beams at local and global level, and compute their load for entrepreneurship development and skill development.
CO3	Select the most suitable section shape and size for tension and compression members and beams according to specific design criteria and develop strategic alliance for skill development.
CO4	Understand the concept of beam column- short & long beam column, strength of beam column & overall member failure, etc. for employability.
CO5	Understand the concept of beams subjected torsion and bending for national importance and develop skill and employability.

Course Code	TMCE013
Course Name	Limit State Design of Concrete Structures

COs	Description
CO1	To understand conceptually basics of Limit state Design method at local level and to develop models for skill development and entrepreneurship development.
CO2	To design two way slab & one way continuous slabs and develop strategic alliance for skill development and employability.
CO3	To Analysis and design of ends blocks for facing global challenges for skill development and employability.
CO4	To design the structural elements like RCC beam, slab and column by limit state Design method as per I.S.456-2000 for national and international importance for skill development.
CO5	To understand the concept of yield line theory for slab, yield line mechanisms and virtual work method for the analysis for entrepreneurship development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMCE014
Course Name	Matrix Method in Structural Analysis

COs	Description
CO1	Evaluate the structural systems to application of concepts of flexibility and stiffness matrices for simple problems at local level and for skill development and entrepreneurship development.
CO2	Identify, formulate and solve engineering problems with respect to flexibility and stiffness matrices as applied to continuous beams, rigid frames and trusses for developing strategic alliance for skill development and employability.
CO3	Identify, formulate and solve engineering problems at local and global level by application of concepts of direct stiffness method as applied to continuous beams and trusses and analyse it for entrepreneurship development.
CO4	Identify and solving problems involving in matrix displacement Analysis of grillage or grid for national importance, etc for skill development.
CO5	Identify and solving problems involving in matrix displacement analysis of 3-D structures and to build models for skill development and employability.

Course Code	TMCE015
Course Name	Advanced Fluid Mechanics

COs	Description
CO1	To learn about the application of mass and momentum conservation laws for fluid flows at local level for skill development.
CO2	To understand the importance of dimensional analysis at local, national and international levels for skill development and employability
CO3	To obtain the employability for velocity and pressure variations in various types of simple flows.
CO4	To analyze the flow in water pumps and turbines for skill development and entrepreneurship development.
CO5	Understand the efficiencies of centrifugal pumps for facing global challenges for entrepreneurship development

Sanjeev Dawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMCE 016
Course Name	Building Architecture & Planning

COs	Description
CO1	Understanding of building planning, orientation, drawing and architectural aspects at local, national and international level which help in skill development and employability.
CO2	Representation of a building on Paper helps the student for facing global challenges and to build the skill development.
CO3	Understand how to implement the architectural design features in the building help in gaining the knowledge about the entrepreneurship development.
CO4	Gain Knowledge about the functional elements of architecture for national importance help in the analysis of skill development.
CO5	Knowledge about the Town Planning helps in building the model for entrepreneurship development.

Course Code	TMCE 017
Course Name	Precast & Composite Structure

COs	Description
CO1	For skill development and employability, to Learn the concepts and techniques of precast construction at local and global level.
CO2	Apply& analyze the concept of influence lines for deciding the critical forces and sections for facing global challenges for skill development and employability while designing.
CO3	Apply the concept of strain energy to analyze beams and frame for skill development.
CO4	Learn the principles and Design of Precast and Composite Structures for skill development.
CO5	To understand the concept of composite structures and their analysis at national and international level for skill development and employability.

Course Code	TMCE018
Course Name	Advance Design of Hydraulic Structure

COs	Description
CO1	Understand the principles, Select hydraulic structural elements at local level for skill development and employability.
CO2	Understand basic concepts of hydrologic simulation modeling to evaluate potential impacts of management decisions and skill

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development.
CO3	Evaluate surface water dam of skill development and employability.
CO4	Be able to select the type of dam, design and to construct for entrepreneurship development.
CO5	Be able to integrate relevant concept and methodologies in the area of hydraulics at local and global level, hydrology and geotechnical engineering of skill development.

Course Code	TMCE 019
Course Name	Numerical Methods in Geotechnical Engineering
COs	**Description**
CO1	Apply various models to the soil mass to find out the behavior of the soil at local and global level which is helpful for entrepreneurship development.
CO2	Apply FD solution to homogenous and layered soil, one, two, three dimensional to improve and develop the student's skills.
CO3	Understand the consolidation problem for facing global challenges for construction and static load for entrepreneurship development.
CO4	Understand the FD and FEM solutions for shallow foundations for national importance.
CO5	Demonstrate Finite Element Method Solution (Direct approach) for pile foundation improve and develop the student's skills.

Course Code	TMCE019 (A)
Course Name	Sustainable Water and Sanitation System
COs	**Description**
CO1	Understand the sustainability for past and present civilization at local level which is helpful for entrepreneurship development.
CO2	Utilization of modern practices for water treatment and sanitation for global and national importance to improve and develop the student's skills.
CO3	Understand the procedure of coagulation and softening to sanitize the water for entrepreneurship development.
CO4	Understand Sustainable sanitation management for present and future at local, national and international level.
CO5	Demonstrate Modern infrastructure for wastewater treatment to improve and develop the student's skills.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMCE 019 (B)
Course Name	Infrastructure Development

COs	Description
CO1	Critically reflect on the challenges at local level in the development of sustainable infrastructure for developing skills
CO2	Achieve a level of well-informed professional at global and national level so that he contributes to the delivery of infrastructure development and management for building models for skill development and employability
CO3	Gain the knowledge about the concept of funding of infrastructure for skill development and entrepreneurship skills.
CO4	Understand the concept of Infrastructure services for facing global challenges for better employability
CO5	Understand the concept of sustainability issues in infrastructure development for strategic alliance of entrepreneurship skills

Course Code	TMCE019 (C)
Course Name	Applied Elasticity and Plasticity

COs	Description
CO1	Understand the basic concept of stress strain analysis at local, national and international level for skill development.
CO2	Gain knowledge about the stress strain concept in three dimensions for facing global challenges for building models for employability.
CO3	Understand the bending concept in prismatic bars for skill development and employability.
CO4	Create the models for better employability by considering the plastic deformation of metals at local levels.
CO5	Understand the concept for solving practical problems of metal under press for skill development and entrepreneurship development.

Course Code	TMCE019 (D)
Course Name	Computer Application in Water resource Engineering

COs	Description
CO1	Understand the basic concept of computation at local level for skill development.
CO2	Gain knowledge about methods of computation for global importance for building models for employability.
CO3	Understand the bending concept in prismatic bars for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	.Create the models for better employability by considering the plastic deformation of metals at local, national and international levels.
CO5	Understand the concept for solving practical problems of metal under press for skill development and entrepreneurship development.

Course Code	TMCE201
Course Name	Structural Dynamics
COs	**Description**
CO1	To classify the principles of structural dynamics and formulation of equation of motion at local level for skill development and employability.
CO2	For skill development and employability, to understand fundamental concept of single degree of freedom system for facing global challenges and solving for the free and forced response, response of SDOF systems to harmonics excitation, periodic excitation.
CO3	To understand response to general dynamic loading for national importance for skill development and employability, numerical evaluation of dynamic response.
CO4	To summarize the solution technique for dynamics of MDOF systems for skill development and entrepreneurship.
CO5	To understand the concept of various methods of MDOF for skill development and behavior of civil structures.

Course Code	TMCE202
Course Name	Design of Pre-Stressed Concrete Structures
COs	**Description**
CO1	Understand the general mechanical behavior of pre-stressed concrete at local, national and international level to enhance skill development and employability.
CO2	Analyze and design pre-stressed concrete flexural members to build models for skill development and employability.
CO3	Analyze and design for vertical and horizontal shear in pre-stressed concrete for global importance and to implement the knowledge for building entrepreneurship development.
CO4	Analyze transfer and development length as well as pre-stress losses at local level and to analyse the same for skill development
CO5	Analyze and design for deflection and crack control of pre-stressed concrete members and also to control the skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMCE203
Course Name	Theory of Elasticity

COs	Description
CO1	To apply elastic analysis to study the fracture mechanics at national and international level, it will develop the skills of students and for the better skilling of entrepreneurship.
CO2	To apply linear elasticity in the design and analysis of structures such as beams, plates, shells and sandwich composites for global importance.
CO3	Understand and analyze stress and deformation, it will make students employable
CO4	Understand Basic field equations of linear elastic solids at local level that will develop the skills of students.
CO5	Formulations and solution strategies of various boundary value problems, it will make students employable.

Course Code	TMCE207
Course Name	Water Power Engineering

COs	Description
CO1	Design different components and their arrangement for hydel plants of both run off river plants and pumped storage plants for national importance.
CO2	Design various components of different types of turbines at local level for employability and entrepreneurship development.
CO3	Design different components of water conveyance system for power plants for facing global challenges skill development and employability.
CO4	Understand the concepts of surge tank and water hammer analysis skill development.
CO5	Perform planning of a power house for entrepreneurship development.

Course Code	TMCE021
Course Name	Advanced Design of Metal Structures

COs	Description
CO1	Apply unified code philosophy to steel building design at national and international level for developing models for skill development and entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Apply plastic method for design of beams and frames for strategic alliance of skill development.
CO3	Design & detail Industrial building for global importance, steel stacks & composite structures as per the IS code for skill development and employability.
CO4	Use of cold form sections in the steel structure including pre-engineered building at local level to build models for employability.
CO5	Able to design Tension and compression member made of Aluminum and to analyses it for entrepreneurship development.

Course Code	TMCE 022
Course Name	Numerical Methods in Civil Engineering

COs	Description
CO1	Exposure to various numerical methods at national level for performing tasks, such as interpolation, differentiation, integration, solution of linear and nonlinear equations, solution of differential and integral equations and to develop models for skill development and entrepreneurship development.
CO2	Able to apply numerical methods to obtain approximate solutions to mathematical problems and analyse it for global importance for skill development and employability.
CO3	Able to analyze and evaluate accuracy of various numerical methods and their applicability to build models for skill development.
CO4	Exposure to established and advanced numerical methods like Finite Element Method, Mesh free Methods and Boundary Element Methods etc. for employability.
CO5	Able to solve the polynomial and Eigen value problem at local level and for strategic alliance of entrepreneurship development.

Course Code	TMCE 023
Course Name	Rock Mechanics

COs	Description
CO1	Know the formation and classification of rocks in India at local, national and international level for skill development and employability.
CO2	To understand the strength of the rocks in field assessment and develop strategic alliance for skill development.
CO3	Understand the in-situ stresses developed and methods of measurement for facing global challenges and build models for skill development and entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Evaluate the strength parameters of rocks and adopt appropriate remedial measures for stability of critical slopes of rocks and analyse it for employability.
CO5	To give suitable remedial measures in fractured rocks for entrepreneurship development.

Course Code	TMCE 024
Course Name	Design of Bridges
COs	**Description**
CO1	At the end of the course the student will understand the design theories for superstructure and substructure of bridges at local and global level and develop model models for employability.
CO2	The student will be able to design Culvert, R.C.C T Beam Bridge and analyse it for facing global challenges for entrepreneurship development.
CO3	The student will possess the knowledge to design pre stressed concrete bridges and develop strategic alliance for skill development and entrepreneurship development.
CO4	The student will be able to design different types of bearings, abutments, piers at national level and create models for skill development.
CO5	The student will able design various types of foundations for Bridges and analyse it for skill development and employability.

Course Code	TMCE 025
Course Name	Design of Pavements
COs	**Description**
CO1	Learn loading conditions and corresponding stresses and deformation developed at local and global level for skill development.
CO2	Carry out material characterization and the design of flexible pavement for national importance to analyse for skill development and employability.
CO3	Design of rigid pavement as per IRC guidelines and develop models for entrepreneurship development.
CO4	Evaluate pavement and to select appropriate rehabilitation technique for strategic alliance for employability.
CO5	Select suitable stabilizers and there applicability in pavements at local level for skill development and entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMCE 026
Course Name	Structural Design of Foundation and Retaining Structures

COs	Description
CO1	Attain the perception of site investigation to select suitable type of foundation based on soil category at local levelfor improve and develop the student's skills.
CO2	Understand the design procedure of simple wall footings and strips footing for global importance for improve and develop the student's skills.
CO3	Identification problems comes in the design of raft foundation, flat slab rafts and mat foundation design for entrepreneurship development.
CO4	Understand the ground design procedure of pile raft foundation circular and annular rafts to improve and develop the student's skills,
CO5	Design different types of wall foundation at national and international level, under- reamed piles and cantilever retaining wall for entrepreneurship development.

Course Code	TMCE 027
Course Name	Earthquake Geotechnical Engineering

COs	Description
CO1	Understand the internal structure of earth surface, reason and sources of earthquake at local and global level which is helpful for entrepreneurship development.
CO2	Understand dynamic properties of soil, field and laboratory test for global importance for improve and develop the student's skills.
CO3	Identification of earthquake sources for and performs seismic hazard analysis for entrepreneurship development.
CO4	Understand the ground response analysis and response in uniform and non uniform rock for facing national challenges.
CO5	Demonstrate different approach for liquefaction analysis and various field test for improve and develop the student's skills.

Course Code	TMCE 028
Course Name	Water Resources Development and Management

COs	Description
CO1	Familiarize with the global and regional water scenario and issues in water resources management at local, national and international level for employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Establish the understanding of cross drainage works, diversion head works and their design for skill and entrepreneurship development.
CO3	Analyze and interpret hydrological data though frequency distribution, probability and hydrological model application for global importance for better employability.
CO4	Quantify the rainfall, runoff and base flow and analyse using models of runoff hydrograph for employability and entrepreneurship development.
CO5	Estimate water yield from catchment and plan for design of water resources storage structures for entrepreneurship development.

Course Code	TMCE029 (A)
Course Name	Marine Construction

COs	Description
CO1	Gain the knowledge about the advance marine heat engines at national and international level for building models for skill development
CO2	Understand the concept of renewable energy sources and its application for skill development and employability.
CO3	Understand the concept for building skills for environment science and technology at global level
CO4	Provide knowledge for advance materials science and surface costing engineering for skill development and employability.
CO5	Gain the concept of ship fire prevention and construction for building entrepreneurship skills.

Course Code	TMCE029(B)
Course Name	Computation Method in Structural Engineering

COs	Description
CO1	Understand the concepts of the stuffiness and flexibility matrices at local level to develop model for skill development and employability.
CO2	Analyze skeleton structures having secondary effects using direct stiffness method for facing global challenges for enhancing skill development.
CO3	Know about the competency in design of advanced reinforced concrete structures such as Column, shear wall for building models of skill development and employability
CO4	To analyze various constituents and properties of concrete for national importance for skill development and employability.
CO5	To understand the behavior and application of special concretes in construction for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMCE029 (C)
Course Name	Experimental Stress Analysis

COs	Description
CO1	Explain the measurement of strain under static and dynamic loads at local level for skill development.
CO2	Describe the Mechanical, optical, pneumatic and electrical strain gauges for strain measurement for skill development and employability.
CO3	Understand the overall concepts of stress/strain analysis to develop skills by experimental means for national importance.
CO4	Familiar with the theory and practice of common experimental stress analysis Methods including more methods, photo elasticity for global importance for skill development and employability.
CO5	Acquire the knowledge on Brittle and bi-refrigent coatings and working of strain gauges for employability.

Course Code	TMCE029 (D)
Course Name	Low cost Materials and Construction Techniques

COs	Description
CO1	Gain knowledge about the energy efficient and environment friendly materials at local and global level for skill development
CO2	Understand the concept of energy efficient roofing and build skill development and employability for national importance.
CO3	Understand the concept of cost effective sanitation for developing strategic alliance for entrepreneurship skills.
CO4	Build the concept of low cost road construction techniques for building models for skill development.
CO5	Gain knowledge about the cost analysis and will provide entrepreneurship skills and employability at national and international level.

Course Code	TMCE029(E)
Course Name	Open Channel Hydraulics

COs	Description
CO1	Understand the common ways of classifying open channel hydraulics at national and international level for skill development and employability.
CO2	Calculate open channel flow resistance, Manning equation, uniform and non-uniform flow, and develop strategic alliance for skill

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development for national importance.
CO3	Analysis of computation of flow profiles for Entrepreneurship Development.
CO4	Formulate advanced models based on the governing equations for free-surface flows and to study different system of flow measurements for developing employability.
CO5	Gain knowledge about the unsteady flow, to study about the surge and its analysis for skill development and entrepreneurship development.

Course Code	TMCE029(F)
Course Name	Strength and Deformation Behavior of Soil

COs	Description
CO1	Understand the stresses in soil for skill development at local level.
CO2	understand the concept of brief explanation on types of tests based on drainage conditions for entrepreneurship development and for global importance.
CO3	Understand the concept of analysis of elastic settlement of soils for skill development
CO4	Create the skempton's and henkels pore water pressure models for developing entrepreneurship skills.
CO5	Gain knowledge about the soil behavior using isotropic and elastic models and develop employability at national level.

Course Code	MCE 301
Course Name	Theory of Plates and Shells

COs	Description
CO1	To understand the concept of thin plates under small deflection theory and analyze of Rectangular Plates for skill development and employability at local and global level by using Navier solution and Levy's Method.
CO2	To formulate equations for force displacement equations and equilibrium equations in curvilinear co-ordinates for skill development at national level.
CO3	To understand the equilibrium theories for analysis of Plates and Shell Structures for skill development and employability. Analyze plates under different boundary conditions by various classical methods and approximate methods.
CO4	To understand the concept of membrane theory of shells and analyze the circular cylindrical shell loaded symmetrically for skill

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development and entrepreneurship development with different conditions.
CO5	To understand the structural behavior of folded plates for facing global challenges and for skill development and employability.

Course Code	MCE 305
Course Name	Theory of Plasticity
COs	**Description**
CO1	This course intends to provide students a comprehensive knowledge on the theory of elasticity and plasticity and help them to build model for skill development and employability at national level.
CO2	The course focuses on the following topics: yield surface, normality rule and limit surfaces and guide them to build a model for skill development.
CO3	Ability to use standard external and internal forces, equilibrium, stress tensors, principal stresses, hydrostatic stress state analysis for skill development and employability.
CO4	Ability to use constitutive law, plasticity theory, yield and failure criteria, stability postulates, general theory of plane strain for perfectly plastic materials and strategic alliance for entrepreneurship development.
CO5	Ability to understand concept of plane stress & plane strain problem, limit analysis theorems& control for skill development and employability at local and global level.

Course Code	MCE031
Course Name	Earthquake Analysis and Design of Structures
COs	**Description**
CO1	Understand the basic knowledge of earthquake and ground motions and can plan a good structural configuration for seismic resistance for facing global challenges and for developing models for skill development.
CO2	Apply fundamentals of structural dynamics to different structures and analyse them for skill development and entrepreneurship development.
CO3	Ensure proper design of buildings so they will resist damage due to earthquakes, but at the same time not be unnecessarily expensive for employability at local and national level.
CO4	Understand the proper seismic designing concept of RC structures and design it for employability and skill development.

Sanjeev Agrawal

CO5	Understand the mathematical application applied to multistoried RC buildings for developing models for entrepreneurship development.

Course Code	MCE032
Course Name	Design of Steel Bridges

COs	Description
CO1	Able to understand the basic concepts in proportioning and design of bridges in terms of aesthetics at local level, geographical location and functionality, and specifications for loads for skill development and employability.
CO2	Able to understand the design of bridge starting from conceptual design, selecting suitable bridge, geometry to sizing of its elements for analyzing it for employability and entrepreneurship development.
CO3	Able to analyse and design simple connections between structural members including riveted and welded connections and to build models for skill development and employability.
CO4	Able to provide cost-effective solutions for bridge construction by analyzing the designing of bridge foundation and analyse it for employability at national and international level.
CO5	Able to analyse and design tension members, columns (compression members), built-up sections, beams (flexural members) and plate girders to create models for skill development and entrepreneurship development.

Course Code	MCE033
Course Name	Analysis and Design of Shell Structure

COs	Description
CO1	Classify the shells and know the shell action for creating models at local level and for skill development.
CO2	Understand the bending theory of cylindrical shells to develop strategic alliance for employability.
CO3	Design and detail cylindrical shells to analyse it for skill development and entrepreneurship development at national level
CO4	Analyse and detail folded plates by ACI for global importance and for employability
CO5	Analyse and design of space frames for building at national level for employability and skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCE034
Course Name	Advanced Soil Mechanics

COs	Description
CO1	Identify the type of soil and understand the numerical value-ranges of its engineering properties at local and global level to develop skill
CO2	Analyse the seepage through hydraulic structures for skill development and employability.
CO3	Analyse and compute the soil settlement for given structure and soil conditions for skill development and employability
CO4	Apply the knowledge of consolidation theories and accelerate the consolidation process for quick construction to develop skill and entrepreneurship for global importance.
CO5	Analyse the stresses produced in the soil for given foundation shape and soil type for skill development

Course Code	MCE035
Course Name	Repair Rehabilitation and Retrofitting Of Building

COs	Description
CO1	Understand the fundamentals of maintenance and repair strategies for skill development and employability at local and global level.
CO2	Identify for serviceability and durability aspects of concrete, for facing global challenges and skilling of entrepreneurship
CO3	Know the materials and techniques used for repair of structures, skilling of entrepreneurship
CO4	Decide the appropriate repair and retrofitting techniques, for skill development and employability.
CO5	Use appropriate health monitoring technique and demolition methods for entrepreneurship

Course Code	MCE037
Course Name	Numerical Analysis in infrastructure Engineering

COs	Description
CO1	Apply a suitable numerical technique to extract approximate solution to the problem whose solution cannot be obtained by routine methods. Estimate the errors in various numerical methods for skill development
CO2	Analyse/ interpret the achieved numerical solution of problems by reproducing it in graphical or tabular form for better knowledge of entrepreneurship skills at national and international level.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Approximate the data generated by performing an experiment or by an empirical formula with a polynomial on which operations like division, differentiation and integration can be done smoothly for providing employability.
CO4	Evaluate a sufficiently accurate solution of various physical models of science as well as engineering interest whose governing equations can be approximated by nonlinear ODEs or PDEs or system of ODEs or PDEs to develop skills at local level.
CO5	Design/ create an appropriate numerical algorithm for various problems of science and engineering for skill development and employability for global importance.

Course Code	TMCE038
Course Name	Cost Effective and Eco friendly Construction
COs	**Description**
CO1	Understand the Concepts of energy efficient & environment friendly materials and techniques to develop skills and employability at local and global level.
CO2	Understand the techniques for rat trap bond construction to develop skill and equipment's used in it
CO3	Understand cost effective sanitation for waste water disposal in rural and urban areas to develop skill
CO4	Demonstrate the low cost road construction techniques for national importance and for employability and entrepreneurship development
CO5	Understand the Cost analysis method and its comparison with all experimental techniques to develop skills and employability at national and international level.

Course Code	TMCE039
Course Name	Plastic Analysis of Structures
COs	**Description**
CO1	Understand the fundamental principles of different method of analysis of structures for ultimate Load will develop skill at national and international level.
CO2	Demonstrate the continuous beam design of continuous in nature will develop skill and employability
CO3	Understand the secondary design problem using axial force method on plastic moment will skill development.
CO4	Apply design method of connection using method like haunched connection for global importance and other also for skill and entrepreneurship development

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Understand the design of steel frames like single bays single story frames will develop skill and employability at global and local level.

Course Code	TMCE039(A)
Course Name	**Construction Costing and Financial Management**

COs	Description
CO1	Understand the cost and management accounting techniques for evaluation, analysis and application in managerial decision making at local and global level for skill development and employability
CO2	Compare and contrast marginal and absorption costing methods in respect of profit reporting for building models for skill development
CO3	Apply marginal and absorption costing approaches in job, batch and process environments for skilling entrepreneurship development at local level.
CO4	Prepare and interpret budgets and standard costs and variance statements for employability
CO5	Identify and apply the concepts of Financial Management for facing global challenges and for skill development and employability

Course Code	TMCE039 (B)
Course Name	**Municipal Solid Waste Management**

COs	Description
CO1	Gain knowledge about the municipal solid waste to develop skills at local, national and international level.
CO2	Apply the knowledge of waste management and public health for building models for global importance and for skill development.
CO3	Understand the concept of commercial waste collection and develop skills for entrepreneurship development.
CO4	Understand about the concept of waste processing for strategic alliance of employability.
CO5	Gain knowledge about the waste disposal system for skill development at local level.

Course Code	TMCE039(C)
Course Name	**Structural Health Monitoring and Rehabilitations**

COs	Description
CO1	Understand the maintenance repair and rehabilitation methods by planning different strategies for skill development at local and global

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	level.
CO2	Analysis the Serviceability and Durability of Concrete by knowing the property of concrete for entrepreneurship development.
CO3	Understand Materials and Techniques for Repair and understand different material property for building better skills and employability for national importance.
CO4	Understand the Repair, Rehabilitation and Retrofitting Techniques for Strengthening of Structures for developing skills.
CO5	Demonstrate the Health Monitoring and Demolition Techniques for skill development and entrepreneurship

PROGRAMME NAME – B.Tech. (Electronics & Communication Engineering)

Course Code	TEMA 101
Course Name	Engineering Mathematics –I
COs	**Description**
CO1	Rememberthebasicsofmatricesandapplytheconceptofrankforsolvinglinearsi multaneousequations for skill development globally.
CO2	Apply the concept of limit, continuity and differentiability in the study of Rolle's, Lagrange's, Cauchy mean value theorem and Leibnitz theorem for skill development and employability.
CO3	Apply partial differentiation for evaluating extreme values, expansion of function and Jacobian for skill development.
CO4	Apply the methods of multiple integral for finding area, volume, centre of mass and centre of gravity for skill development and employability at international level.
CO5	Apply the concept of vector for evaluating directional derivatives, tangent and normal planes, line, surface and volume integrals for skill development and employability.

Course Code	TEPH101
Course Name	Engineering Physics-I
COs	**Description**
CO1	Understand and learn globally Frame of reference, Lorentz transformation development and employability
CO2	Understand Statistical Mechanics, Maxwell- Boltzmann statistics and its application for skill development.
CO3	Understand international De-Broglie Hypothesis, Davisson -Germer Experiment for skill development and employability.
CO4	Attain basic knowledge on different types of international LASERs and their applications for skill development and employability.
CO5	Gain knowledge of optical fiber and its applications for skill development

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and employability.

Course Code	TECE 101
Course Name	Environmental Science

COs	Description
CO1	Understand the issues and challenges related to environmental and ecosystem due to some human activities globally, it will develop the skills of students.
CO2	Understand about the different sources of air pollution and their impact on human health internationally. it will develop the skills of students
CO3	Understand about the quality parameter for water and standards related to water, and make the students employable.
CO4	Know about different types of pollution and their sources globally it will develop the skills of students.
CO5	Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world, it will develop the entrepreneurship skill of student.

Course Code	TPSD 101
Course Name	Professional Skill Development-I

COs	Description
CO1	Understand the sentences, its types, its transformations, parts of speech and its types etc. for skill development and employability.
CO2	Understand about the different types of nonfinite verbs, gerund, adverbs and its types, prepositions and its types etc. internationally for skill development and employability.
CO3	Understand about the Clauses and phrases, tenses, voice and speech and its conversion for skill development globally.
CO4	Know about Techniques of Précis Writing, Paragraph Writing, Techniques of Paragraph Writing for skill development and employability
CO5	Writing of Resume, Bio-Data, Writing of Letters and Applications for skill development and employability

Course Code	TEEE 101
Course Name	Electrical Engineering

COs	Description
CO1	Use basic electrical DC concepts and theorems to analyze circuits for skill development.
CO2	Draw the relevant phasor diagrams and waveform diagrams of voltage and

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	current along with the concepts of reactance and impedance and power factor globally. Use of resonance and implications for practical circuits for skill development and employability.
CO3	Understand the preference of poly phase system over single phase system, star and delta connections along with develops the knowledge of international theoretical and mathematical principles of electrical measuring instruments for skill development, employability and entrepreneurship development.
CO4	Analyze magnetic circuit and differentiate magnetic and electric circuits and understand single phase transformer, auto transformer and three phase transformer for skill development and employability.
CO5	Understand the construction of D.C machine, different windings, their merits and demerits and the basic concept of Three-phase induction motor and its working principle instruments for skill development, employability and entrepreneurship development.

Course Code	TEME102
Course Name	Materials & Manufacturing
COs	**Description**
CO1	Understand the importance of materials and manufacturing, various properties of materials, plant layout and production internationally for skill development.
CO2	Understand the ferrous and non-ferrous metals their alloys and application, non-metals and their international applications for skill development.
CO3	Able to get a brief knowledge of metal forming operations, working of machines and heat treatment process and their importance for skill development and employment.
CO4	Able to understand the methods and techniques associated with the process of metal cutting operations on various metal cutting machines for entrepreneurship and skill development and employability.
CO5	Able to understand various type of welding process and their global application n specific field for skill development.

Course Code	TEPH151
Course Name	Physics Lab
COs	**Description**
CO1	Understand principle, concept, working and application of technology internationally and comparison of results with theoretical calculations for skill development and employability.
CO2	Apply the various procedures and techniques for the experiments to create for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand usage of global instruments and real time applications in engineering studies for skill development and employability.
CO4	Understand the basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results for skill development and employability.
CO5	Understand the some basic law like stefan's law, Hall effect etc. for skill development

Course Code	TEME152
Course Name	Materials & Manufacturing Lab

COs	Description
CO1	To define and use different national and international manufacturing process e.g. casting, forging, turning, drilling etc. for skill development, employability and entrepreneurship.
CO2	To define and use different welding processes e.g. gas welding and electric arc welding for skill development, employability and entrepreneurship.
CO3	To acquire thorough knowledge of carrying out various local and global operations on lathe machine for skill development, employability and entrepreneurship.
CO4	To acquire skills for creating different objects from raw materials for skill development, employability and entrepreneurship.
CO5	To acquire thorough knowledge of carrying out various operations on Sheet metals for skill development, employability and entrepreneurship.

Course Code	TEEE151
Course Name	Electrical Engineering Lab

COs	Description
CO1	Explain the concept of international circuit laws and network theorems and apply them to laboratory measurements for skill development, employability and entrepreneurship development.
CO2	Systematically obtain the equations that characterize the performance of an electric circuit as well as solving both single phase and DC Machines for employability and entrepreneurship development.
CO3	Acknowledge the principles of operation and the main features of electric machines and their applications for skill development and employability to compete with local, national and international standards..
CO4	Discuss the starting methods of a single phase induction motor for employability and entrepreneurship development.
CO5	Acquire skills in using electrical measuring devices for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEME153
Course Name	Engineering Graphics Lab

COs	Description
CO1	Use the international drawing instruments effectively and able to dimension the given figures for skill development and employability.
CO2	Appreciate the usage of engineering curves in tracing the paths of simple machine components for skill development and employability.
CO3	Understand the concept of projection globally and acquire visualization skills, projection of points for skill development and employability.
CO4	Able to draw the basic views related to orthographic projections of Lines, Planes for skill development, employability and entrepreneurship.
CO5	Able to draw the basic views related to isometric projections of Lines, Planes for skill development, employability and entrepreneurship.

Course Code	TEMA201
Course Name	Engineering Mathematics-II

COs	Description
CO1	Apply differential calculus and higher order problems and necessary and sufficient condition for total differential equations skill development to compete with local, national and international standards.
CO2	Students learn about the how to solve Legendre and Bessel, Legendre polynomials, Bessel's functions skill development and employability.
CO3	Know about Fourier series initial conditions and its applications to different engineering models skill development.
CO4	Solve second and higher order linear Partial differential equations with constant coefficients and construct all solutions from the linearly independent solutions skill development and employability.
CO5	Solve partial differential equations with methods & its Applications globally skill development and employability.

Course Code	TEPH201
Course Name	Engineering Physics-II

COs	Description
CO1	Understand Gauss law, Ampere's Law, Maxwell's equations and their applications globally for Skill development and employability.
CO2	Study of Propagation of plane electromagnetic waves in free space for skill development.
CO3	Understand Dielectric and magnetic properties of the materials for employability to compete with local, national and international standards.
CO4	Explain intrinsic and extrinsic semiconductors and the construction, operation and characteristics of diodes for employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Understand global concepts of superconductors, Properties of superconductors & applications of superconductors and the basic principle of nano science and technology and applications of nanotechnology for employability.

Course Code	TECH201
Course Name	Engineering Chemistry

COs	Description
CO1	Gain knowledge about the basic global concepts of chemistry and states of matter for skill, employability and entrepreneurship.
CO2	Understand kinetic and electrochemical methods for various reactions for skill, employability and entrepreneurship.
CO3	Demonstrate the mechanism of different reactions and their characterization internationally using spectroscopy for skill, employability and entrepreneurship.
CO4	Learn about the various kinds of polymers and their applications for skill, employability and entrepreneurship.
CO5	Demonstrate knowledge of science behind common impurities in water, methods to treat them and gain the basic knowledge of various types of Fuels, their properties for skill, employability and entrepreneurship

Course Code	TEME201
Course Name	Engineering Mechanics

COs	Description
CO1	Recognize different global force systems, moments and couple for skill development
CO2	To draw Free Body Diagram and label the reactions on it for skill development and employability
CO3	Find centroid and Moment of Inertia of different bodies for skill development and employability
CO4	To draw shear force diagram and bending moment diagram for skill development and employability
CO5	Understand Newton's law in motion, and recognize different kinds of particle motions for skill development and employabilityto compete with local, national and international standards.

Course Code	TEEC201
Course Name	Electronics Engineering

COs	Description
CO1	To Understand the basics of international semiconductor technology for

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	skill development and Employability.
CO2	P-N junction diode and its global applications for Employability.
CO3	To understand the basics of BJT and MOSFET for Employability.
CO4	To develop understanding of numbers system and basics of Logic Gates for skill development to compete with local, national and international standards.
CO5	To discuss the operational amplifier and its application and the need of modulation in the communication system for skill development.

Course Code	TECS201
Course Name	Computer Fundamentals & Programming

COs	Description
CO1	Understanding the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming for skill development and employability to compete with local, national and international standards.
CO2	Write, compile and debug programs in C language and use different data types for writing the programs for skill development and employabilityto compete with local, national and international standards.
CO3	Design programs using the concepts decision statements, loops, functions, arrays pointers etc. for skill development, employability and entrepreneurship.
CO4	Design programs using Conditional Program Execution, switch statements, Iteration etc. for skill development, employability and entrepreneurship.
CO5	Design programs using Modular Programming, scope rules and global variables, recursive functions, conditional compilation etc. for skill development, employability and entrepreneurship.

Course Code	TECS251
Course Name	Computer Lab

COs	Description
CO1	Understanding the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming for skill development and employabilityto compete with local, national and international standards.
CO2	Write, compile and debug programs in C language and use different data types for writing the programs for skill development and employabilityto compete with local, national and international standards.
CO3	Design programs using the concepts decision statements, loops, functions, arrays pointers etc. for skill development, employability and entrepreneurship.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Design programs using Conditional Program Execution, switch statements, Iteration etc. for skill development, employability and entrepreneurship.
CO5	Design programs using Modular Programming, scope rules and global variables, recursive functions, conditional compilation etc. for skill development, employability and entrepreneurship.

Course Code	TECH251
Course Name	Chemistry Lab

COs	Description
CO1	Students are able to estimate the impurities present globally in water for skill development and employability.
CO2	Ability to prepare advanced polymer international materials for skill development and employability.
CO3	Ability to know the strength of an acid present in secondary batteries for skill development and employability.
CO4	Ability to find the Fe^{+2}, Ca^{+2}& Cl^{-} present in unknown substances using titrimetric and instrumental methods for skill development and employability to compete with local, national and international standards.
CO5	Ability to find the functional group identification of organic compounds for skill development and employability

Course Code	TEEC251
Course Name	Electronics Engineering Lab

COs	Description
CO1	Measure voltage, current through multimeter internationally for skill development.
CO2	Understand the practical working of a diode for employability.
CO3	Understand the graph transitions of a transistor for skill development.
CO4	Understand the concept of logic gates for employabilityto compete with local, national and international standards.
CO5	To build clamper circuit using diode for skill development and employability.

Course Code	TEME251
Course Name	Mechanical Engineering Lab

COs	Description
CO1	Describe the global behavior of materials upon normal external loads for skill development and employability.
CO2	Predict the global behavior of the material under impact conditions for

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	skill development and employability.
CO3	Recognize the mechanical behavior of materials for skill development and employability.
CO4	Recognize parts of IC engines for skill development and employabilityto compete with local, national and international standards.
CO5	Recognize components of boilers for skill development and employability.

Course Code	EEC301
Course Name	Digital Integrated Circuit
COs	**Description**
CO1	To understand binary, octal and hexadecimal number systems and to implement logic functions globally using gates for skill development.
CO2	To implement and design various logic functions such as adder, subtractor, multiplexer etc for skill development and employability.
CO3	To study and develop sequential circuits- flip-flops, counters and registers for skill development.
CO4	To understand Memory, Programmable Logic Devices and Field Programmable Gate Arrays (FPGA) internationally for skill development and employability.
CO5	To understand the basic logic families such as TTL, IIL, ECL, NMOS, CMOS etc and to study about Asynchronous Sequential Circuits for skill development, employability and entrepreneurship development.

Course Code	EMA 301
Course Name	Engineering Mathematics – III
COs	**Description**
CO1	Know the use of Laplace transform solving Boundary Value Problems for skill development and employability to compete with local, national and international standards.
CO2	Use Z-transform in development of scientific simulation algorithms for employability.
CO3	Apply the concept and consequences of analyticity globally and the Cauchy-Riemann equations to get the results on harmonic and including the fundamental theorem of algebra for skill development.
CO4	Apply the Cauchy integral theorem and the Cauchy integral formula in its various versions for skill development and employability.
CO5	Represent functions as Taylor, power and Laurent series, classify singularities and poles, find residues and evaluate complex integrals using the residue theorem for skill development.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEC302
Course Name	Signals and Systems

COs	Description
CO1	Understand national and international mathematical and graphical representation/description of continuous and discrete time signals and systems for skill development.
CO2	Develop global input output relationship for linear shift invariant system and understand the convolution operator for continuous and discrete time system for skill development.
CO3	Analyze and understand the spectral characteristics of signals in frequency domain using Fourier series and Fourier transform for employability and entrepreneurship development.
CO4	Apply the Laplace transform and Z- transform for analyze of continuous-time and discrete-time signals and systems for skill development and employability to compete with local, national and international standards.
CO5	Understand the process of sampling and the effects of under sampling for skill development, employability and entrepreneurship development.

Course Code	EEC303
Course Name	Elementary Electronic Devices

COs	Description
CO1	Analysis of atomic structure for skill development to compete with local, national and international standards.
CO2	Applications of international modern solid state physics results into solid state electronics for skill development and employability.
CO3	Understand operation of Metal-semiconductor and pn junction for skill development and employability.
CO4	Understand fundamentals of BJT operation for skill development.
CO5	Define operation of Photodiode, photo detectors and solar cell for employability and entrepreneurship.

Course Code	EEC305
Course Name	Network Analysis and Synthesis

COs	Description
CO1	To understand the various international laws and theorems related to electric networks for skill development.
CO2	Apply Graph theoretic formulation for the solution of network equations for skill development and employability.
CO3	Apply Two-port network formulation for analyzing electric circuits for skill development, employability and entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Familiarize with network synthesis for skill development and employability.
CO5	Identify the characteristics of Filters and determine the parameters for the design of various Filters & Attenuators for entrepreneurship development to compete with local, national and international standards.

Course Code	PSD 301
Course Name	Professional Skill Development-II

COs	Description
CO1	Apply the comprehensive set of skills and knowledge for life success for skill development.
CO2	Understand the national and international communication process, its benefits and challenges for skill development.
CO3	Learn to effectively lead others globally on a project or in an organization for employability.
CO4	Develop and articulate respect for the diversity of talents, ways of knowing and learning for skill development.
CO5	Understand the parameters to be corporate fit for employability to compete with local, national and international standards.

Course Code	EHU301
Course Name	Disaster Management

COs	Description
CO1	The students will be able to identify the nature and causes of local and global disaster and its outcomes for skill development.
CO2	Also the students will be able to apply the disaster risk reduction mechanism for skill development and employability.
CO3	Capacity to manage the Public Health aspects of the disasters for skill development, employability and entrepreneurship development to compete with local, national and international standards.
CO4	Evaluate DM study including data search, analysis and presentation as a case study for skill development and employability.
CO5	To learn efficient emergency skills for providing health care to disaster survivors for skill development, employability and entrepreneurship development.

Course Code	EEC351
Course Name	Digital Integrated Circuits Lab

COs	Description
CO1	To develop a basic knowledge which helps them to better understand

Sanjeev Dhand
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	combinational and sequential circuits globally for skill development.
CO2	To comprehend the different issues related to designing of digital integrated circuits including circuit design, implementation, testing and design national and international methodologies and tools for future trends for skill development.
CO3	To use tools covering the back-end design stages of digital integrated circuits for skill development
CO4	To understand various types of IC's and there use in digital circuits for skill development and employability.
CO5	To learn and use state table and implement them for minor projects to improve skill development, employability and entrepreneurship development.

Course Code	EEC352
Course Name	Networks and Circuits Lab

COs	Description
CO1	Practical implications of the fundamentals of Ohm's law, Kirchhoff's current and voltage laws globally to develop skill for employability.
CO2	Accurate measurement of voltage, current, power and impedance of any circuit for skill development and employability.
CO3	DC analysis, Transient analysis and Frequency analysis of a given circuit depending on types of elements for better skilling of entrepreneurship to compete with local, national and international standards.
CO4	Linear differential equations of higher order using analytical methods and numerical methods applicable to Control systems and Network analysis knowledge for better employability in industry.
CO5	To provide students with mathematics fundamentals necessary to formulate, solve and analyses complex engineering problems for entrepreneurship development.

Course Code	EEC353
Course Name	Electronic Devices Lab

COs	Description
CO1	Understand the national and international application of PN Junction Diode knowledge for better employability in industry.
CO2	Understand the characteristics of BJT: BJT in CE configuration-Graphical measurement of h parameters from input and output Characteristics knowledge for better employability in industry.
CO3	Able to calculate A_v, A_I, R_o and R of CE RC-Coupled amplifier with potential divider biasing for skill development and employability.
CO4	To develop the ability to analyze electronic circuits using discrete components for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	To recognize basic logic functions and logic gates and can solve problems related to number systems and Boolean algebra for skill development to compete with local, national and international standards.

Course Code	EEC 354
Course Name	Printed Circuit Board (PCB) Lab
COs	**Description**
CO1	To develop a basic knowledge about various chemicals used for developing Printed Circuit Board globally for better employability in industry.
CO2	To develop knowledge about various international machines and tools related for PCB manufacturing for skill development and employability.
CO3	To have knowledge about soldering and verifying the circuit knowledge for better employability in industry
CO4	To develop PCB with implemented circuits and verifying the circuit with the desired output for skill development and better employability in industry
CO5	To understand the use of PCB in electronics industry by making working model to incorporate skill, provide employability to compete with local, national and international standards.

Course Code	EMA 401
Course Name	Computer Based Numerical & Statistical Techniques
COs	**Description**
CO1	Apply Numerical analysis which has enormous global application in the field of science and Engineering for skill development and employability
CO2	Understand numerical integration and differentiation, numerical solution of ordinary differential equations for skill development.
CO3	Compare and analyze the methods statistical analysis and the omnipresent role of variability for skill development.
CO4	Predict and evaluate the efficient design of studies and construction of effective sampling plans for employability.
CO5	Exploratory data analysis and formal inference process for skill development to compete with local, national and international standards.

Course Code	EEC 401
Course Name	Electronic Circuits
COs	**Description**
CO1	Determine quiescent point, gain, input and output impedance of common emitter and common collector amplifiers for skill development.

Sanjeev Bansal

CO2	Understand the concept of feedback amplifiers for skill development and employability.
CO3	Explain performance of basic class-A and class-B power amplifiersfor skill development to compete with national and international standards.
CO4	Explain principal of operation of various basic oscillators for skill development.
CO5	Analyze the working of MOSFET and its global application for skill development and employability.

Course Code	EEC402
Course Name	**Control Systems and Applications**

COs	Description
CO1	Categorize different types of system and identify a set of algebraic equations to represent and model a complicated system globally into a more simplified form for skill development.
CO2	Characterize any system in Laplace domain to illustrate different specification of the system using transfer function concept for skill development and employability.
CO3	Interpret different physical and mechanical systems in terms of electrical system to construct equivalent international electrical models for analysis for skill development and entrepreneurship.
CO4	Employ time domain analysis to predict and diagnose transient performance parameters of the system for standard input functions for better skilling of entrepreneurship.
CO5	Formulate different types of analysis in frequency domain to explain the nature of stability of the system for better skilling of employability in current industry scenario.

Course Code	EEC 403
Course Name	**Microprocessor and Applications**

COs	Description
CO1	Understand the basics of computer architecture to increases skill development to compete with local, national and international standards.
CO2	Understand the basic problems of programming for skill development and employability.
CO3	Understand the internal working of memory for skill development, employability and entrepreneurship development to compete with local, national and international standards.
CO4	Understand the working of computer chips for skill development and employability.
CO5	Understand the Programmable peripheral interface for skill development, employability and entrepreneurship development

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEC 404
Course Name	Electronics Instrumentation & Measurements

COs	Description
CO1	Understand the fundamentals of Electronics Instruments and Measurement providing an in-depth for skill development and employability.
CO2	Understand of international measurement errors, statistical analysis for skill development.
CO3	Describe operation of bridge measurements, Digital Storage Oscilloscope, Function Generator, Analyzer, Display devices for skill development and employability.
CO4	Apply different measurement instrument like voltmeter, AC electronic voltmeter, digital multimeters, digital frequency meter etc globally for skill development and employability and entrepreneurship.
CO5	To address the underlying concepts and methods behind Electronics measurements for skill development and employability.

Course Code	EEC405
Course Name	Engineering Electromagnetic Theory

COs	Description
CO1	To understand various Coordinate systems and its transformation for skill development to compete with local, national and international standards.
CO2	To learn the basic concepts of Electrostatics, Maxwell's equation, boundary conditions etc. for skill development.
CO3	To learn the basic concepts of Magnetostatics, Forces, torque etc. for skill development.
CO4	To understand waves and its various applications in free space, conductors, dielectrics etc. globally for skill development.
CO5	To learn and understand the concepts of Transmission line and its various parameters for skill development, employability and entrepreneurship development.

Course Code	EEC 451
Course Name	Electronic Circuits Lab

COs	Description
CO1	Evaluate the Operating Point, Voltage gain (Av), input and output impedance, current gain of Common Collector Amplifier globally for skill development.
CO2	Operation of RC – Coupled amplifier for skill development.
CO3	Operation of Class B Amplifier for skill development to compete with

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	local, national and international standards.
CO4	Study of the Wien Bridge Oscillator and effect on output frequency with variation in RC combination for skill development and employability to compete with local, national and international standards.
CO5	To understand the use of various circuits in electronics industry by making working model for skill development, employability and entrepreneurship development.

Course Code	EEC452
Course Name	Control System Lab

COs	Description
CO1	Discuss the need of software tools globally (MATLAB, PSPICE) to illustrate modeling and simulation of any system for skill development.
CO2	Classify and evaluate the performance parameters of a system and then with simulation prepare an advance tool to modify the values of the parameter of the system in order to meet the desired need for skill development.
CO3	Prepare international professionals in laboratory to compute or to predict the characteristics of a system by visualizing experimental data and its graphical representation for skill development.
CO4	To understand the basic of MATLAB simulation tool for doing the various experiments with help of MATLAB for skill development and employability.
CO5	To understand the use of control systems in electronics industry by making working model for skill development, employability and entrepreneurship development.

Course Code	EEC 453
Course Name	Microprocessor Lab - I

COs	Description
CO1	Understand the basics of microprocessor operation for skill development to compete with local, national and international standards.
CO2	Analyze through output how the circuit functions for skill development
CO3	Understand the conversion of decimal to hexadecimal system for skill development
CO4	To understand the basic of global programming in 8085 for doing the various programs for skill development and employability.
CO5	To understand the use of microprocessors in electronics industry by making working model for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEC454
Course Name	Measurement Lab

COs	Description
CO1	Understand the fundamentals of international Electronics Instruments and Measurement for skill development.
CO2	Understand Measurement errors, Bridge measurements and various parameters for employability.
CO3	Analyze operation of Digital Storage Oscilloscope, CRO, and Function Generator for entrepreneurship to compete with local, national and international standards.
CO4	Define display devices, data acquisition systems, RTD and transducers for skill development.
CO5	Determine the underlying concepts and methods behind electronic measurements for employability.

Course Code	EEC501
Course Name	Linear Integrated Circuits

COs	Description
CO1	To learn basic concepts of Operational Amplifiers and use of Op-amp with negative feedback for skill development.
CO2	To learn the basic concepts of practical Op-amp and its Frequency Response for skill development and employability.
CO3	To understand various global applications of Op-amp such as integrator, differentiator, instrumentation amplifier etc. for skill development, employability and entrepreneurship development.
CO4	To study various Non-Linear Applications of Op-amps for skill development and employability to compete with local, national and international standards.
CO5	To understand the concepts of various specialized IC's such as 555 timer and PLL for skill development, employability and entrepreneurship development.

Course Code	EEC 502
Course Name	Analog Communication Systems

COs	Description
CO1	Understand and identify the fundamental concepts and various global components of analog communication systems for skill development.
CO2	Describe analog pulse modulation, frequency modulation techniques and digital modulation technique for employability.
CO3	Apply the basic knowledge of electronic circuits and understand the effect of Noise in communication system and noise performance of AM system

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	for employability to compete with national and international standards.
CO4	Understand the effect of noise performance of FM system for skill development.
CO5	Understand TDM and Pulse Modulation techniques for employability.

Course Code	EEC 503
Course Name	**Advanced Microprocessor and Microcontroller**
COs	**Description**
CO1	Demonstrate the detail architecture of 8086 microprocessor for skill development.
CO2	Demonstrate the internal architecture of different microprocessor for skill development and employability.
CO3	8086 and compute assembly language programs for skill development, employability and entrepreneurship development to compete with local, national and international standards.
CO4	Describe the architecture of 8051 microcontroller and apply the knowledge of microcontroller globally later in the real life problems for skill development and employability.
CO5	Understand the basic problems of programming for skill development, employability and entrepreneurship development.

Course Code	EEC505
Course Name	**Power Electronics**
COs	**Description**
CO1	To understand the global basics of Power Electronics for skill development.
CO2	To learn the details of power semiconductor switches (Construction, Characteristics and operation) for skill development and employability.
CO3	Describe the working of various types of converters for skill development, employability and entrepreneurship development.
CO4	Ability design AC voltage controller and Cyclo- Converter for skill development and employability to compete with national and international standards.
CO5	Express the design and control of rectifiers, inverters for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEC 050
Course Name	Introductions to Neural Networks and Fuzzy Logic

COs	Description
CO1	Comprehend the international concepts of feed forward neural networks for skill development.
CO2	Analyze the various feedback networks for skill development and employability.
CO3	Understand the concept of fuzziness involved in various systems and fuzzy set theory for skill employability.
CO4	Comprehend the global fuzzy logic control and adaptive fuzzy logic and to design the fuzzy control using genetic algorithm for skill development and employability.
CO5	Analyze the application of fuzzy logic control to real time systems for employability.

Course Code	EEC 051
Course Name	Operating Systems

COs	Description
CO1	Understand international fundamental operating system abstractions such as processes, threads, files, semaphores for skill development and employability.
CO2	Analyze important algorithms eg. Process scheduling and memory management algorithms for skill development and employability to compete with local, national and international standards.
CO3	Categorize the operating system's resource management techniques, dead lock management techniques, memory management techniques for employability.
CO4	Describe, contrast and compare differing structures for operating systems for skill development.
CO5	Analyze IPC abstractions, shared memory regions for skill development.

Course Code	EEC052
Course Name	Transducers, Sensors and Display Systems

COs	Description
CO1	Use concepts in common methods for converting a physical parameter into an electrical quantity globally for skill development.
CO2	Design and develop appropriate signal conditioning circuits for different types of sensors for better employability.
CO3	Outline the international basics of smart sensors in different applications for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Familiarize with different type of display systems for employability.
CO5	Recognize and define electrical & electromechanical sensors according to applications for entrepreneurship.

Course Code	**EEC 053**
Course Name	**Advance Semiconductor Devices**

COs	Description
CO1	Describe various global properties of semiconductor materials using mathematical equations for skill development.
CO2	Analyze the characteristics and theories in semiconductor materials in terms of crystal structures, charge carriers and energy bands for skill development and employability.
CO3	Describe crystalline structures of semiconductors for employability to compete with national and international standards.
CO4	Describe the physical characteristics such as electronic structure and optical and transport properties, and current-voltage characteristics of semiconductors for skill development.
CO5	Explain operation and application of MOSFET for skill development and employability to compete with local, national and international standards.

Course Code	**EEC 054**
Course Name	**Introduction to Optoelectronics**

COs	Description
CO1	Understand the global Concept of elements of light and solid state physics for skill development.
CO2	Understand and explore the various display devices and LASERS for employability to compete with local, national and international standards.
CO3	Explore and apply the basic building blocks of optical detection devices for skill development and employability.
CO4	Analyze the optoelectronic modulators for skill development.
CO5	Design, Analyze and apply optoelectronic integrated circuits for skill development and employability.

Course Code	**EEC 055**
Course Name	**Scientific Computing**

COs	Description
CO1	Understand the significance of computing methods, their strengths and application areas for skill development and employability.
CO2	Perform the computations on various data using appropriate computation tools for skill development and employability.

Sanjeev Bhardwaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Apply Monte-Carlo techniques globally to obtain approximate solutions for skill development.
CO4	Apply differential equations to solve international numerical problems for skill development.
CO5	Find optimum solutions to numerical problems for skill development and employability.

Course Code	TEEC 056
Course Name	Mixed Signal Design

COs	Description
CO1	Understand the global practical situations where mixed signal analysis is required for skill development.
CO2	Analyze and handle the inter-conversions between signals for employability.
CO3	Design systems involving mixed signals for skill development and employability.
CO4	Understand operation of different types of international ADC and DAC for skill development.
CO5	Design PLL and its application to create different circuits for skill development and employability.

Course Code	TEEC 057
Course Name	Smart Antenna

COs	Description
CO1	Compare the performances of digital radio receivers and software radios for skill development.
CO2	Study the CDMA spatial processors to analyze the multi-cell systems for skill development and employability.
CO3	Analyze the channel models for smart global antenna systems for skill development.
CO4	Study the environmental parameters for signal processing of smart antenna systems for employability.
CO5	Evaluate the requirements for the design and implementation of smart antenna systems for skill development to compete with local, national and international standards.

Course Code	EHU 501
Course Name	Human Values and Professional Ethics

COs	Description
CO1	To create an awareness on national and international Engineering Ethics and Human Values for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	To understand Senses of 'Engineering Ethics' and various moral issues for skill development and employability.
CO3	To study Engineering as Social Experimentation for skill development, employability and entrepreneurship development to compete with local, national and international standards.
CO4	To learn about various parameters like Safety, Responsibilities, and Rights of an engineer for skill development and employability.
CO5	To understand about the various Global Issues and to understand the sample code of Ethics for skill development, employability and entrepreneurship development.

Course Code	EEC 551
Course Name	Linear Integrated Circuits Lab

COs	Description
CO1	To understand about different global Integrated Circuit working practically for skill development and employability.
CO2	To analyze and design linear circuits and verify their circuits for skill development.
CO3	To understand various mathematical operations internationally in many linear, non-linear and frequency-dependent circuits by designing circuits for summing, subtraction, integrator, differential etc for skill development.
CO4	To understand IC 555 and its uses in different circuits for skill development and employability.
CO5	To understand the use of analog circuits in electronics industry by making working model for skill development, employability and entrepreneurship development.

Course Code	EEC 552
Course Name	Communication Lab- I

COs	Description
CO1	Design analog modulation circuits as amplitude and frequency modulation for skill development.
CO2	Design various global pulse modulation techniques as PAM, PPM, and PWM for employability.
CO3	Design the circuit to sample an analog signal for skill development.
CO4	Understand the fundamental frequency and its harmonic component for employability to compete with national and international standards.
CO5	To understand the Synthesis of Amplitude Modulated Signal for skill development.

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEC553
Course Name	Microprocessor Lab - II

COs	Description
CO1	Understand the basics of microprocessor operation for skill development.
CO2	Analyze through output how the circuit functions for skill development to compete with local, national and international standards.
CO3	Understand the conversion of decimal to hexadecimal system for skill development.
CO4	Understand the difference between microprocessor and micro controller for skill development to compete with national and international standards.
CO5	To understand the use of microprocessors in electronics industry by making working model for skill development, employability and entrepreneurship development.

Course Code	EEC554
Course Name	Power Electronics Lab

COs	Description
CO1	Articulate the global basics of power electronic devices for skill development
CO2	Express the design and control of rectifiers, inverters for skill development
CO3	Design of international power electronic converters in power control applications for skill development
CO4	Ability to express characteristics of SCR, BJT, MOSFET and IGBT for skill development
CO5	To understand the use of power electronic circuits in electronics industry by making working model for skill development, employability and entrepreneurship development.

Course Code	EEC601
Course Name	Digital Communications

COs	Description
CO1	To understand digital transmission, eye diagram, digital carrier system and modulation techniques for employability.
CO2	To study digital representation of analog signals, issues in digital transmission for skill development.
CO3	To study performance analysis of digital communication system in order to get employability in the field of communication.
CO4	To understand spread spectrum communications and OFDM communications to get employability to compete with local, national and

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	international standards.
CO5	To understand the measure of information, channel capacity and convolutional codes for skill development to compete with national and international standards.

Course Code	EEC602
Course Name	Digital Signal Processing

COs	Description
CO1	Interpret, represent and process discrete/digital signals and systems for skill development.
CO2	Thorough understanding of frequency domain analysis of discrete time signals for skill development and employability.
CO3	Ability to design & analyze global DSP systems like FIR and IIR Filter for better employability in industry.
CO4	Understanding of spectral analysis of the signals internationally for skill development.
CO5	Understand the applications of DSP in speech processing and spectrum analysis for skill development, employability and entrepreneurship development.

Course Code	EEC 603
Course Name	Microwave Engineering

COs	Description
CO1	Explain the concept of global waveguides in different modes for skill development.
CO2	Understand the concept of high frequency operation of waves internationally for skill development and employability.
CO3	Understand the concept of fields and cross fields for employability.
CO4	Analyze operation of different microwave transistor, diodes for skill development and employability to compete with national and international standards.
CO5	Understand different components and working of Microwave test bench for skill development.

Course Code	EEC604
Course Name	VLSI Technology

COs	Description
CO1	To understand the global basic of IC Technology such as SSI, MSI, LSI, VLSI etc for employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	To understand photolithography, etching process for skill development and employability.
CO3	To understand Oxidation and Diffusion techniques for skill development and employability.
CO4	To learn various national and international types and design of packaging for employability.
CO5	To learn basic NMOS, PMOS, CMOS Technology and Fabrication for employability.

Course Code	EEC 605
Course Name	Antenna Theory and Wave Propagation

COs	Description
CO1	Basic global Antenna Parameters, Patterns, Beam Area (or Beam Solid Angle), Radiation Intensity, Beam Efficiency, Directivity etc. for skill development.
CO2	To understand important and fundamental antenna engineering parameters and terminology for skill development.
CO3	To learn the basic concepts of electromagnetic wave radiation and reception for skill development.
CO4	To develop the basic international skills necessary for designing a wide variety of practical antennas and antenna arrays for skill development and employability.
CO5	To Learn the Importance of Propagation Mechanism of antenna for skill development, employability and entrepreneurship development.

Course Code	EEC 060
Course Name	Embedded System Design

COs	Description
CO1	Understand the concept of global embedded system, microcontroller, different components of microcontroller and their interactions for skill development.
CO2	Get familiarized with programming environment to develop embedded solutions for employability.
CO3	Understand the key concepts of embedded systems such as I/O, timers, interrupts and interaction with peripheral devices for skill development and employability.
CO4	Learn the method of designing and program an Embedded Systems for real time applications for skill development to compete with local, national and international standards.
CO5	Develop familiarity with 8051 Microcontrollers and their applications in an embedded environment for skill development and employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEC 061
Course Name	Artificial Intelligence

COs	Description
CO1	Solve basic international AI based problems for skill development.
CO2	Define the concept of Artificial Intelligence for skill development.
CO3	Apply AI techniques to real-world problems to develop intelligent systems for skill development and employability to compete with local, national and international standards.
CO4	Select appropriately from a range of techniques when implementing intelligent systems for skill development.
CO5	Understanding of the main abstractions and reasoning for intelligent systems for employability.

Course Code	EEC 062
Course Name	Web Technologies

COs	Description
CO1	Develop a dynamic global webpage by the use of java script and DHTML. for skill development.
CO2	Write a well-formed / valid XML document for employability.
CO3	Write java program to a DBMS and perform insert, update and delete operations on DBMS table for skill development and employability.
CO4	Write a server-side java application called Servlet to catch form data sent from client, process it and store it on database for skill development.
CO5	Understand Java application called JSP to catch form data sent from client and store it on database for skill development and employability to compete with local, national and international standards.

Course Code	EEC 063
Course Name	Data Structures and Algorithms

COs	Description
CO1	Understand the concept of Dynamic memory management, data types, algorithms, Big O notation for skill development to compete with local, national and international standards.
CO2	Understand basic data structures such as arrays, linked lists, stacks and queues for employability.
CO3	Describe the hash function and concepts of collision and its resolution methods for skill development and employability.
CO4	Solve problem involving graphs, trees and heaps for skill development.
CO5	Apply Algorithm for solving global problems like sorting, searching, insertion and deletion of data for skill development and employability.

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEC 064
Course Name	Satellite Communication

COs	Description
CO1	Understand the global concept of connecting remote assets for skill development
CO2	Understand how communication works independent of location for skill development and employability.
CO3	Understand installation and maintenance of national and international ground station for skill development, employability and entrepreneurship development.
CO4	Understand how it brings about weather forecasting and other important services for skill development and employability.
CO5	Analyze Communication systems for skill development, employability and entrepreneurship development.

Course Code	EEC 065
Course Name	Semiconductor Device Modeling

COs	Description
CO1	Explain the equations, approximations and techniques available for deriving a model with specified properties for skill development.
CO2	Apply suitable international approximations and techniques to derive the model referred to above starting from drift-diffusion transport equations for employability.
CO3	Simulate characteristics of a simple device using MATLAB, SPICE for skill development and employability to compete with local, national and international standards.
CO4	Explain how the equations get lengthy and parameters increase in number while developing a compact model for skill development.
CO5	Understanding of the physics of a new device and conversion of this understanding into equations for skill development and employability.

Course Code	EEC 066
Course Name	IoT for Communications

COs	Description
CO1	To understand the basic global concept of internet of things for skill development.
CO2	To understand the concept of hardware for IOT's Conventional Cryptographic Techniques for skill development.
CO3	To understand the concept of network and communication for skill

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development.
CO4	To study Programs related to Arduinos for skill development to compete with local, national and international standards.
CO5	To understand the challenges in IOT's for skill development and employability.

Course Code	TEEC 067
Course Name	Remote Sensing
COs	**Description**
CO1	Understand the international concepts of Photogrammetry and compute the heights of objects for skill development.
CO2	Understand the basic concept of Remote Sensing and know about different types of satellite and sensors for employability.
CO3	Understand the global principles of aerial and satellite remote sensing for skill development and employability.
CO4	Illustrate Energy interactions with atmosphere and with earth surface features for skill development.
CO5	Illustrate spatial and non-spatial data features for skill development and employability.

Course Code	EEC 651
Course Name	Communication Lab- II
COs	**Description**
CO1	The ability of visualization and practical implementation of international baseband modulation techniques for skill development.
CO2	The skill to analyze and implement analogue to digital converters like PCM, DM for skill development
CO3	The ability to design pass band digital modulation systems and techniques with desired specifications for skill development
CO4	Generate digital modulation signals for ASK, PSK and FSK and perform their detection for skill development and employability.
CO5	Simulate MSK, DPSK, QPSK and DEPSK schemes and estimate their BER for skill development, employability and entrepreneurship development to compete with local, national and international standards.

Course Code	EEC652
Course Name	Digital Signal Processing Lab
COs	**Description**
CO1	To understand about different waveforms and architecture of international

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	DSP kit ones for skill development and employability.
CO2	To analyze and design DFT, IDFT, digital filter, transform-domain processes etc for better employability in industry.
CO3	To understand various global modulation techniques such as Amplitude and Frequency modulation ones for skill development and employability.
CO4	To understand about the basic signal generation for better employability.
CO5	Demonstrate their abilities towards DSP processor based implementation of DSP systems ones for skill development.

Course Code	EEC 653
Course Name	Microwave Lab

COs	Description
CO1	Understand the global concept of wavelength based propagation for skill development.
CO2	Learn to measure polar pattern of horn antenna for skill development..
CO3	Get a practical view on working of klystron for skill development.
CO4	Understand the concept of attenuation loss during transmission for skill development.
CO5	Understand the concept of travelling of microwaves in practical environment for skill development, employability and entrepreneurship development to compete with local, national and international standards.

Course Code	EEC 701
Course Name	Wireless Communication

COs	Description
CO1	Apply the knowledge of basic communication systems and its principles for skill development.
CO2	Describe the international cellular concept and analyze capacity improvement Techniques for skill development and employability.
CO3	Mathematically analyze mobile radio propagation mechanisms and diversity reception techniques for skill development.
CO4	Design global Base Station (BS) parameters and analyze the fundamentals of equalization for skill development and employability.
CO5	Analyze and examine the multiple access techniques and its application for skill development, employability and entrepreneurship development.

Course Code	EEC702
Course Name	Data Communication Networks

COs	Description
CO1	Compare and examine, OSI and TCP/IP international protocol stacks for

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	skill development
CO2	Categorize services offered by all layers in TCP/IP protocol stack for skill development and employability.
CO3	Analyze a network globally under congestion and propose solutions for reliable data transfer for skill development, employability and entrepreneurship development.
CO4	Examine the protocols operating at different layers of TCP/IP model for skill development and employability.
CO5	Assess the cryptographic techniques for skill development, employability and entrepreneurship development.

Course Code	EEC 703
Course Name	**Optical Fiber Communication**
COs	**Description**
CO1	Recognize and classify the structures of global Optical fiber and types for skill development.
CO2	Classify the Optical sources and detectors and to discuss their principle for employability.
CO3	Familiar with Design considerations of fiber optic systems for employability and entrepreneurship.
CO4	Explain operation of different optical devices like LED, Laser diode for employability to compete with local, national and international standards.
CO5	Describe link design and measurement techniques for skill development and entrepreneurship.

Course Code	EEC 704
Course Name	**VLSI Design**
COs	**Description**
CO1	To identify the various international IC fabrication methods for skill development and employability.
CO2	To express the Layout of advance MOS circuit using Lambda based design rules for employability.
CO3	To differentiate various latest global FPGA architectures for skill development and employability.
CO4	To Design an application using software's for skill development and employability.
CO5	To develop concepts of modeling a digital system using Hardware Description Language for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEC 070
Course Name	Consumer Electronics

COs	Description
CO1	To study basic global concepts of audio system microphones for skill development.
CO2	To understand the concept of various TV communications methods internationally for skill development.
CO3	To understand the concept of Basic color TV system-NTSC, SECAM, Construction and working principles for skill development.
CO4	To study various concepts cable TV and DTH for skill development.
CO5	To understand the concept of VCR, VCD and DVD and camera for skill development, employability and entrepreneurship development.

Course Code	EEC 071
Course Name	Digital Image Processing

COs	Description
CO1	To study basic global concepts of digital image processing for skill development.
CO2	To understand the concept of spatial domain for skill development.
CO3	To understand the concept of different parameters of image restoration for skill development to compete with local, national and international standards.
CO4	To study various techniques such as edge detection, edge linking in digital image processing for skill development.
CO5	To understand the concept of data compression and other parameters for skill development, employability and entrepreneurship development.

Course Code	EEC 072
Course Name	Optical Networks

COs	Description
CO1	Formulate international optical communication networks for skill development
CO2	Solve optical communication networks related problems using efficient technical approaches for skill development and employability.
CO3	Applications of modern solid state physics results into solid state electronics for skill development, employability and entrepreneurship development to compete with local, national and international standards.
CO4	Design optical networks as well as to interpret statistical and physical data for skill development and employability.
CO5	Familiar with Design considerations of fiber optic systems for skill development, employability and entrepreneurship development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEC 073
Course Name	Speech Processing

COs	Description
CO1	To study basic international concepts of speech processing for skill development.
CO2	To understand the concept of time domain methods of speech sampling for skill development.
CO3	To understand the concept of FFT, DFT etc for skill development.
CO4	To study various global concepts of homomorphic speech processing for skill development.
CO5	To understand the concept of linear predictive coding for skill development, employability and entrepreneurship development.

Course Code	EEC 074
Course Name	Micro and Smart Systems

COs	Description
CO1	To study basic concepts of different types of international micro and smart systems for skill development.
CO2	To understand the concept of micro sensors, actuators and smart materials for skill development.
CO3	To understand the concept of micromachining technologies for skill development.
CO4	To study various modelling techniques of solids in micro systems for skill development to compete with national and international standards.
CO5	To understand the concept of integration of micro and smart systems for skill development, employability and entrepreneurship development.

Course Code	EEC 075
Course Name	Advanced Wireless Broadband Communication

COs	Description
CO1	To understand the basic global concept of wireless local area network for skill development.
CO2	To understand the concept of B-Isdn Services and Protocol for skill development.
CO3	To understand the concept of Tqm Tools and Techniques and communication for skill development.
CO4	To study Programs related to international Architecture and channels for skill development.
CO5	To understand the challenges in Quality Systems for skill development, employability and entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEEC 076
Course Name	Wavelet Transforms

COs	Description
CO1	Understand about windowed Fourier transform and difference between windowed Fourier transform and wavelet transform for skill development and employability to compete with national and international standards.
CO2	Understand wavelet basis and characterize continuous and discrete wavelet transforms for skill development.
CO3	Understand multi resolution analysis and identify various wavelets and evaluate their time- frequency resolution properties for skill development.
CO4	Implement discrete wavelet transforms with multirate digital filters for skill development and employability.
CO5	Design certain classes of wavelets to specification and justify the basis of the application of wavelet transforms to different fields for employability to compete with national and international standards.

Course Code	TEEC 077
Course Name	Biomedical Electronics

COs	Description
CO1	Understand the international electronic devices and theory of operation in the medical area for skill development and employability.
CO2	Analyze electronic circuits using oscilloscopes and other electronic test equipment globally for employability.
CO3	Apply knowledge of engineering and science to interpret data for skill development and employability.
CO4	Apply knowledge of engineering and science to understand the principle of biomedical electronic circuits for skill development.
CO5	Understand the electronic devices and theory of operation in the medical area for skill development and employability.

Course Code	EHU 701
Course Name	Industrial Management

COs	Description
CO1	To develop, design, implement, and improve national and international integrated systems that include people, materials, information, equipment, and environment for skill development.
CO2	Develop an ability to contribute to the success of companies through effective problem solving for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Continue to develop the personal, professional and ethical responsibility and skills necessary to adapt to our changing societal, technological, and global environments for skill development, employability and entrepreneurship development.
CO4	Understand the global concepts related to Business for skill development and employability.
CO5	Demonstrate the roles, skills and functions of management for skill development, employability and entrepreneurship development.

Course Code	EEC 751
Course Name	CAD of Electronics Lab

COs	Description
CO1	Familiarize with global CAD tool capabilities and limitations for skill development.
CO2	Use automatic synthesis, placement and routing tools to implement a design for skill development.
CO3	Analyze the circuit design process and simulate the BJT transient analysis for employability.
CO4	Know the origin of failure of a circuit when it is in an application for skill development and employability to compete with local, national and international standards.
CO5	Acquaint with the design and simulate the NMOS, CMOS circuits for employability.

Course Code	EEC 752
Course Name	Optical Fiber Communication Lab

COs	Description
CO1	Understand the international functionality of each of the components that comprise a fiber-optic communication system: transmitter, fiber, amplifier, and receiver for skill development and employability.
CO2	Understand the properties of global optical fiber that affect the performance of a communication link for skill development.
CO3	Understand to differentiate between direct modulation and external electro-optic modulation for employability.
CO4	Understand basic optical amplifier operation and its effect on signal power and noise in the system for employability.
CO5	Apply concepts listed above to the design of a basic communication link for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEC 753
Course Name	Communication Network Simulation Lab

COs	Description
CO1	Understand about different international software's such as NETSIM and HFSS for skill development.
CO2	Design and simulate various network points, Internet traffic such as FTP and TELNET over NETSIM for employability.
CO3	Design and simulate various microstrip patch antennas over HFSS for skill development to compete with local, national and international standards.
CO4	Analyze operation of Different antennas using HFSS for employability.
CO5	Apply knowledge of designing antenna to improve communication system for employability.

Course Code	EEC 754
Course Name	Industrial Training (Evaluation & Viva)

COs	Description
CO1	Get the opportunity to test their interest in a particular career before permanent commitments are made to improve skill and knowledge for employability
CO2	Develop skills in the application of theory to practical work situations to improve skill and knowledge for employability to compete with local, national and international standards.
CO3	Develop skills and techniques directly applicable to their careers to improve skill and knowledge for employability to compete with local, national and international standards.
CO4	Internships will increase a student's sense of responsibility and good work habits to improve skill and knowledge for employability
CO5	Build a good communication skill with group of workers and learn to learn proper behaviour of corporate life in industrial sector to improve skill, employability and entrepreneurship development.

Course Code	EEC 801
Course Name	Introduction to Radar Systems

COs	Description
CO1	Compare working of different types of national and international radars for skill development.
CO2	Analyse the statistical parameters of Noise and Radar cross section of targets for skill development and employability.
CO3	Distinguish the fixed and moving targets using different types of radar systems for skill development, employability and entrepreneurship

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development.
CO4	Explain various techniques employed in radar receivers globally for detection of signals in noise for skill development and employability.
CO5	Identify the different types of display devices & duplexers for skill development, employability and entrepreneurship development.

Course Code	EEC 802
Course Name	Electronics Switching

COs	Description
CO1	Explain the working principle of global switching systems involved in telecommunication switching for skill development.
CO2	Assess the need for voice digitization and T Carrier systems for skill development and employability.
CO3	Compare and analyze international Line coding techniques and examine its error performance for skill development, employability and entrepreneurship development.
CO4	Design multi stage switching structures involving time and space switching stages for skill development and employability.
CO5	Analyze basic telecommunication traffic theory for skill development, employability and entrepreneurship development.

Course Code	EEC 080
Course Name	Information Theory and Coding

COs	Description
CO1	To study basic concepts of international information theory and coding for skill development.
CO2	To understand the concept of source coding for skill development.
CO3	To understand the concept of channel coding, differential entropy for skill development to compete with local, national and international standards.
CO4	To study various error control coding parameters for skill development.
CO5	To understand the concept of binary cycle codes and computational techniques for skill development, employability and entrepreneurship development.

Course Code	EEC 081
Course Name	Biomedical Instrumentation

COs	Description
CO1	Define Biomedical engineering and its concept internationally for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Define continuous improvement in the field of global biomedical engineering for skill development and employability.
CO3	Apply to solve critical design skills to identify and solve problems in biomedical engineering for skill development, employability and entrepreneurship development.
CO4	Lead and manage biomedical engineering projects in industry, government, or academia that involve multidisciplinary team members for skill development and employability.
CO5	To enhance the knowledge use of medical instruments in the Industries for skill development, employability and entrepreneurship development.

Course Code	EEC 082
Course Name	Non-Conventional Energy Resources

COs	Description
CO1	To study basic concepts of different types of international non-conventional energy resources for skill development.
CO2	To understand the concept of global solar thermal energy for skill development.
CO3	To understand the concept of geothermal, fuel cells etc. for skill development.
CO4	To study various thermo-electrical and thermionic conversions for skill development.
CO5	To understand the concept of bio-mass, ocean thermal energy and wave energy techniques for skill development, employability and entrepreneurship development.

Course Code	EEC 083
Course Name	Optoelectronics Devices and Circuits

COs	Description
CO1	To understand the basic global optical process in semiconductors for skill development.
CO2	To understand the concept of different types of international LASERS for skill development.
CO3	To understand the concept of different materials used in light emitters for skill development.
CO4	To study programs related to optical modulators and other modulators for skill development.
CO5	To understand the challenges in optical detections for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEC 084
Course Name	Renewable Energy

COs	Description
CO1	To understand the basics of various non-conventional energy resources for skill development.
CO2	To understand the concept of global solar thermal energyfor skill development.
CO3	To understand the concept of **geothermal energy** for skill development.
CO4	To study Thermo-electrical and thermionic Conversions for skill development to compete with local, national and international standards.
CO5	To understand the challenges in various renewable resources such as bio mass for skill development, employability and entrepreneurship development.

Course Code	EEC 085
Course Name	Biomedical Signal Processing

COs	Description
CO1	To study basic global concepts of different types of biomedical signal processing for skill development.
CO2	To understand the concept of various transforms such as Z-transform, DFT etc. for skill development.
CO3	To understand the concept of bio signals in human autonomy for skill development to compete with local, national and international standards.
CO4	To study various neurological signal processing for skill development.
CO5	To understand the concept of adaptive interface/noise cancellation techniques for skill development, employability and entrepreneurship development.

Course Code	EEC 086
Course Name	Wireless Sensor Networks

COs	Description
CO1	To study basic concepts of different types ofglobal biomedical signal processing for skill development.
CO2	To understand the concept of various transforms such as Z-transform, DFT etc. for skill development.
CO3	To understand the concept of bio signals in human autonomy for skill development to compete with local, national and international standards.
CO4	To study various neurological signal processing for skill development.
CO5	To understand the concept of adaptive interface/noise cancellation techniques for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEEC 087
Course Name	FPGA & Reconfigurable Computing

COs	Description
CO1	Understand the Concept of global Reconfigurable Computing and FPGA Architectures for skill development.
CO2	Understand and explore the various FPGA computing platforms in terms of design tools for employability.
CO3	Explore and apply the basic building blocks of FPGA designing in terms of Programming (HDLs) for skill development and employability to compete with local, national and international standards.
CO4	Analyze the Coarse-grained and Fine Grain configurability for performance enhancement using multi-FPGA systems for skill development.
CO5	Design, Analyze and apply reconfigurable computing in various applications for optimization for skill development and employability.

Course Code	TMEC101
Course Name	Advanced Semiconductor Devices & Circuits

COs	Description
CO1	Crystal properties and energy bands and charge carriers in semiconductors for skill development for employability.
CO2	Optical absorption, luminescence, carrier lifetime and photoconductivity for skill development and employability.
CO3	Global Junctions-equilibrium conditions for skill development, employability and entrepreneurship development.
CO4	Bipolar junction transistor-fundamentals of bjt operation for skill development and employability.
CO5	Classify and describe the international semiconductor devices for special applications for skill development, employability and entrepreneurship development.

Course Code	TMEC102
Course Name	Advanced Digital Communication

COs	Description
CO1	Apply the knowledge of international statistical theory of communication and explain the conventional digital communication system for skill development.
CO2	Apply the knowledge of signals and system and evaluate the performance of digital communication system in the presence of noise for skill development and employability to compete with local, national and international standards.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Apply the knowledge of digital electronics and describe the error control codes like block code, cyclic code for skill development, employability and entrepreneurship development.
CO4	Describe and analyze the digital communication system with spread spectrum modulation for skill development and employability.
CO5	Design as well as conduct experiments, analyze and interpret the results to provide valid conclusions for digital modulators and demodulator using hardware components and communication systems using CAD tool for skill development, employability and entrepreneurship development.

Course Code	TMEC103
Course Name	**Advanced Digital Signal Processing**
COs	**Description**
CO1	Know the analysis of discrete time signals for skill development.
CO2	To study the modern digital signal processing algorithms and their international applications for skill development and employability.
CO3	Have an in-depth knowledge of use of digital systems in real time applications for better employability in industry.
CO4	Understand the global applications of DSP in speech processing and spectrum analysis for skill development and employability.
CO5	Apply the algorithms for wide area of recent applications for employability and entrepreneurship.

Course Code	TMEC010
Course Name	**VLSI Technology**
COs	**Description**
CO1	To understand the basic of international IC Technology, NMOS, PMOS, CMOS Technology and Fabrication for employability.
CO2	To understand photolithography, etching process for skill development and employability.
CO3	To understand Oxidation and Diffusion techniques for skill development and employability.
CO4	To learn various types and design of global packaging for employability.
CO5	To study the various metallization process and Ion- Implantation techniques for employability.

Course Code	TMEC 011
Course Name	**Microwave Engineering**
COs	**Description**
CO1	To study boundary conditions, impedance, filters for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	To understand the global concept of high frequency semiconductor devices for skill development.
CO3	To understand the concept of Design parameters and simulation for skill development to compete with local, national and international standards.
CO4	To study measurement of various parameters for skill development.
CO5	To understand the concept of computational techniques for skill development and employability.

Course Code	TMEC 012
Course Name	**Artificial Intelligence and its Applications**
COs	**Description**
CO1	To study agents, global production system for skill development.
CO2	To understand the logical agents, representations, chaining for skill development.
CO3	To understand the global concept of planning and algorithms for skill development.
CO4	To study problem related to uncertainty and uncertain domains internationally for skill development.
CO5	To understand the concept of inductive learning and other learning techniques for skill development and employability.

Course Code	TMEC 013
Course Name	**Parallel Processing**
COs	**Description**
CO1	To study international theory of parallelism for skill development.
CO2	To understand the concept pipelined vector processor for skill development.
CO3	To understand the concept global Hardware Technologies for skill development.
CO4	To study various multiprocessors for skill development.
CO5	To understand the concept of parallel numerical algorithms for skill development and employability.

Course Code	TMEC014
Course Name	**Advanced Computer Networks**
COs	**Description**
CO1	To study computer network, network hardware, topologies and international protocols for skill development.
CO2	To understand the concept of local/personal area networks for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	To understand the concept of Network layers for skill development.
CO4	To study internetworking and internet protocols for skill development.
CO5	To understand the concept global Network Applications for skill development and employability.

Course Code	**TMEC 015**
Course Name	**Internet of Things**

COs	Description
CO1	To understand the basic concept of global internet of things for skill development.
CO2	To understand the concept of hardware for IOT's Conventional international Cryptographic Techniques for skill development.
CO3	To understand the concept of network and communication for skill development.
CO4	To study Programs related to Arduinos for skill development.
CO5	To understand the challenges in IOT's for skill development and employability.

Course Code	**TMEC 016**
Course Name	**Introduction to Information Security**

COs	Description
CO1	To understand the basic concept of international information security for skill development.
CO2	To understand the concept Conventional Cryptographic Techniques for skill development.
CO3	To understand the global concept Authentication and Digital Signatures for skill development.
CO4	To study Program Security features for skill development.
CO5	To understand the concept of Security in Networks for skill development and employability.

Course Code	**TMEC 017**
Course Name	**Automotive Electronics**

COs	Description
CO1	Understand and explain fundamentals of national and international automotive electrical and electronics systems for skill development.
CO2	Apply the various concepts of electrical and electronics to small vehicle system for skill development.
CO3	Analyze the design considerations of various engine control systems in automotive electrical and electronics for skill development.

Sanjeev Sharma
REGISTRAR

IFTM UNIVERSITY
MORADABAD

CO4	To study Sensors and actuators for skill development to compete with local, national and international standards.
CO5	Engage in independent study as a member of a team and make an effective oral presentation on the usage of software tools/mini project for skill development and employability.

Course Code	TMEC O18
Course Name	Electronic Waste Management
COs	**Description**
CO1	To know about the national and international environmental impacts of e-waste for skill development.
CO2	To apply various concept learned under global e-waste management hierarchy for skill development.
CO3	To distinguished the role of various national and internal act and laws applicable for e-waste management skill development.
CO4	To analyze the e – waste management measures proposed under national and global legislations for skill development and employability.
CO5	To use e-waste management for the development of society for skill development and employability.

Course Code	TMEC201
Course Name	Advanced Information Theory and Coding
COs	**Description**
CO1	Calculate the information content of a random variable from its probability distribution for skill development to compete with local, national and international standards.
CO2	Relate the joint, conditional, and marginal entropies of variables in terms of their coupled probabilities for skill development and employability for skill development.
CO3	Define channel capacities and properties using Shannon's Theorems for skill development and employability for employability & skill development.
CO4	Construct efficient codes for data on imperfect communication channels for skill development, employability and entrepreneurship development for skill development.
CO5	Understand the basic concepts of cryptography for skill development, employability and entrepreneurship development for employability & skill development to compete with local, national and international standards.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMEC 202
Course Name	Advanced Digital Logic Design

COs	Description
CO1	To understand the international Digital Design Concepts and to develop Hazard free designs for skill development.
CO2	To implement and remove Analog & Digital Conversion related errors for skill development and employability.
CO3	To study and develop Combinational Logic Design with Implementation and to study hardware languages like VHDL and Verilog for skill development, employability and entrepreneurship development.
CO4	To study and develop Sequential Logic Design with Implementation and to study hardware languages like VHDL and Verilog for skill development, employability and entrepreneurship development.
CO5	To understand FSM global Design and the various faults in digital circuits for skill development, employability and entrepreneurship development.

Course Code	TMEC203
Course Name	Wireless Communication Systems

COs	Description
CO1	Explain and apply the global concepts telecommunication switching, traffic and networks for skill development.
CO2	Analyse the telecommunication traffic for skill development and employability to compete with local, national and international standards.
CO3	Analyze radio channel and cellular capacity for skill development, employability and entrepreneurship development.
CO4	Explain and apply concepts of GSM and CDMA system for skill development and employability.
CO5	Analyze the concept of multipath propagation for skill development, employability and entrepreneurship development for employability & Skill development.

Course Code	TMEC020
Course Name	VLSI Design

COs	Description
CO1	To identify the various international IC fabrication methods for skill development.
CO2	To express the Layout of advance MOS circuit using Lambda based design rules for skill development and employability.
CO3	To differentiate various latest global FPGA architectures for skill development, employability and entrepreneurship development

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	To Design an application using software's for skill development, employability and entrepreneurship development.
CO5	To develop concepts of modeling a digital system using Hardware Description Language for skill development, employability and entrepreneurship development.

Course Code	TMEC 021
Course Name	Antenna System Design

COs	Description
CO1	To study various antenna analysis for skill development to compete with local, national and international standards.
CO2	To understand the global concept of linear array synthesis for skill development.
CO3	To understand the concept of Planar arrays for skill development.
CO4	To study the impedance and feeding techniques in antenna for skill development.
CO5	To understand the concept of continuous Aperture Antennas for skill development and employability.

Course Code	TMEC 022
Course Name	Simulation & Modelling

COs	Description
CO1	To study basics of simulation and modelling for skill development to compete with local, national and international standards.
CO2	To understand the concept of system simulation techniques for skill development.
CO3	To understand the concept of various arrival patterns for skill development.
CO4	To study and analyze the simulation output for skill development to compete with local, national and international standards.
CO5	To understand the concept of statistical interferences techniques for skill development and employability.

Course Code	TMEC 023
Course Name	Adaptive Signal Processing

COs	Description
CO1	To study international complex-valued adaptive signal processing for skill development.
CO2	To understand the global concept of robot estimation techniques for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	To understand the concept of turbo equalization for skill development.
CO4	To study and analyze subspace tracking for signal processing for skill development.
CO5	To understand the concept of particle filtering for skill development and employability.

Course Code	TMEC 024
Course Name	**High Performance Communication Networks**

COs	Description
CO1	To study the principle of networking for skill development.
CO2	To understand the global concept of Ethernet, TCP/IP for skill development.
CO3	To understand the concept of global internet protocols for skill development.
CO4	To study and analyze optical links for skill development to compete with local, national and international standards.
CO5	To understand the concept of ATM features for skill development and employability.

Course Code	TMEC 025
Course Name	**Automotive Software Engineering**

COs	Description
CO1	To study the international principle of engine sensors and there working for skill development.
CO2	To understand the global concept of electronic fuel injection system for skill development.
CO3	To understand the concept of digital engine control system for skill development.
CO4	To study and analyze dashboard amenities for skill development.
CO5	To understand the concept of control and safety of vehicles for skill development and employability.

Course Code	MEC301
Course Name	**Optical Fiber Communications**

COs	Description
CO1	Distinguish Step Index, Graded index fibers and compute mode volume for skill development.
CO2	Explain the international Transmission Characteristics of fiber and Manufacturing techniques of fiber/cable for employability.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Classify the construction and characteristics of optical sources and detectors for skill development to compete with local, national and international standards.
CO4	Discuss splicing techniques, passive optical components and explain noise in optical system for employability.
CO5	Design short haul and long-haul Analog/ Digital optical communication system and explain advanced optical transmission systems for skill development and entrepreneurship.

Course Code	MEC030
Course Name	Neural Network and Fuzzy Logic

COs	Description
CO1	Analyze the working process of networks that help machines perform dedicated tasks for skill development.
CO2	Understand the global concept of artificial intelligence for skill development and employability.
CO3	Understand the concept of recursive learning of machines for skill development, employability and entrepreneurship development.
CO4	Analyze the key points of neural network working methodology for skill development and employability to compete with local, national and international standards.
CO5	Analyze the application of fuzzy logic control to real time systems for skill development, employability and entrepreneurship development.

Course Code	MEC 031
Course Name	Optical Networks

COs	Description
CO1	Formulate international optical communication networks for skill development.
CO2	Solve optical communication networks related problems using efficient technical approaches for skill development and employability.
CO3	Applications of modern solid state physics results into solid state electronics for skill development, employability and entrepreneurship development.
CO4	Design optical networks as well as to interpret statistical and physical data for skill development and employability to compete with local, national and international standards.
CO5	Familiar with Design considerations of fiber optic systems for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MEC 032
Course Name	PLCs and SCADA

COs	Description
CO1	To study various global automation and control system techniques for skill development.
CO2	To understand the concept of international PLC, CPU architecture, programmers for skill development.
CO3	To understand the concept of SCADA for skill development.
CO4	To study the programming procedures for skill development.
CO5	To understand the concept of networking for skill development and employability.

Course Code	MEC 033
Course Name	Speech Processing

COs	Description
CO1	To study digital speech processing for skill development to compete with local, national and international standards.
CO2	To understand the concept of time domain methods for speech processing for skill development.
CO3	To understand the global concept of frequency domain methods for speech processing for skill development.
CO4	To study Linear Predictive Analysis of Speech for skill development.
CO5	To understand the concept of Application of Speech & Audio Signal Processing for skill development and employability.

Course Code	MEC 034
Course Name	Digital Image Processing and Analysis

COs	Description
CO1	To study basics of international digital image processing for skill development.
CO2	To understand the global concept Image Enhancement for skill development.
CO3	To understand the concept Image Restoration for skill development.
CO4	To study Color Image Processing for skill development.
CO5	To understand the concept of Image Segmentation & Representation for skill development and employability.

Sanjeev Bhardwaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MEC 035
Course Name	Cryptography & Network Security

COs	Description
CO1	To study Network and computer security issues for skill development.
CO2	To understand the concept of Message Authentication for skill development.
CO3	To understand the concept of national and international Email Security for skill development.
CO4	To study measurement of global Web Security for skill development.
CO5	To understand the concept of Malicious Software for skill development and employability.

Course Code	TMEC 036
Course Name	Bio Informatics

COs	Description
CO1	To study international NCBI Data Model for skill development.
CO2	To understand the global concept of DNA Sequences to the Databases for skill development.
CO3	To understand the concept of Structure Databases for skill development.
CO4	To study Sequence Alignment and Database Searching for skill development.
CO5	To understand the concept of Expressed Sequence Tags (ESTs) for skill development and employability.

Course Code	TMEC 037
Course Name	Nano Electronics Devices Engineering

COs	Description
CO1	To study Materials for Nano-Electronics for skill development.
CO2	To understand the global concept Properties of Individual Nanoparticles for skill development.
CO3	To understand the concept of Bio-logical Materials for skill development.
CO4	To study measurement of TEM, Infrared and Raman Spectroscopy for skill development to compete with national and international standards.
CO5	To understand the concept of Nano-scale Devices for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMEC 038
Course Name	Advanced Embedded Systems Design

COs	Description
CO1	To study basics of international Embedded System for skill development.
CO2	To understand the concept of Microcontrollers for skill development.
CO3	To understand the concept of Software-Development Process for skill development.
CO4	To study measurement of Embedded Core Based Design for skill development to compete with national and international standards.
CO5	To understand the concept of Real Time programming and Operating System for skill development and employability.

Course Code	TMEC 039
Course Name	Robotics Automation

COs	Description
CO1	To study the various parts of robots and fields of robotics for skill development.
CO2	To study the various kinematics and inverse kinematics of robots for skill development.
CO3	To study the Euler, Lagrangian formulation of Robot dynamics for skill development.
CO4	To study the trajectory planning for robot for skill development to compete with local, national and international standards.
CO5	To study the control of robots for some specific national and international applications for skill development and employability.

Course Code	TMEC 040
Course Name	Automotive Transmission

COs	Description
CO1	To study basics of global gear box system for skill development.
CO2	To understand the concept of different type of spurs and internal parts for skill development.
CO3	To understand the concept of torque conversion Process for skill development.
CO4	To study the types of automatic transmission for skill development to compete with national and international standards.
CO5	To understand the concept of hydrostatic drive, electrical drives for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMEC 041
Course Name	Chassis and Body Electronics

COs	Description
CO1	To study basics of chassis system for skill development to compete with local, national and international standards.
CO2	To understand the concept of steering systems for skill development.
CO3	To understand the global concept of brake, linkages for skill development.
CO4	To study the types of suspension for skill development.
CO5	To understand the concept of wheel mounting and classification of vehicles for skill development and employability.

Course Code	TMEC 042
Course Name	Vehicle Body Engineering & Safety

COs	Description
CO1	To study global basics of car body details for skill development.
CO2	To understand the concept of car aerodynamics for skill development.
CO3	To understand the concept of bus body details for skill development.
CO4	To study the types of body materials, trim and mechanism for skill development.
CO5	To understand the international concept of safety design for skill development and employability.

Course Code	TMEC 043
Course Name	Hybrid Electric Vehicles

COs	Description
CO1	Explain the knowledge of international fundamental concepts, principles, and history of Hybrid and Electric vehicles for skill development.
CO2	Analyse the architectures of Hybrid and Electric Vehicles for skill development.
CO3	Explain the electric propulsion systems and their operation and maintenance for skill development.
CO4	Understand the global energy storage elements like rechargeable battery types, energy storage devices and battery parameters for skill development.
CO5	Explain the principle, working and applications of alternative energy sources for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMEC 044
Course Name	Vehicle Engineering

COs	Description
CO1	To study basics of vehicle structure and engines for skill development.
CO2	To understand the concept of engine auxiliary system for skill development.
CO3	To understand the concept of transmission system for skill development.
CO4	To study the national and international types of steering, brakes and suspension for skill development.
CO5	To understand the global concept of alternative energy sources for skill development and employability.

Course Code	TMEC 045
Course Name	Automotive Instrumentation

COs	Description
CO1	To understand the international philosophy of instrumentation concept applied to automotive systems for skill development.
CO2	To understand the global method of measurement of physical quantities, analyse the data & compute the uncertainty involved considering physical variables for skill development.
CO3	To develop Instrumentation systems involving parameters based on Force, Vibration, Temperature, Proximity, Displacement, and Pressure for skill development.
CO4	To Understand & develop mathematical model of Instrumentation system based on concept of open & closed loop systems & to use the techniques, skills, and modern engineering tools necessary for engineering practice for skill development.
CO5	To develop Data acquisition system including communication protocols and to apply theory of metrology & understand mechanical measurement methods for skill development and employability.

Course Code	TMEC 046
Course Name	PLC's and Industrial Automation

COs	Description
CO1	To study basics of PLC's for skill development to compete with national and international standards.
CO2	To understand the concept of bit logic instructions for skill development.
CO3	To understand the global concept of PLC timers and counters for skill development.
CO4	To study the types of advanced instructions for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	To understand the concept of industrial communication and networking for skill development and employability.

Course Code	TMEC 047
Course Name	Solar Energy Systems

COs	Description
CO1	To study basics of global energy resources and solar spectrum for skill development.
CO2	To understand the concept of solar radiation and measurement for skill development.
CO3	To understand the concept of solar radiation geometry and calculations for skill development to compete with local, national and international standards.
CO4	To study the solar thermal energy conversion for skill development.
CO5	To understand the concept of solar electrical energy conversion for skill development and employability.

PROGRAMME NAME – B. Tech. (Electrical Engineering)

Course Code	TEMA101
Course Name	Engineering Mathematics–I

COs	Description
CO1	Rememberthebasicsofmatricesandapplytheconceptofrankforsolvinglinear simultaneous equations for skill development and employability.
CO2	Apply the concept of limit, continuity and differentiability in the study of Rolle's, Lagrange's, Cauchy mean value theorem and Leibnitz theorem at National level for skill development and employability
CO3	Applypartialdifferentiationforevaluatingextremevalues,expansionoffunctionand Jacobianfor skill development and employability
CO4	Apply the methods of multiple integral for finding area, volume, centre of mass and centre of gravity at Global level for skill development and employability
CO5	Apply the concept of vector for evaluating directional derivatives, tangent and normal planes, line, surface and volume integrals at Local level for skill development and employability.

Course Code	TEPH101
Course Name	Engineering Physics-I

COs	Description
CO1	Developskillstounderstandandlearn Frameofreferences,Lorentztransformationeq

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	uationatInternational Level
CO2	Develop skills to understand Statistical Mechanics, Maxwell- Boltzmann statistics and its application.
CO3	Understand De-Broglie Hypothesis, Davisson-Germer Experiment at Local level by developing skills.
CO4	Develop skills to attain basic knowledge on different types of LASERs and their applications.
CO5	Gain knowledge of optical fibre and its applications at Global level for skill development, employability & entrepreneurship development.

Course Code	TECE101
Course Name	Environmental Science

COs	Description
CO1	Understandtheissuesrelatedtoenvironmentandtheirimpactonthehumanlifeglobally forskill development and employability.
CO2	Learn the air quality parameters and control of air pollution for skill development and employability.
CO3	Understand the water quality parameters for skill development and employability.
CO4	Understand about the industrial and domestic pollution and role of government agencies for skill development and employability.
CO5	Understand the analysis of environment globally for skill development and employability.

Course Code	TPSD101
Course Name	Professional Skill Development-I

COs	Description
CO1	Write paragraph, gist or abstract/précis of the passage in their own words/language, resume, bio-data, letters and applications of different kinds for skill development and employability.
CO2	Use targeted grammatical structures meaningfully and appropriately in oral and written production at international level for skill development and employability.
CO3	Enhance competence in the four modes of literacy: writing, speaking, reading & listening for skill development and employability.
CO4	Understand and recall facts and main idea locally for skill development and employability.
CO5	Understand writing of resume, bio-data, Letters & Applications for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEEE101
Course Name	Electrical Engineering

COs	Description
CO1	Use basic electrical DC concepts and theorems to analyze circuits for skill development.
CO2	Draw the relevant phas or diagrams and waveform diagrams of voltage and current along with the concepts of reactance and impedance and power factor. Use of resonance and implications for practical circuits for skill development and employability.
CO3	Understand the preference of poly phase system over single phase system, star and delta connections along with develops the knowledge of theoretical and mathematical principles of electrical measuring instruments globally for skill development, employability and entrepreneurship development.
CO4	Analyze magnetic circuit and differentiate magnetic and electric circuits and understand single phase transformer, auto transformer and three phase transformer for skill development and employability.
CO5	Understand the construction of D.C machine, different windings, their merits and demerits and the basic concept of Three-phase induction motor and its working principle instruments internationally for skill development, employability and entrepreneurship development.

Course Code	TEME102
Course Name	Materials & Manufacturing

COs	Description
CO1	Understand the importance of materials and manufacturing, various properties of materials, plant layout and production locally for skill development.
CO2	Understand the ferrous and non-ferrous metals their alloys and application, non-metals and their applications for skill development.
CO3	Able to get a brief knowledge of metal forming operations, working of machines and heat treatment process and their importance nationally for skill development and employment.
CO4	Able to understand the methods and techniques associated with the process of metal cutting operations on various metal cutting machines for entrepreneurship and skill development and employability.
CO5	Able to understand various type of welding process and their application n specific field nationally for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEPH151
Course Name	Physics Lab

COs	Description
CO1	Develop skills locally to understand principle, concept, working and application of technology and comparison of results with theoretical calculations.
CO2	Apply the various procedures and techniques for the experiments to create employability scopes.
CO3	Develop skills to understand usage of instruments and real time applications in engineering studies.
CO4	Develop skills nationally to understand the basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results.
CO5	Determine the wavelength of monochromatic light & spectral lines using different methods to create employability scopes.

Course Code	TEME152
Course Name	Materials & Manufacturing Lab

COs	Description
CO1	To define and use different manufacturing process e.g. casting, forging, turning, drilling etc. locally for skill development, employability and entrepreneurship.
CO2	To define and use different welding processes e.g. gas welding and electric arc welding for skill development, employability and entrepreneurship.
CO3	To acquire thorough knowledge of carrying out various operations on lathe machine nationally for skill development, employability and entrepreneurship.
CO4	To acquire skills for creating different objects from raw materials for skill development, employability and entrepreneurship.
CO5	To acquire thorough knowledge of carrying out various operations on Sheet metals for skill development, employability and entrepreneurship.

Course Code	TEME153
Course Name	Engineering Graphics Lab

COs	Description
CO1	Use the drawing instruments effectively and able to dimension the given figures skill development and employability.
CO2	Appreciate the usage of engineering curves in tracing the paths of simple machine components nationally for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the concept of projection and acquire visualization skills, projection of points globally for skill development and employability.
CO4	Able to draw the basic views related to orthographic projections of Lines, Planes skill development, employability and entrepreneurship.
CO5	Able to draw the basic views related to isometric projections of Lines, Planes skill development, employability and entrepreneurship.

Course Code	TEEE151
Course Name	Electrical Engineering Lab

COs	Description
CO1	Explain the concept of circuit laws and network theorems and apply them to laboratory measurements for skill development, employability and entrepreneurship development.
CO2	Systematically obtain the equations that characterize the performance of an electric circuit as well as solving both single phase and DC Machines internationally for employability and entrepreneurship development.
CO3	Acknowledge the principles of operation and the main features of electric machines and their applications for skill development and employability.
CO4	Discuss the starting methods of a single phase induction motor globally for employability and entrepreneurship development.
CO5	Acquire skills in using electrical measuring devices for skill development and employability.

Course Code	TEME201
Course Name	Engineering Mechanics

COs	Description
CO1	Recognize different force systems, moments and couple for skill development.
CO2	To draw Free Body Diagram and label the reactions on it locally for skill development and employability
CO3	Find centroid and Moment of Inertia of different bodies for skill development and employability.
CO4	To draw shear force diagram and bending moment diagram locally for skill development and employability.
CO5	Understand Newton's law in motion, and recognize different kinds of particle motions for skill development and employability.

Sanjeev Dhanda
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEMA201
Course Name	Engineering Mathematics–II

COs	Description
CO1	Apply differential calculus and higher order problems and necessary and sufficient condition for total differential equations nationally for skill development and employability.
CO2	Students learn about the how to solve Legendre and Bessel, Legendre polynomials, Bessel's functions for skill development and employability.
CO3	Know about Fourier series initial conditions and its applications to different engineering models globally for skill development and employability.
CO4	Solve second and higher order linear Partial differential equations with constant coefficients and construct all solutions from the linearly independent solutions for skill development and employability.
CO5	Solve partial differential equations with methods & its Applications for skill development and employability.

Course Code	TECH201
Course Name	Engineering Chemistry

COs	Description
CO1	Gain knowledge about the basic concepts of chemistry and states of matter for skill development and employability.
CO2	Understand kinetic and electrochemical methods for various reactions nationally for skill development and employability.
CO3	Demonstrate the mechanism of different reactions and their characterization using spectroscopy for skill development and employability.
CO4	Learn about the various kinds of polymers and their applications locally for skill development and employability.
CO5	Demonstrate knowledge of science behind common impurities in water, methods to treat them and gain the basic knowledge of various types of Fuels, their properties for skill development, employability & entrepreneurship development.

Course Code	TEPH201
Course Name	Engineering Physics-II

COs	Description
CO1	Develop skills locally to understand Gauss law, Ampere's Law, Maxwell's equations and their applications.
CO2	Develop skills to understand Dielectric and magnetic properties of the materials.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Develop skills to explain intrinsic and extrinsic semiconductors and the construction, operation and characteristics of diodes.
CO4	Develop skills internationally to understand concepts of superconductors, Properties of superconductors & applications of superconductors and the basic principle of nano science and technology and applications of nanotechnology.
CO5	Gain basic knowledge on the properties, production, applications and employability scopes of X-rays.

Course Code	TECS201
Course Name	Computer Fundamentals & Programming

COs	Description
CO1	Understand Basic knowledge of components of Computer Locally for skill development.
CO2	Understand the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming for skill development and employability.
CO3	Understand how to write, compile and debug programs in C language and use different data types for writing the programs internationally for skill development.
CO4	Understand how to design programs using the concepts decision statements, loops, functions, arrays pointers etc. for skill enhancement.
CO5	Do Programming by using function, recursion and pointers which is helpful in employability.

Course Code	TEEC201
Course Name	Electronics Engineering

COs	Description
CO1	To understand the basics of semiconductor technology globally for skill development and Employability.
CO2	P-N junction diode and its applications for Employability.
CO3	To understand the basics of BJT and MOSFET for Employability.
CO4	To develop understanding of numbers system and basics of Logic Gates Nationally for skill development.
CO5	To discuss the operational amplifier and its application and the need of modulation in the communication system for skill development.

Sanjeev Agrawal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEME251
Course Name	Mechanical Engineering Lab

COs	Description
CO1	Describe the behavior of materials upon normal external loads locally for skill development and employability.
CO2	Predict the behavior of the material under impact conditions skill development and employability.
CO3	Recognize the mechanical behavior of materials locally for skill development and employability.
CO4	Recognize parts of IC engines skill development and employability.
CO5	Recognize components of boilers skill development and employability.

Course Code	TECH251
Course Name	Chemistry Lab

COs	Description
CO1	Estimate the impurities present in water for skill development and employability.
CO2	Prepare advanced polymer materials locally for skill development, employability and entrepreneurship development.
CO3	Know the strength of an acid present in secondary batteries for skill development and employability.
CO4	Find the Fe^{+2}, Ca^{+2}& CI^{-} present in unknown substances using titrimetric and instrumental methods for skill development, employability and entrepreneurship development.
CO5	Element detection and functional group identification in organic compounds nationally for skill development and employability.

Course Code	TECS251
Course Name	Computer Lab

COs	Description
CO1	Understand Basic knowledge of components of Computer Locally for skill development.
CO2	Understand the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming for skill development and employability.
CO3	Understand how to write, compile and debug programs in C language and use different data types for writing the programs for skill development.
CO4	Understand how to design programs using the concepts decision statements, loops, functions, arrays pointers etc. nationally for skill enhancement.

Sanjiv Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Do Programming by using function, recursion and pointers which is helpful in employability.

Course Code	EEE301
Course Name	Electrical Machines-I

COs	Description
CO1	Acquire knowledge about the constructional details, principle of operation, testing and applications of transformers Locally *for* skill development, employability and entrepreneurship development.
CO2	Determine and interpret efficiency and regulation of a 1 Ph transformer and also operate two single phase Transformers in parallel, Test and identify faults in transformer *for* skill development and employability.
CO3	Understand the principle of operation and the effect of pulsating, rotating magnetic fields on the working of AC machines for skill development and employability.
CO4	Understand the basic concept of Three-phase induction motor and its torque slip characteristics along with their equivalent circuit for skill development and employability.
CO5	Understand the testing methods of induction motor and working of single phase induction motor along with its various methods of starting & concept of induction generator Locally for skill development, employability and entrepreneurship development.

Course Code	EEE302
Course Name	Electrical Measurements & Measuring Instruments- I

COs	Description
CO1	Compare calibrated meter readings with standard meters (digital meters) *for skill development.*
CO2	Classify and understand the constructional details of measuring instruments Locally *for skill* development and employability.
CO3	Ability to understand the moving iron type, moving coil type and many other instruments *for skill* development.
CO4	Ability to measure power using wattmeter method *for skill* development, employability and entrepreneurship development.
CO5	Ability to measure low, medium and high resistances nationally *for* skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEE303
Course Name	Analog Electronic Devices

COs	Description
CO1	Understand operation of semiconductor devices nationally for skill development and employability.
CO2	Understand the junction properties with the help of diode for skill development and employability.
CO3	Understand the concept of BJT nationally for skill development.
CO4	Understand the Op-Amps and their use for skill development, employability and entrepreneurship development.
CO5	Differentiate types of transistors for skill development.

Course Code	EEE304
Course Name	Electromagnetic Field Theory

COs	Description
CO1	Define and recognize different co-ordinate systems to describe the spatial variations of the physical quantities dealt in electromagnetic field theory as they are functions of space and time. Apply different techniques of vector calculus to understand different concepts of electromagnetic field theory nationally for skill development.
CO2	Explain fundamental laws governing electrostatic fields and evaluate the physical quantities of electrostatic fields (Field intensity, Flux density etc.) in different media using the fundamental laws for skill development.
CO3	Determine the magnetic force exerted on charged particles, current elements, working principle of various magnetic and electromagnetic energy conversion devices are based on this force for skill development and employability.
CO4	Deduce and justify the concepts of electromagnetic waves, means of transporting energy or information, in the form of radio waves, TV signals, radar beams and light rays globally for skill development and employability.
CO5	Generalize the concepts of guided structures like transmission line, means of transporting energy or information, commonly used in power distribution and communication for skill development, employability and entrepreneurship development.

Course Code	EEE305
Course Name	Networks and Systems

COs	Description
CO1	Analyze the Network & apply their knowledge in analyzing Circuits by using network theorems globally for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Study the concept of Graph Theory for skill development.
CO3	Find the various parameters of two port network nationally for skill development and employability.
CO4	Synthesize the network using passive elements for skill development and employability.
CO5	Understand the analysis of coupled circuits and different types of network filters for skill development.

Course Code	EMA301
Course Name	Engineering Mathematics-III

COs	Description
CO1	Develop the concepts of Laplace transformation & Inverse Laplace Transformation with its property to solve PDE which is helpful in all engineering & research work locally to provide employability & develop skills.
CO2	Gain knowledge of Fourier series representation for even/odd functions and Z- transforms and its applications nationally to provide employability & develop skills.
CO3	Apply the concept of analyticity and the Cauchy-Riemann equations to analyze results on harmonic and including the fundamental theorem of algebra to provide employability & develop skills.
CO4	Learn about Cauchy's theorem and its uses in complex integration. Taylor's and Laurent's series in complex Form to provide employability & develop skills.
CO5	To be able to apply the knowledge of least square and curve fitting of straight lines to provide employability & develop skills.

Course Code	EHU301
Course Name	Disaster Management

COs	Description
CO1	Ability to understand major types of disaster in Indian context for skill development.
CO2	Understanding of approaches to reduce disaster risks for employability.
CO3	Capable of understanding relationship between development and disaster. Sustainable development for skill development.
CO4	Understanding of when an event becomes disaster and the phases to handle the situation locally for employability.
CO5	Ability to analyze how to handle a situation of disaster by taking case studies of events in past locally for skill development.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEE306
Course Name	Electrical Machines and Power Utilization

COs	Description
CO1	Develop the equivalent circuit and phas or diagram of different machines and analyze their performance using the equivalent circuit nationally for skill development and employability.
CO2	Acquire knowledge about the fundamental principles and classification of electromagnetic machines for skill development and employability.
CO3	Acquire knowledge about the constructional details, principle of operation, testing and applications of transformers nationally for skill development and employability.
CO4	Acquire knowledge about the working of Induction Motor for skill development and employability.
CO5	Acquire knowledge about testing and applications of dc machines for skill development and employability.

Course Code	EEE351
Course Name	Electrical Machines-I Lab

COs	Description
CO1	Acknowledge the principles of operation and the main features of transformers and their applications locally for employability and entrepreneurship development.
CO2	Explain the circuit parameters and its performance analysis for employability.
CO3	Acknowledge the principles of operation and the performance analysis of three phase induction motor for skill development and entrepreneurship development.
CO4	Perform the speed control techniques on induction motors globally for employability.
CO5	Acquire skills in using electrical machines like transformer and induction motors for skill development and entrepreneurship development.

Course Code	EEE352
Course Name	Networks Lab

COs	Description
CO1	Understand the DC network theorems for solving DC circuits locally for skill development.
CO2	Obtain the circuit parameters for skill development.
CO3	Design and explain the filters and resonance circuits for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Determine transient responses nationally for skill development.
CO5	Study of attenuation characteristics of RC filters for skill development.

Course Code	**EEE353**
Course Name	**Analog Electronic Devices Lab**

COs	Description
CO1	Understand the different experimental input and output equipment's nationally for skill development and employability.
CO2	Draw and explain the performance of different kinds of electronic devices for skill development and employability.
CO3	Use Zener diode as a voltage regulator for skill development.
CO4	Measure the gain of Op-Amp internationally for employability.
CO5	Performance of Op-Amp for skill development.

Course Code	**EEE354**
Course Name	**Electrical Measurement & Measuring Instruments-I Lab**

COs	Description
CO1	Understand the different resistance measuring devices and circuits for skill development and employability.
CO2	Study and calibrate the different electrical equipment locally for skill development and employability.
CO3	Measure power & power factor in single phase circuit for skill development and employability.
CO4	Measure earth resistance for skill development.
CO5	Study CT & PT locally for skill development.

Course Code	**EEE356**
Course Name	**Electrical Machines and Power Utilization Lab**

COs	Description
CO1	Develop the equivalent circuit and phas or diagram of different machines and analyze their performance using the equivalent circuit locally for skill development and employability.
CO2	Acquire knowledge about the fundamental principles and classification of electromagnetic machines for skill development and employability.
CO3	Acquire knowledge about the constructional details, principle of operation, testing and applications of transformers locally for skill development and employability.
CO4	Acquire knowledge about the working of Induction Motor for skill development and employability.
CO5	Acquire knowledge about testing and applications of dc machines for skill development and employability.

Sanjeev Saini
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EMA401
Course Name	Computer Based Numerical & Statistical Techniques

COs	Description
CO1	Apply Numerical analysis which has enormous application in the field of Science and Engineering to provide skill development and employability.
CO2	Understand numerical integration and differentiation, numerical solution of ordinary differential equations to provide skill development and employability.
CO3	Compare and analyze the methods statistical analysis and the omnipresent role of variability nationally to provide skill development and employability.
CO4	Predict and evaluate the efficient design of studies and construction of effective sampling plans locally to provide skill development and employability.
CO5	Exploratory data analysis and formal inference process to provide skill development and employability.

Course Code	EEE401
Course Name	Electrical Measurement & Measuring Instruments-II

COs	Description
CO1	Measure the energy using different energy meters locally for skill development and employability.
CO2	Understand the different types of Instrument Transformers for skill development, employability and entrepreneurship development.
CO3	Classify different Magnetic measurements nationally for skill development and employability.
CO4	Measure the High AC & DC Voltage for skill development.
CO5	Explain the basic features of oscilloscope and different types of oscilloscopes for skill development and employability.

Course Code	EEE402
Course Name	Electrical Machines-II

COs	Description
CO1	Understand the concept of three phase Synchronous Generators Internationally for skill development and employability.
CO2	Impart knowledge on Construction and performance of salient and non – salient type synchronous generators for skill development.
CO3	Understand the parallel operation of Alternators for skill development, employability and entrepreneurship development.
CO4	Impart knowledge on Principle of operation and performance of

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	synchronous motor for skill development.
CO5	Impart knowledge on Construction, principle of operation and performance of special machines nationally for skill development and employability.

Course Code	**EEE403**
Course Name	**Digital Electronics**

COs	**Description**
CO1	Review the different number systems and Boolean Algebra Locally for skill development.
CO2	Design model of sequential circuits for skill development.
CO3	Design of Combinational circuit for BCD to decimal conversion to drive 7- segment display using Multiplexer for skill development and employability.
CO4	Classify different types of memories Locally for skill development.
CO5	Conceptualize various logic families for skill development and employability.

Course Code	**EEE404**
Course Name	**Signal and Systems**

COs	**Description**
CO1	Understand mathematical description and representation of continuous and discrete time signals for skill development.
CO2	Develop input output relationship for linear shift invariant system and understand the convolution operator for continuous and discrete time system nationally for skill development and employability.
CO3	Understand the limitations of Fourier transform and need for Laplace transform and develop the ability to analyze the system in s- domain for skill development and employability.
CO4	Understand and resolve the signals in frequency domain using Fourier series and Fourier transforms for skill development.
CO5	Understand and resolve the signals in Z-Transform Locally for skill development.

Course Code	**PSD401**
Course Name	**Professional Skill Development-II**

COs	**Description**
CO1	Improve communicative skills Locally for employability & skills development.
CO2	Improve Intrapersonal relationship skills for employability & skills development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Improve Interpersonal relationship skills nationally for employability & skills development.
CO4	Improve Argumentative skills for employability & skills development.
CO5	Understand the importance of Campus to Company skills for employability & skills development.

Course Code	EEE405
Course Name	Electrical Machines & Automatic Control

COs	Description
CO1	Differentiate between single phase, three phase and auto transformer and also understand the concept of dc motors for employability & skills development.
CO2	Acquire knowledge about the three phase induction motor, synchronous motor and servo motor nationally for employability & skills development.
CO3	Differentiate different types of signal & systems and also understand the modeling of mechanical systems for employability & skills development.
CO4	Analyze the time response and stability of open loop and closed loop systems internationally for employability & skills development.
CO5	Understand the root locus techniques and analyze the frequency response along with the characteristics of different types of controllers for employability & skills development.

Course Code	EEE451
Course Name	MAT Lab And Simulink Lab

COs	Description
CO1	Write the program for obtaining the performance results for electrical circuits in software environment nationally for employability & skills development.
CO2	Visualize the experimental results in software environment for employability & skills development.
CO3	Verify the different circuits in MATLAB/SIMULATION environment internationally for employability & skills development.
CO4	Write program to compute mathematical operations for employability & skills development.
CO5	Control the speed of DC motor for employability & skills development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEE452
Course Name	Digital Electronics Lab

COs	Description
CO1	Study of logic families locally for skill development.
CO2	Explain different digital languages like binary, grey, decimal etc for employability and entrepreneurship development.
CO3	Implement logic analysis to the digital circuits for skill development and employability.
CO4	Study of logic gates for skill development.
CO5	Understand flip flops & Registers nationally for employability and entrepreneurship development.

Course Code	EEE453
Course Name	Electrical Measurement-II Lab

COs	Description
CO1	Explain the concept of energy meters and calibration methods of measuring devices nationally for skill development.
CO2	Understand the working of CRO and oscilloscope for skill development and employability.
CO3	Measure Inductance using Bridge method locally for skill development.
CO4	Measure power in single phase AC circuit for skill development and employability.
CO5	Measure frequency using CRO for skill development.

Course Code	EEE454
Course Name	Electrical Machine-II Lab

COs	Description
CO1	Explain the concept of synchronous machine for skill development.
CO2	Familiar with the load analysis of three phase alternator for skill development and employability nationally.
CO3	Perform load test on three phase synchronous motor for skill development.
CO4	Study parallel operation of three phase alternator nationally for skill development and employability
CO5	Measure X_d & X_q for skill development.

Sanjeev Dayal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEE455
Course Name	Electrical M/C and Automatic Control Lab

COs	Description
CO1	Explain the methods of speed control and efficiency of DC motor for employability.
CO2	Perform OC & SC Tests on a single phase transformer locally for skill development and employability.
CO3	Know about the concept of stability and transient response for skill development and employability.
CO4	Obtain speed control and load test on a three phase induction motor for skill development and employability.
CO5	Check the performance of controllers nationally for skill development and employability.

Course Code	EEE501
Course Name	Microprocessor Engineering

COs	Description
CO1	Explain the internal organization and operation of microprocessor and architecture of 8085 nationally for skill development.
CO2	Program 8085 Microprocessor 8051 for application specific solution for skill development and employability.
CO3	Design CPU module and describe 8086 & 8088 microprocessors for skill development and employability.
CO4	Gain an in-depth understanding of the operation of microprocessors & interfacing techniques with peripheral devices nationally for skill development.
CO5	Gain an understanding of applications of microprocessors in designing processor-based automated electronics system for skill development and employability.

Course Code	EEE502
Course Name	Electrical Engineering Material Science

COs	Description
CO1	Given a type of material, be able to qualitatively describe the bonding scheme and its general physical properties, as well as possible applications for skill development and employability.
CO2	Determine the dielectric properties of insulators in static fields & their behaviour in alternating fields nationally for skill development.
CO3	Classify different types of insulating materials and their applications for skill development, employability and entrepreneurship development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Determine different types of magnetic properties of materials nationally for skill development.
CO5	Learn about different conducting materials and energy conversion devices for skill development and employability.

Course Code	EEE503
Course Name	Commutating Machines

COs	Description
CO1	Provide the basic concept of DC machines locally for skill development.
CO2	Describe the commutation in DC machines for skill development and employability.
CO3	Explain the performance characteristics of various DC Generators for skill development and employability.
CO4	Describe the performance characteristics of various DC Motors, starting and speed control methods nationally for skill development and employability.
CO5	Discuss the various AC Commutator Machines for skill development and employability.

Course Code	EEE504
Course Name	Control System

COs	Description
CO1	Develop the mathematical model of the physical systems and can analyze the response& stability of the closed and open loop systems for skill development.
CO2	Understand the time response analysis & ability to formulate transfer function for given control system problems nationally for skill development and employability.
CO3	Classify different components of control system & plot Root Locus for given control system model for skill development.
CO4	Ability to understand frequency response analysis & plot Bode plots for given control system model for skill development.
CO5	Ability to design State variable technique for given control system model nationally for skill development and employability.

Course Code	EEE505
Course Name	Instrumentation Engineering

COs	Description
CO1	Understand the term transducer and classify them along with their characteristics nationally for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Differentiate between resistive, inductive and capacitive transducers for skill development and employability.
CO3	Measure the temperature and flow using transducers and the concept of piezoelectric transducers for skill development, employability and entrepreneurship development.
CO4	Discuss various signal conditioning systems and Op-amps internationally for skill development, employability and entrepreneurship development.
CO5	Ability to understand, the general telemetry system & analog and digital recorders for skill development and employability.

Course Code	EHU501
Course Name	Human Values & Professional Ethics
COs	**Description**
CO1	Appreciate the essential complementarity between 'VALUES' and 'SKILLS' to ensure sustained happiness and prosperity which are the core aspirations of all human beings locally for skill development.
CO2	Facilitate the development of a Holistic perspective among students towards life, profession and happiness, based on a correct understanding of the Human reality and the rest of existence highlight plausible implications of such a Holistic understanding in terms of ethical human conduct, trustful and mutually satisfying human behaviour and mutually enriching interaction with Nature for skill development and employability.
CO3	Understand Engineering as social Experimentation for skill development.
CO4	Acquire knowledge about safety, responsibilities and Rights of Human Globally for skill development.
CO5	Ability to develop appropriate technologies and management patterns to create harmony in professional and personal life for skill development and employability.

Course Code	EEE551
Course Name	Microprocessor Laboratory
COs	**Description**
CO1	Explain the concepts of 8085 microprocessor kit locally for skill development.
CO2	Write the program in the form of microprocessor assembly language for skill development and employability.
CO3	Develop the program for mathematical operations nationally for skill development and employability.
CO4	Perform conversion of temperature to develop skill.
CO5	Understand the 8086 microprocessor system for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEE552
Course Name	Electrical Machine-III Lab

COs	Description
CO1	Explain and differentiate between the working principles of different kinds of DC machines locally for skill development.
CO2	Understand the different speed control methods of DC machines for better employability in industry.
CO3	Obtain the performance analysis of DC machines to provide employability & skills.
CO4	Understand the use of starters locally for better employability in industry.
CO5	Expose themselves for the practical world applications of DC machines to provide employability & skills.

Course Code	EEE553
Course Name	Control System-I Lab

COs	Description
CO1	Explain the methods of speed control of DC motor for skill development and employability.
CO2	Work under the Mat lab/Simulation environment to develop skill.
CO3	Know about the concept of stability and transient response nationally to provide employability & skills.
CO4	Able to understand the concept of compensation techniques used for the performance enhancement locally for skill development and employability.
CO5	Draw Bode & Nyquist plot for different transfer functions to develop skill.

Course Code	EEE554
Course Name	Instrumentation Engineering Lab

COs	Description
CO1	Explain the concept of strain gauge for measuring the strain nationally for skill development and employability.
CO2	Measure displacement using LVDT for skill development.
CO3	Understand the working principle of thermocouple & thermistor nationally to develop skill.
CO4	Generate square-waves in timer for skill development and employability.
CO5	Design Op-Amps for skill development and employability.

Sanjeev Dawar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEE601
Course Name	Power System Protection

COs	Description
CO1	Understand various switchgear equipments and different types of fault in a power system nationally for skill development, employability and entrepreneurship development.
CO2	Calculate symmetrical fault currents for skill development.
CO3	Calculate un-symmetrical fault currents for skill development.
CO4	Choose suitable circuit breakers etc for fulfilling power system protection system nationally for skill development and employability.
CO5	Understand the fundamentals of electromechanical relays and digital protective relaying &the basic methods of calculating the magnitude and angle of voltage and current for the digital relaying system for skill development and employability.

Course Code	EEE602
Course Name	Power Electronics

COs	Description
CO1	Describe basic operation and compare performance of various power semiconductor devices, passive components and switching circuits and the different commutation techniques system internationally for skill development and employability.
CO2	Design and Analyze power converter circuits and learn to select suitable power electronic devices by assessing the requirements of application fields system for skill development and employability.
CO3	Discuss the principle of operation of inverters and their classifications system for skill development, employability and entrepreneurship development.
CO4	Discuss the different types of choppers and their applications for skill development.
CO5	Discuss the principle of operation of cyclo converters and their classifications system nationally for skill development and employability.

Course Code	EEE603
Course Name	Principles of Electrical Machine Design

COs	Description
CO1	Acquire knowledge to carry out a detailed design of methodology and engineering considerations locally for skill development.
CO2	Acquire knowledge to carry out a detailed design of a transformer and provide the information required for the fabrication of the same along

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	with an estimate of various performance indices for skill development, employability and entrepreneurship development.
CO3	Acquire knowledge to carry out a detailed design of an induction machine for skill development, employability and entrepreneurship development.
CO4	Acquire knowledge to carry out a detailed design of a synchronous machine and provide the information required for its fabrication for skill development and employability.
CO5	Acquire knowledge to carry out a detailed design of single phase induction motor and their applications nationally for skill development, employability and entrepreneurship development.

Course Code	EEE604
Course Name	Digital Signal Processing

COs	Description
CO1	Differentiate and represent digital signals and analog signals and its impulse response nationally for skill development.
CO2	Define DFT & different convolution methods for skill development and employability.
CO3	Ability to design & analyze DSP systems like IIR Filter for skill development and employability.
CO4	Ability to design& analyze DSP systems like FIR Filter Nationally for skill development and employability.
CO5	Design, implementation, analysis and comparison of digital filters for processing of discrete time signals for skill development, employability and entrepreneurship development.

Course Code	EEE605(A)
Course Name	High Voltage Engineering

COs	Description
CO1	Familiarize with different dielectric materials and their break down mechanisms in gases for skill development.
CO2	Describe the lightning phenomenon during clouding and the different theories behind it for skill development.
CO3	Acquire the knowledge of necessity and methods of testing various apparatus in power system internationally for skill development, employability and entrepreneurship development.
CO4	Knowledge of various circuits for generating high voltages for testing various apparatus and their measurement method internationally for skill development and employability.
CO5	To provide information on testing of electrical apparatus with high voltage for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEE605(B)
Course Name	Special Electrical Machines

COs	Description
CO1	Learn about poly phase AC machines and static slip power recovery control schemes locally for skill development, employability and entrepreneurship development.
CO2	Understand and apply the fundamentals of systematical components for the analysis of AC servo motor leading the design of its equivalent circuit and evaluation of its performance for skill development and employability.
CO3	Learn about construction features and method of operation stepper motor and acquire the knowledge of design procedure of drive amplifier and transistor logic for stepper motor nationally for skill development.
CO4	Acquire the knowledge of fundamentals, construction details and classification of universal motors and synchronous motor like reluctance motors, hysteresis motors for skill development, employability and entrepreneurship development.
CO5	Acquire the knowledge of fundamentals, construction details and classification of linear machines for skill development.

Course Code	EEE605(C)
Course Name	Digital Communications

COs	Description
CO1	Apply the knowledge of statistical theory of communication and explain the conventional digital communication system globally for skill development.
CO2	Apply the knowledge of signals and system and evaluate the performance of digital communication system in the presence of noise for skill development.
CO3	Understand the different digital modulation Techniques globally for skill development and employability.
CO4	Understand the concept of digital multiplexing for skill development.
CO5	Apply the knowledge of digital electronics and describe the error control codes like block code, cyclic code for skill development and employability.

Course Code	EEE605(D)
Course Name	Robotics

COs	Description
CO1	Learn the basic terminology used in robotics globally for skill development and employability.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Conceptualize 3-D translation & orientation of robot arm kinematics for skill development and employability.
CO3	Understand different robotic actuators and power transmission systems internationally for entrepreneurship & employability.
CO4	Classify the types of robotic grippers used in automation industries for entrepreneurship & employability.
CO5	Realization of robotic sensory system and their interfacing with robot controller for entrepreneurship & employability.

Course Code	**EEE605(E)**
Course Name	**Electrical & Hybrid Vehicles**

COs	Description
CO1	Understand the importance of hybrid and electric vehicles globally for skill development and employability.
CO2	Conceptualize the Electric Propulsion unit for skill development and employability.
CO3	Understand the Hybridization of different energy storage devices for skill development and employability.
CO4	Understand the importance of Sizing the drive system internationally for skill development, entrepreneurship and employability.
CO5	Comprehend different energy management strategies for skill development and employability.

Course Code	**TEEE605(F)**
Course Name	**Sensors & Transducers**

COs	Description
CO1	Understand the working of commonly used sensors in industry for measurement of displacement, force and pressure nationally for skill development and employability.
CO2	Recognize the working of commonly used sensors in industry for measurement of temperature, position, accelerometer, vibration sensor, flow and level for skill development and employability.
CO3	Identify the application of machine vision for skill development and employability.
CO4	Conceptualize signal conditioning and data acquisition methods nationally for skill development, entrepreneurship and employability.
CO5	Comprehend smart sensors and their applications in automation systems for skill development and employability.

Sanjeev Bansal

Course Code	TEEE605(G)
Course Name	**Power Theft and Energy Management**

COs	Description
CO1	To develop a strategic direction for organizations involved with energy and power for skill development & employability.
CO2	Understand the various types of theft in Electro-mechanical & Electronics meters at international level for skill development & employability.
CO3	Understand the role of energy management and energy Auditing for skill development & employability
CO4	Understand the performance of Electrical System at national level for entrepreneurship & employability.
CO5	To work on organizations and government departments concerned with promotion, development, and distribution of power for entrepreneurship & employability.

Course Code	TEEE605(H)
Course Name	**Conventional & CAD of Electrical Machines**

COs	Description
CO1	Understand the design techniques locally for skill development, entrepreneurship & employability.
CO2	Understand the design of three phase ac machines for skill development, entrepreneurship & employability.
CO3	Understand the design of field system of DC machine and synchronous machines for skill development, entrepreneurship & employability.
CO4	Understand the Philosophy of Computer Aided Design Nationally for skill development, entrepreneurship & employability.
CO5	Understand the flow charts and 'c' based computer programs for the design of machines for skill development, entrepreneurship & employability.

Course Code	TEEE605(I)
Course Name	**SMART ENERGY DELIVERY SYSTEMS**

COs	Description
CO1	Understand the evolution of Smart Grid Nationally for skill development & employability.
CO2	Understand the Smart Meters & Plug in Hybrid Electric Vehicles Globally for skill development, entrepreneurship & employability.
CO3	Understand the Smart Substations & Geographic Information System for skill development & employability.
CO4	Understand the Micro grids and Distributed Energy Resources for skill development &employability.

Sanjeev Rawat
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Understand the Integration of renewable energy sources internationally for skill development, entrepreneurship & employability.

Course Code	TEEE605(J)
Course Name	Analog & Digital Communication

COs	Description
CO1	Understand the Amplitude Modulation in communication system internationally for employability.
CO2	Comprehend the Frequency & Phase modulation for employability.
CO3	Realize the Pulse Modulation Techniques for skill development & employability.
CO4	Get the Digital Modulation Techniques and their use in communication system for skill development, entrepreneurship & employability.
CO5	Apply the concept of Information Theory in Communication Engineering internationally for skill development, entrepreneurship & employability.

Course Code	TEEE605(K)
Course Name	Telemetry & Data Transmission

COs	Description
CO1	Differentiate various types of Digital Modulation Techniques and methods of binary data nationally for skill development and employability.
CO2	Interpret the various data handling systems for skill development.
CO3	Understand the various Serial and parallel data transmission protocol for skill development, employability and entrepreneurship development.
CO4	Understand the Communication based processing control systems nationally for skill development and employability.
CO5	Understand the Aerospace Telemetry for skill development.

Course Code	EEE606
Course Name	Electrical Power Transmission & Distribution

COs	Description
CO1	Differentiate various types of transmission systems locally for skill development, employability and entrepreneurship development.
CO2	Interpret the various transmission concepts for skill development.
CO3	Use bundled conductors and understand different types of line insulators for skill development, employability and entrepreneurship development.
CO4	Understand single core and three core underground cables nationally for skill development and employability.
CO5	Recognize types of distribution systems for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEE651
Course Name	Power System Protection Lab

COs	Description
CO1	Understand the protection of power system equipment locally to develop skill.
CO2	Differentiate between the relays operations to provide employability & skills.
CO3	Form the bus matrices (Either admittance or impedance) for better employability in industry.
CO4	Acknowledge the fault analysis in power system nationally to provide employability & skills.
CO5	Determine the sequence impedance of a three phase synchronous generator for better employability in industry.

Course Code	EEE652
Course Name	Power Electronics Lab

COs	Description
CO1	Understand the process of AC to DC conversion with wave form locally for skill development.
CO2	Analyze the behavior of switch during ON & OFF state to provide employability & skills.
CO3	Draw forward and reverse characteristics of SCR nationally to provide employability & skills.
CO4	Differentiate triggering circuit without or with pulse transformer to provide employability & skills.
CO5	Understand RC triggering circuit with DIAC & TRIAC for skill development.

Course Code	EEE653
Course Name	Electrical Machine Design Lab

COs	Description
CO1	Understand the process of construction of different parameters for a given rating of single phase transformer for skill development.
CO2	Design the electrical machines (transformer) locally for skill development and employability.
CO3	Design the squirrel cage induction motor for skill development and employability.
CO4	Design a water wheel generator nationally for better employability in industry.
CO5	Design the distribution transformer for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEE654
Course Name	Digital Signal Processing Lab

COs	Description
CO1	Understand the process for the generation of signals and obtain the results in the form of waveform in software environment for skill development.
CO2	Analyze the behavior of filters using CCS & DSK kits for skill development.
CO3	Design of FIR & IIR filters locally for entrepreneurship & employability.
CO4	Verification of various signals nationally to develop skill.
CO5	Understand sampling and convolution to develop skill.

Course Code	EHU701
Course Name	Industrial Management

COs	Description
CO1	Understand the theories and principles of modern management and apply the concepts to the management of organisations in private and public sector globally for skill development and employability.
CO2	Understand how managers can effectively plan in today's dynamic environment, be familiar with the design of organisation structure and describe how environmental uncertainty affects organization design for skill development and employability.
CO3	Understand the different inventory control models internationally for skill development.
CO4	Gain knowledge about quality control and different control charts along with the concept of TQM for skill development and employability.
CO5	Learn about environmental issues for skill development.

Course Code	EEE702
Course Name	Power System Analysis

COs	Description
CO1	Represent the components of power system and use of symmetrical components for skill development.
CO2	Principles of modeling and analysis of power systems subject to symmetrical and unsymmetrical faults locally for skill development and employability.
CO3	Principles and application of regular power flow and optimal power flow methods for skill development.
CO4	Differentiate steady state and transient state stability nationally for skill development and employability.
CO5	Understand the concept of travelling waves for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEE703
Course Name	Electric Drives

COs	Description
CO1	Understand the basic concepts of Electric Drive and its classification locally for skill development, employability and entrepreneurship development.
CO2	Classify types of electric drives systems based on nature of loads, control objectives, performance and reliability for skill development.
CO3	Acquire knowledge about the concept of Starting and Braking and their dynamics for skill development and employability.
CO4	Control the DC .drives with the help of power electronics locally for skill development and employability.
CO5	Control the AC drives with the help of power electronics for skill development and employability.

Course Code	EEE704
Course Name	Utilization of Electrical Energy and Traction

COs	Description
CO1	Identify a heating scheme for a given application for skill development and employability.
CO2	Identify a welding scheme for a given application locally for skill development and employability.
CO3	Understand various illumination, refrigeration & air conditioning systems for skill development, employability and entrepreneurship development.
CO4	Figure-out the different schemes of traction schemes and its main components for skill development and employability.
CO5	Design a suitable scheme of speed control for the traction systems nationally for skill development and employability.

Course Code	EEE705(A)
Course Name	Artificial Neural Networks and Fuzzy System

COs	Description
CO1	Understand principles and architecture of neural networks and their various learning techniques for skill development, employability and entrepreneurship development.
CO2	Comprehend the concepts of feed forward neural networks and back propagation learning methods locally for skill development and employability.
CO3	Understand the concept of fuzziness involved in various systems and fuzzy set theory for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Analyze the application of fuzzy logic control to real time systems. Understand basic knowledge of fuzzy sets and fuzzy logic nationally for skill development and employability.
CO5	Apply basic fuzzy system modeling methods like fuzzy back propagation for skill development.

Course Code	EEE705(B)
Course Name	Generalised Theory of Electrical Machines

COs	Description
CO1	Explain the theory of poly-phase AC Machines and basic machine relations locally to provide employability & skills.
CO2	Acquire knowledge of Induction Generator &Two phase AC Servomotors to provide employability & skills.
CO3	Differentiate between Stepper Motors and Switched Reluctance Motors for entrepreneurship & employability.
CO4	Gain knowledge of permanent Magnet Generators, Brushless dc motors, Single phase synchronous motor, reluctance and hysteresis motors nationally to provide employability & skills.
CO5	Describe the characteristics of universal and repulsion motors and principle of operation Linear Induction Motors to provide employability & skills.

Course Code	EEE705(C)
Course Name	Embedded Systems

COs	Description
CO1	Acquire knowledge and understand fundamental embedded systems design paradigms, architectures, possibilities and challenges, both with respect to software and hardware for skill development and employability.
CO2	Analyze a system both as whole and in the included parts, to understand how these parts interact in the functionality and properties of the system nationally for skill development and employability.
CO3	Demonstrate a deeper understanding of the electronics and physical principles used for embedded biomedical measuring systems locally for skill development and employability.
CO4	Apply formal method, testing, verification, validation and simulation techniques and tools in order to engineer reliable and safe embedded systems for entrepreneurship & employability.
CO5	Practically apply gained theoretical knowledge in order to design, analyze and implement embedded systems, e.g. integrating embedded subsystems and applications in building a fully functional autonomous robot for entrepreneurship & employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEE705(D)
Course Name	**Advanced Digital Signal Processing**

COs	Description
CO1	Apply digital signal processing techniques to analyze LTI systems in time and frequency domain nationally for skill development and employability
CO2	Design and Analyze FIR digital filters for entrepreneurship, skill development and employability.
CO3	Design and Analyze IIR digital filters for entrepreneurship, skill development and employability.
CO4	Understand and be able to implement adaptive signal processing algorithms nationally for entrepreneurship, skill development and employability.
CO5	Acquire the basics of multi rate digital signal processing for skill development and employability.

Course Code	EEE705(E)
Course Name	**Deregulated Power System**

COs	Description
CO1	Describe the deregulation, unbundling of electric utilities and its benefits for skill development and employability.
CO2	Explain the operational planning activities of independent system operator in pool & bilateral markets and describe competitive bidding locally for skill development and employability.
CO3	Explain the open access of transmission line and management of security & congestion in deregulation for skill development and employability.
CO4	Describe the different types of Electric traction, system of track electrification and its related mechanics nationally for skill development and employability.
CO5	Illustrate the Reliability Analysis of Generation, transmission and distribution and the regulation of the market for skill development and employability.

Course Code	EEE705(F)
Course Name	**Entrepreneurship Development**

COs	Description
CO1	Understand the growth of small scale industries internationally for entrepreneurship and employability.
CO2	Analyze and prepare project report for employability.
CO3	Prepare balance sheets and assessment of economic viability for entrepreneurship and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Control and prepare a planning methodology of project globally for entrepreneurship and employability.
CO5	Understand the laws concerning entrepreneur for entrepreneurship, skill development and employability.

Course Code	**EEE705(G)**
Course Name	**Electrical Engineering Standards & Practices**

COs	Description
CO1	Interpret different National & International Electrical Standards in practice for employability.
CO2	Understand Indian standards for cables, lighting and motors for employability.
CO3	Understand Indian standards of transformers, LV & HV switchgears nationally for entrepreneurship and employability.
CO4	Demonstrate the basic guidelines for National codes and design practices nationally for entrepreneurship and employability.
CO5	Select the size and type of transformer, cable & switchgear for electrical applications for entrepreneurship, skill development and employability.

Course Code	**TEEE705(H)**
Course Name	**Advanced Control System**

COs	Description
CO1	Develop mathematical models for skill development and employability and understand the mathematical relationships between the sensitivity functions and how they govern the fundamentals in control systems.
CO2	Understand the phase plane analysis locally for employability.
CO3	Give basic knowledge in describing function analysis for employability.
CO4	Study the design of optimal controller locally for skill development and employability.
CO5	Design of optimal estimator including Kalman Filter for skill development and employability.

Course Code	**TEEE705(I)**
Course Name	**Power Quality & Facts**

COs	Description
CO1	Understand the overview of various power quality problems locally for employability.
CO2	Understand the effects of Harmonics for skill development and employability.
CO3	Monitor the power quality for skill development and employability.

Sanjeev Bajaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the Modeling and applications of series and shunt compensating devices nationally for employability.
CO5	Understand UPFC model for power flow studies for skill development and employability.

Course Code	TEEE705(J)
Course Name	**Distributed Generation and Microgrid**

COs	Description
CO1	Understand exploration of renewable energy sources nationally for entrepreneurship, skill development and employability.
CO2	Understand philosophy of distributed generation nationally for skill development and employability.
CO3	Understand various issues of DG with grid integration for employability.
CO4	Understand the concept of micro grid and various power quality issues for employability.
CO5	Understand various power quality issues in micro grids for employability.

Course Code	TEEE705(K)
Course Name	**Energy Conservation & Auditing**

COs	Description
CO1	Identify and describe present state of energy security and its importance for skill development and employability.
CO2	Identify and describe the basic principles and methodologies adopted in energy audit of utility nationally for skill development and employability.
CO3	Describe the energy performance evaluation of some common electrical and thermal installations and identify the energy saving opportunities for skill development and employability.
CO4	Analyze the data collected during performance evaluation and recommend energy saving measures locally for skill development and employability.
CO5	Discuss the concept of lighting systems for employability.

Course Code	TEEE705(L)
Course Name	**Bio-Medical Instrumentation**

COs	Description
CO1	Understand the characteristics of Transducers locally for skill development and employability.
CO2	Understand the Cardiac System locally for employability.
CO3	Understand the Blood Flow Measurement for entrepreneurship, skill

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development and employability.
CO4	Understand the Respiratory System Measurements and instruments for measuring nervous function.
CO5	Troubleshoot and discuss the electrical safety of biomedical instruments.

Course Code	TEEE705(M)
Course Name	Application of Power Electronics to Power System

COs	Description
CO1	Review of semiconductor devices locally for employability.
CO2	Understand the concept of FACTs for entrepreneurship and employability.
CO3	Select and implement proper compensator to solve the problems occurring power transmission for employability.
CO4	Model and analyze the FACT controllers nationally for entrepreneurship and employability.
CO5	Understand and apply the active filtering techniques in mitigation of harmonic distortion for skill development and employability.

Course Code	EEE706
Course Name	Intelligent Instrumentation

COs	Description
CO1	Explain the concept of intelligent instrumentation and impart knowledge on automation for skill development, employability and entrepreneurship development.
CO2	Develop an ability to analyze digital transducers for skill development, employability and entrepreneurship development.
CO3	Develop an ability to evaluate the performance of a real time system through virtual instrumentation techniques internationally for skill development.
CO4	Determine different data acquisition methods locally for skill development and employability.
CO5	Discuss the latest technology in automation for skill development, employability and entrepreneurship development.

Course Code	EEE752
Course Name	Power System Analysis Lab

COs	Description
CO1	Explain the concept of dielectric strength of transformer oil locally to develop skill.
CO2	Differentiate between short, medium & long transmission line to develop

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	skill.
CO3	Understand the transmission line performance to provide employability & skills.
CO4	Obtain the characteristics of different circuit breakers for better employability in industry nationally.
CO5	Obtain steady state, transient state and sub transient state of an alternator to develop skill.

Course Code	EEE753
Course Name	Electric Drives Lab

COs	Description
CO1	Explain the concept of speed control of DC motors nationally to develop skill.
CO2	Explain the concept of speed control of three phase induction motor to develop skill.
CO3	Understand dual converter for skill development and employability.
CO4	Differentiate between open loop and close loop control of DC motor nationally for skill development and employability.
CO5	Control separately excited dc motor using chopper for skill development.

Course Code	EEE801
Course Name	Non- Conventional Energy Resources

COs	Description
CO1	Demonstrate the generation of electricity from various Non-Conventional sources of energy and their utilization nationally for skill development, employability and entrepreneurship development.
CO2	Estimate the solar energy, Utilization of it, Principles involved in solar energy collection and conversion of it to electricity generation for skill development, employability and entrepreneurship development.
CO3	Explore the concepts involved in wind energy conversion system and applications related to Bio-Gas by studying its components, types and performance nationally for skill development and employability.
CO4	Explore the effects of electrochemical energy, Tidal Energy and Hydrogen Energy for skill development, employability and entrepreneurship development.
CO5	Illustrate ocean energy and explain the operational methods of their utilization & acquire the knowledge on Geo thermal energy for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EEE802
Course Name	Power System Operations and Control

COs	Description
CO1	Develop structure of power system and real time monitoring power systems locally for skill development.
CO2	Understand Economic operation of power system and concept of power flow for skill development and employability.
CO3	Solve problems (numerical problems at present) by posing different problem models related to Economic Load Dispatch, Load Frequency Control and reactive power control and discuss single area load frequency control and two area load frequency control for skill development.
CO4	Differentiate Excitation systems & Voltage and reactive power control methods nationally for skill development, employability and entrepreneurship development.
CO5	Control of voltages and power using FACT devices in electrical system for skill development, employability and entrepreneurship development.

Course Code	EEE803
Course Name	Power Station Practice

COs	Description
CO1	Understand the cost of power generation for skill development, employability and entrepreneurship development.
CO2	Layout the Thermal power plant nationally for skill development, employability and entrepreneurship development.
CO3	Select the site for Hydro power plant for skill development.
CO4	Coordinate operate the different types of power plants nationally for skill development and employability.
CO5	Differentiate tidal, wind, geo-thermal, MHD and recent advancements for power generation for skill development.

Course Code	TMPS101
Course Name	Wind and Solar Power Systems

COs	Description
CO1	Understand the concept and operation of wind power system and the control techniques used at local level for this for skill development.
CO2	Know about basic machines used as generator and type of generator drives for skill development, employability and entrepreneurship development.
CO3	Describes the photovoltaic cell and the various components used in the solar photovoltaic power system and how solar system can be used for

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	energy collection globally for skill development, employability and entrepreneurship development.
CO4	Understand about the basic of energy storage and different type of power electronic converters used in power plants for skill development and employability.
CO5	Explain about the stand alone, grid connected system, smart grid technology and the power quality issues for skill development and employability.

Course Code	TMPS102
Course Name	**Electrical Power Quality**

COs	Description
CO1	Study about power quality and the terms associated with this for skill development and employability.
CO2	Differentiate types of voltages sags and interruption in power system at international level for skill development.
CO3	Study the sources of overvoltage and protection against overvoltage and analyse the software tools like PSCAD and EMTP for skill development, employability and entrepreneurship development.
CO4	Study the effects of harmonics on various equipment's and understand the IEEE and IEC standards for skill development.
CO5	Understand power quality monitoring technique and their components nationally for skill development, employability and entrepreneurship development.

Course Code	TMPS103
Course Name	**Advanced Instrumentation**

COs	Description
CO1	Study about analog and digital transducers and vibration sensing devices globally for skill development.
CO2	Review the concept of signal conditioning and instrumentation amplifier for skill development and employability.
CO3	Study about data acquisition system and their components in detail at international level for skill development, employability and entrepreneurship development.
CO4	Understand the biomedical instruments and how these instruments can be used in hospitals for skill development, employability and entrepreneurship development.
CO5	Study the industrial instruments and spectroscopy for skill development and employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMPS104
Course Name	Neural Networks, Fuzzy Logic and Genetic Algorithms

COs	Description
CO1	Study about the basic idea of neural networks, its architecture and perception model with its applications for skill development and employability.
CO2	Understand the artificial neural network and back propagation method and its uses in detection of faults for skill development.
CO3	Understand basic concept of fuzzy logic, fuzzy set theory and its properties at local level for skill development.
CO4	Study about the fuzzy rules, algorithm and application of fuzzy logic in industry for skill development, employability and entrepreneurship development.
CO5	Understand the genetic algorithms and their applications at international level for skill development and employability.

Course Code	TMPS201
Course Name	Electrical Drives and Control

COs	Description
CO1	Review about power semiconductor devices, different power electronic converters and motor drives at local level for skill development and employability.
CO2	Understand the operation of different types of DC drives for skill development and employability.
CO3	Understand the operation of AC voltage controllers, inverters and cyclo converters for skill development, employability and entrepreneurship development.
CO4	Understand the operation of AC Motor Drives and speed control methods and applications in industry for skill development, employability and entrepreneurship development.
CO5	Learn the operation of synchronous motor drives and stepper motors with examples nationally for skill development.

Course Code	TMPS202
Course Name	EHV AC & HVDC Transmission

COs	Description
CO1	Qualitative comparison of AC and DC transmission system with all aspects at international level for skill development.
CO2	Understand the terms associated with EHV AC transmission and FACTS for skill development, employability and entrepreneurship development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Study the comparison of AC and DC transmission and components of HVDC transmission globally for skill development, employability and entrepreneurship development.
CO4	Understand the stability analysis and protection of HVDC system for skill development and employability.
CO5	Understand the HVDC transmission for high voltages and their constructional and operational details for skill development, employability and entrepreneurship development.

Course Code	TMPS203
Course Name	**Restructuring and Deregulation of Power System**

COs	Description
CO1	Analyse the electricity market and the different terms used with it for skill development and employability.
CO2	Understand the basic functioning and planning activities of ISO globally for skill development, employability and entrepreneurship development.
CO3	Understand wholesale electricity market characteristics and concepts for skill development, employability and entrepreneurship development.
CO4	Study about models of electricity market, insurance scheme and transmission owners at international level for skill development and employability.
CO5	Understand the scheduling coordinators, power exchange and type of trade in electricity for skill development, employability and entrepreneurship development.

Course Code	TMPS204(A)
Course Name	**Power System Dynamics and Control**

COs	Description
CO1	Understand the synchronous machine modelling methods and mathematical descriptions for skill development.
CO2	Study the elements and types of excitation systems for skill development and employability.
CO3	Understand the fundamentals of speed governing system and automatic generation control at local level for skill development and employability.
CO4	Study the reactive power and voltage control methods and principle of transmission system compensation for skill development, employability and entrepreneurship development.
CO5	Understand the basic concept of voltage stability and different stability curves at international level for skill development, employability and entrepreneurship development.

Course Code	TMPS204(B)

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name	Advanced Electromagnetic Theory

COs	Description
CO1	Study about max well equations and electromagnetic waves at international level for skill development.
CO2	Review electrostatic and magnetic fields, max well equations, boundary conditions and plane waves for skill development and employability.
CO3	Study the overall concept of wave equations for skill development.
CO4	Study about wave propagation and scattering matrix theory nationally for skill development.
CO5	Understand the diffraction of electromagnetic waves and numerical electromagnetism for skill development and employability.

Course Code	TMPS204(C)
Course Name	Digital Signal and Image Processing

COs	Description
CO1	Use concepts of trigonometry, complex algebra, Fourier transform, z-transform to analyze the operations on signals and acquire knowledge about Systems at international level for skill development.
CO2	Select proper tools for analog-to-digital and digital-to-analog conversion. Also select proper tools for time domain and frequency domain implementation for skill development, employability and entrepreneurship development.
CO3	Design, implementation, analysis and comparison of digital filters for processing of discrete time signals for skill development, employability and entrepreneurship development.
CO4	Integrate computer-based tools for engineering applications nationally for skill development and employability.
CO5	Employ signal processing strategies at multidisciplinary team activities for skill development.

Course Code	TMPS204(D)
Course Name	Advanced Topics in Power System

COs	Description
CO1	Understand facts, concepts and classification of stability on the basis of perturbation and economical aspect of energy exchange at local level for skill development and employability.
CO2	Analyze the characteristics of synchronous alternator under small and large disturbances for employability.
CO3	Apply knowledge of electrical subjects for solving stability problem and use method for enhancing stability for employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand and analyze the voltage stability problems and methods of improving voltage stability for employability and entrepreneurship development.
CO5	Understand and analyze the contingency issues in lines and apply the different techniques to improve it globally for employability and entrepreneurship development.

Course Code	**TMPS204(E)**
Course Name	**Sustainable Energy Systems**

COs	**Description**
CO1	Introduction and Energy Fundamentals for skill development and entrepreneurship development.
CO2	Energy Production and Consumption at local level for skill development and employability.
CO3	Renewable Energy Technologies for skill development and employability.
CO4	Alternative Fuels and Vehicle Technology for skill development, employability and entrepreneurship development.
CO5	Storage Topics at international level for skill development, employability and entrepreneurship development.

Course Code	**TMPS204(F)**
Course Name	**Facts**

COs	**Description**
CO1	Understand the operations of different FACTS devices at international level for skill development.
CO2	Describe the principle of operation and configuration of Static Shunt and Series Compensators for skill development and employability.
CO3	Describe the basics of Unified & Interline power flow controller for skill development and employability.
CO4	Learn various power quality issues of power lines globally for employability and entrepreneurship development.
CO5	Identify the controllers for different Contingencies for skill development and employability.
Course Code	**TMPS204(G)**
Course Name	**Industrial Automation & Control**

COs	**Description**
CO1	Understand the concept of automation, its terminology and basic communication protocol to provide employability.
CO2	Apply Relay logic for automation nationally to provide employability and entrepreneurship development.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Learn about PLC, its operation and application in automation to provide employability and entrepreneurship development.
CO4	Analyze the industrial sensors, its terminology and how one can interface with PLC to provide skill development, employability and entrepreneurship development.
CO5	Demonstrate Pneumatic system and its application in industry globally to provide skill development, employability and entrepreneurship development.

Course Code	TMPS204(H)
Course Name	Computer Controlled Systems

COs	Description
CO1	Define the basic concepts and principles of computer control systems at local level for skill development and entrepreneurship development.
CO2	Select appropriate method for system identification for skill development and employability.
CO3	Estimate which method is appropriate for control of a specific system for skill development, employability and entrepreneurship development.
CO4	Compute parameters of digital controllers nationally for typical industrial processes for skill development.
CO5	Demonstrate functionality of computer-controlled system by simulation for skill development and employability.

Course Code	TMPS204(I)
Course Name	Smart Grid

COs	Description
CO1	Describe the communication technologies for smart grid at international level for skill development and entrepreneurship development.
CO2	Describe the information security for smart grid for skill development and employability.
CO3	Recognize infrastructure for smart metering and distribution automation for skill development and employability.
CO4	Describe the tools of Distribution management systems and describe Energy management systems nationally for skill development, employability and entrepreneurship development.
CO5	Describe application of power electronics in Smart grid for skill development, employability and entrepreneurship development.

Course Code	TMPS204(J)
Course Name	Modeling & Simulation of Power Electronic Circuits

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

COs	Description
CO1	Modeling and analysis of Power semiconductor devices and Power Electronic converters at international level for skill development
CO2	Knowledge in Power Electronic Converter fed DC & AC drives system and their application to different Industrial needs for skill development.
CO3	Describe the Modeling and analysis of dc motor drive system for employability.
CO4	Describe the Modeling and analysis of Induction drive system globally for employability.
CO5	Describe the Modeling and analysis of synchronous motor drive system for skill development and employability.

Course Code	TMPS204(K)
Course Name	**Power System Optimisation**

COs	Description
CO1	Learn the unified and exact mathematical basis as well as the general principles of optimization techniques for skill development.
CO2	Understand detailed theoretical and practical aspects of application of optimization techniques at international level for skill development.
CO3	Formulatedeterministicmathematicalprogramsandsolutionsfor PowerSyste mapplicationsfor skill development.
CO4	Determine the operating condition of the power systems, in which optimization of some system variable are obtained for skill development.
CO5	Determine the economic load dispatch of thermal generating units globally for employment.

Course Code	TMPS204(L)
Course Name	**Advanced Protecting Relaying**

COs	Description
CO1	Understand the basic protective schemes at local level for skill development and employability.
CO2	Understand the types of Comparators for employability and entrepreneurship development.
CO3	Understand the different types of static relays for employability and entrepreneurship development.
CO4	Understand the various methods of static protection for skill development and employability.
CO5	Understand the concept of digital protection for employability and entrepreneurship development globally.

Course Code	TMPS204(M)
Course Name	**Smart Sensors & Instrumentation**

REGISTRAR
IFTM UNIVERSITY
MORADABAD

COs	Description
CO1	Identify and describe different type of transducers and sensors for skill development and employability.
CO2	Identify and describe the basic principle of thermistor and different type of temperature measuring devices nationally for skill development and employability.
CO3	Explain the software LABVIEW for the use of virtual instrumentation and experiments for skill development and employability.
CO4	Describe the data acquisition methods for skill development.
CO5	Discuss the concept of Intelligent sensors at local level for employability.

Course Code	MPS301
Course Name	SCADA & Energy Management System

COs	Description
CO1	Understand the fundamentals of SCADA for skill development.
CO2	Understand the data acquisition system and control function used in SCADA at international level for skill development, employability and entrepreneurship development.
CO3	Enhance the knowledge in man-machine communication for skill development and employability.
CO4	Conceptualise SCADA system structure, configuration and use of programming in SCADA nationally for skill development, employability and entrepreneurship development.
CO5	Understand the energy management system for skill development, employability and entrepreneurship development.

Course Code	MPS302
Course Name	Power System Transients

COs	Description
CO1	Acquire knowledge of the travelling wave in transmission line, lattice diagram and grounding wires at international level for skill development.
CO2	Study about the travelling waves, insulator strings and over voltages during surges for skill development and employability.
CO3	Able to know the method of neutral grounding and other factors associated with neutral grounding nationally for skill development and employability.
CO4	Able to know about the testing and measuring techniques of high voltages and currents for skill development, employability and entrepreneurship development.
CO5	Able to know about high voltage testing equipment for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MPS303(A)
Course Name	**Transmission and Distribution Automation**

COs	Description
CO1	Understand the SCADA system and functions related to that at international level for skill development.
CO2	Understand about the elements of distribution system and their application for skill development, employability and entrepreneurship development.
CO3	Study the distribution automation system and the algorithms for this system for skill development, employability and entrepreneurship development.
CO4	Understand the basic idea of substations and its types and integration of different energy sources at local levelfor skill development and employability.
CO5	Understand the idea of interfacing the substation and automation for skill development.

Course Code	MPS303(B)
Course Name	**Power System Reliability**

COs	Description
CO1	Understand the probability theory functions and analysis of different networks for skill development.
CO2	Study about reliability functions and their applications at international level for skill development, employability and entrepreneurship development.
CO3	Understand the limiting state probabilities with Markov modeling methods and frequency and duration concept for skill development.
CO4	Learn about generation system reliability analysis for skill development and employability.
CO5	Study the composite system reliability analysis methods nationally for skill development.

Course Code	MPS303(C)
Course Name	**Advanced Control System**

COs	Description
CO1	Develop the mathematical model of the physical systems globally for skill development and employability.
CO2	Analyze the stability of the closed and open loop systems for skill development and employability.
CO3	Design the various kinds of compensator for skill development,

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability and entrepreneurship development.
CO4	Develop and analyze state space models at international level for skill development.
CO5	Ability to formulate transfer function for given control system problems for skill development and employability.

Course Code	MPS303(D)
Course Name	**Advanced Digital System**

COs	Description
CO1	Apply the knowledge of statistical theory of communication and explain the conventional digital communication system nationally for skill development.
CO2	Apply the knowledge of signals and system and evaluate the performance of digital communication system in the presence of noise for skill development, employability and entrepreneurship development.
CO3	Apply the knowledge of digital electronics and describe the error control codes like block code, cyclic code at international level for skill development.
CO4	Describe and analyze the digital communication system with spread spectrum modulation for skill development.
CO5	Design as well as conduct experiments, analyze and interpret the results to provide valid conclusions for digital modulators and demodulator using hardware components and communication systems using CAD tool for skill development, employability and entrepreneurship development.

Course Code	MPS303(E)
Course Name	**Power System Modeling**

COs	Description
CO1	Develop power system components modeling and analyze their performance for skill development and employability.
CO2	Develop modeling of synchronous machine and analyze its performance globally for skill development and employability.
CO3	Perform steady state and dynamic analysis on simulation models for employability and entrepreneurship development.
CO4	Understand configuration and functioning of synchronous machine excitation system for skill development, employability and entrepreneurship development.
CO5	Develop excitation system components modeling and analyze their performance at international level for employability and entrepreneurship development.
Course Code	MPS303(F)
Course Name	**Control System Design and Estimation**

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

COs	Description
CO1	Identify and design the state variable in different condition at local level for skill development and employability.
CO2	Describe the basic principles and methodologies of phase plane analysis for skill development and employability.
CO3	Describe function analysis methods for skill development.
CO4	Describe Optimal control methods at international level for skill development.
CO5	Analyze the data collected during performance evaluation and optimal estimation for employability

Course Code	MPS303(G)
Course Name	**Smart Grid Design and Analysis**

COs	Description
CO1	Understand the features of Smart Grid at local level for skill development, employability and entrepreneurship development.
CO2	Assess the role of automation and digitization in Transmission and Distribution for skill development.
CO3	Apply different types of Grid techniques to design the optimum output for skill development.
CO4	Analyse Smart grids and Distributed energy resources (DER) with evolutionary algorithms globally for skill development and employability.
CO5	Investigate operation and the importance of data acquisition devices and their location for Voltage and Frequency control for skill development and employability.

Course Code	TMPS303(H)
Course Name	**Advanced Digital Communication**

COs	Description
CO1	Develop the ability to understand the concepts of signal space analysis coherent and non coherent receivers at international level for skill development, employability and entrepreneurship development.
CO2	Comprehend the generation of OFDM signals and the processing of the signals for skill development.
CO3	Possess knowledge on different block codes and convolutional codes for skill development.
CO4	Conceptually appreciate different Equalization techniques globally for skill development and employability.
CO5	Develop the ability to understand the generation of sub-carriers for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMPS303(I)
Course Name	**Optimization Techniques**

COs	Description
CO1	Understand the importance of optimization techniques in engineering applications for skill development and employability.
CO2	Learn optimization methods for solving linear programming problems at local level for skill development and employability.
CO3	Learn optimization methods for solving nonlinear programming problems for skill development and employability.
CO4	Be aware of the concept of simulation and modern methods of optimization for skill development, employability and entrepreneurship development.
CO5	Apply optimization techniques to electrical engineering problems globally for skill development and employability.

Course Code	TMPS303(J)
Course Name	**Advanced Energy System Management**

COs	Description
CO1	Understand the different energy resources at local level for skill development and employability.
CO2	Understand the concept of energy management for skill development and employability.
CO3	Understand the general principles of energy management for skill development and employability.
CO4	Understand the analysis of energy efficiency for skill development and employability.
CO5	Understand the case study and planning of energy management globally for skill development and employability.

Course Code	TMPS303(K)
Course Name	**Non Conventional Energy Sources & Energy Converters**

COs	Description
CO1	Understand of renewable and non-renewable sources of energy for skill development, employability and entrepreneurship development.
CO2	Gain knowledge about working principle of various solar energy systems at international level for skill development.
CO3	Develop capability to do basic design of bio gas plant for better employability in industry.
CO4	Understand the application of wind energy and wind energy conversion

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	system for skill development and employability.
CO5	Understand the different types of fuel cell and smart grid energy nationally for skill development and employability.

Course Code	TMPS303(L)
Course Name	Power System Planning

COs	Description
CO1	Understand various forecasting of future load requirements of both demand and energy by deterministic and statistical techniques using forecasting tools at international level for skill development, employability and entrepreneurship development.
CO2	Discuss methods to mobilize resources to meet the investment requirement for the power sector for skill development.
CO3	Discuss expansion of power generation and planning for system energy in the country, evaluation of operating states of transmission system, their associated contingencies and the stability of the system for skill development.
CO4	Discuss principles of distribution planning, supply rules, network development and the system studies globally for skill development and employability.
CO5	Discuss planning and implementation of electric –utility activities, market principles and the norms framed by CERC for online trading and exchange in the interstate power market for skill development and employability.

Course Code	TMPS303(M)
Course Name	Advanced Electric and Hybrid Vehicles

COs	Description
CO1	Describe the configuration and performance of Electric vehicles at international level for skill development, employability and entrepreneurship development.
CO2	Design the structure of Hybrid Electric Vehicle for skill development, employability and entrepreneurship development.
CO3	Describe the operation of Fuel Cells for skill development, employability and entrepreneurship development.
CO4	Explain Electric propulsion system and Motor control systems internationally for skill development, employability and entrepreneurship development.
CO5	Discuss energy storage devices and generators for skill development, employability and entrepreneurship development.

PROGRAMME NAME – B. Tech. (Mechanical Engineering)

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEMA101
Course Name	Engineering Mathematics –I

COs	Description
CO1	Remember the basics of matrices and apply the concept of rank for solving linear simultaneous equations for skill development achieving national and international interest.
CO2	Apply the concept of limit, continuity and differentiability in the study of Rolle's, Lagrange's, Cauchy mean value theorem and Leibnitz theorem for skill development and employability.
CO3	Apply partial differentiation for evaluating extreme values, expansion of function and Jacobian for skill development.
CO4	Apply the methods of multiple integral for finding area, volume, centre of mass and centre of gravity for skill development and employability and develops local and global interest.
CO5	Apply the concept of vector for evaluating directional derivatives, tangent and normal planes, line, surface and volume integrals for skill development and employability.

Course Code	TEPH101
Course Name	Engineering Physics-I

COs	Description
CO1	Understand and learn Frame of reference, Lorentz transformation equation for skill development and employability achieving national a interest.
CO2	Understand Statistical Mechanics, Maxwell- Boltzmann statistics and its application for skill development.
CO3	Understand De-Broglie Hypothesis, Davisson - Germer Experiment for skill development and employability.
CO4	Attain basic knowledge on different types of LASERs and their applications for skill development and employability.
CO5	Gain knowledge of optical fibre and its applications for skill development and employability and develops local and global interest.

Course Code	TECE101
Course Name	Environmental Science

COs	Description
CO1	Understand the issues and challenges related to environmental and ecosystem due to some human activities, it will develop the skills of

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	students.
CO2	Achieving national and international interest by understanding about the different sources of air pollution and their impact on human health. it will develop the skills of students
CO3	Understand about the quality parameter for water and standards related to water, and make the students employable.
CO4	Know about different types of pollution and their sources it will develop the skills of students and develops local and global interest.
CO5	Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected

Course Code	TPSD 101
Course Name	Professional Skill Development-I
COs	**Description**
CO1	Understand the sentences, its types, its transformations, parts of speech and its types etc. for skill development and employability achieving national and international interest.
CO2	Understand about the different types of non finite verbs, gerund, adverbs and its types, prepositions and its types etc. for skill development and employability.
CO3	Understand about the Clauses and phrases, tenses, voice and speech and its conversion for skill development.
CO4	Know about Techniques of Précis Writing, Paragraph Writing, Techniques of Paragraph Writing for skill development and employability
CO5	Develops local and global interest by writing of Resume, Bio-Data, Writing of Letters and Applications for skill development and employability

Course Code	TEEE101
Course Name	Electrical Engineering
COs	**Description**
CO1	Use basic electrical DC concepts and theorems to analyze circuits for skill development.
CO2	Use of resonance and implications for practical circuits for skill development and employability achieving national and international interest.
CO3	Understand the preference of poly phase system over single phase system, star and delta connections along with develops the knowledge of theoretical and mathematical principles of electrical measuring instruments for skill development, employability and entrepreneurship development.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Analyze magnetic circuit and differentiate magnetic and electric circuits and understand single phase transformer, auto transformer and three phase transformer for skill development and employability.
CO5	Understand the construction of D.C machine, different windings, their merits and demerits and the basic concept of Three-phase induction motor and its working principle instruments for skill development, employability and entrepreneurship development and develops local and global interest.

Course Code	TEME102
Course Name	Materials & Manufacturing

COs	Description
CO1	Understand the importance of materials and manufacturing, various properties of materials, plant layout and production for skill development achieving national and international interest.
CO2	Understand the ferrous and non-ferrous metals their alloys and application, non-metals and their applications for skill development.
CO3	Able to get a brief knowledge of metal forming operations, working of machines and heat treatment process and their importance for skill development and employment.
CO4	Able to understand the methods and techniques associated with the process of metal cutting operations on various metal cutting machines for entrepreneurship and skill development and employability and develops local and global interest.
CO5	Able to understand various type of welding process and their application n specific field for skill development.

Course Code	TEPH151
Course Name	Physics Lab

COs	Description
CO1	Achieving national and international interest by understanding the principle, concept, working and application of technology and comparison of results with theoretical calculations for skill development and employability.
CO2	Apply the various procedures and techniques for the experiments to create for skill development and employability.
CO3	Understand usage of instruments and real time applications in engineering studies for skill development and employability.
CO4	Understand the basic communication skills through working in groups in performing the laboratory experiments and by interpreting the results for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Understand the some basic law like stefan's law, Hall effect etc. for skill development and develops local and global interest.

Course Code	TEME152
Course Name	Materials & Manufacturing Lab

COs	Description
CO1	To define and use different manufacturing process e.g. casting, forging, turning, drilling etc. for skill development, employability and entrepreneurship achieving national and international interest.
CO2	To define and use different welding processes e.g. gas welding and electric arc welding for skill development, employability and entrepreneurship.
CO3	To acquire thorough knowledge of carrying out various operations on lathe machine for skill development, employability and entrepreneurship.
CO4	To acquire skills for creating different objects from raw materials for skill development, employability and entrepreneurship and develops local and global interest.
CO5	To acquire thorough knowledge of carrying out various operations on Sheet metals for skill development, employability and entrepreneurship.

Course Code	TEEE151
Course Name	Electrical Engineering Lab

COs	Description
CO1	Achieving national and international interest by explaining the concept of circuit laws and network theorems and apply them to laboratory measurements for skill development, employability and entrepreneurship development.
CO2	Systematically obtain the equations that characterize the performance of an electric circuit as well as solving both single phase and DC Machines for employability and entrepreneurship development.
CO3	Acknowledge the principles of operation and the main features of electric machines and their applications for skill development and employability.
CO4	Discuss the starting methods of a single phase induction motor for employability and entrepreneurship development.
CO5	Acquire skills in using electrical measuring devices for skill development and employability and develops local and global interest.
Course Code	TEME153

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name	Engineering Graphics Lab

COs	Description
CO1	Use the drawing instruments effectively and able to dimension the given figures for skill development and employability.
CO2	Appreciate the usage of engineering curves in tracing the paths of simple machine components for skill development and employability achieving national and international interest.
CO3	Understand the concept of projection and acquire visualization skills, projection of points for skill development and employability.
CO4	Able to draw the basic views related to orthographic projections of Lines, Planes for skill development, employability and entrepreneurship.
CO5	Able to draw the basic views related to isometric projections of Lines, Planes for skill development, employability and entrepreneurship and develops local and global interest.

Course Code	TEMA201
Course Name	Engineering Mathematics-II

COs	Description
CO1	Apply differential calculus and higher order problems and necessary and sufficient condition for total differential equations skill development achieving national and international interest.
CO2	Students learn about the how to solve Legendre and Bessel, Legendre polynomials, Bessel's functions skill development and employability.
CO3	Know about Fourier series initial conditions and its applications to different engineering models skill development.
CO4	Solve second and higher order linear Partial differential equations with constant coefficients and construct all solutions from the linearly independent solutions skill development and employability and develops local and global interest.
CO5	Solve partial differential equations with methods & its Applications skill development and employability.

Course Code	TEPH201
Course Name	Engineering Physics-II

COs	Description
CO1	Understand Gauss law, Ampere's Law, Maxwell's equations and their applications Skill development and employability.
CO2	Study of Propagation of plane electromagnetic waves in free space for skill development achieving national and international interest.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand Dielectric and magnetic properties of the materials for employability.
CO4	Develops local and global interest by explaining intrinsic and extrinsic semiconductors and the construction, operation and characteristics of diodes for employability.
CO5	Understand concepts of superconductors, Properties of superconductors & applications of superconductors and the basic principle of nano science and technology and applications of nanotechnology for employability.

Course Code	TECH201
Course Name	Engineering Chemistry
COs	**Description**
CO1	Gain knowledge about the basic concepts of chemistry and states of matter for skill.
CO2	Understand kinetic and electrochemical methods for various reactions for skill achieving national and international interest.
CO3	Demonstrate the mechanism of different reactions and their characterization using spectroscopy for skill.
CO4	Learn about the various kinds of polymers and their applications for skill and develops local and global interest.
CO5	Demonstrate knowledge of science behind common impurities in water.

Course Code	TEME201
Course Name	Engineering Mechanics
COs	**Description**
CO1	Recognize different force systems, moments and couple for skill development achieving national and international interest.
CO2	To draw Free Body Diagram and label the reactions on it for skill development and employability.
CO3	Find centroid and Moment of Inertia of different bodies for skill development and employability.
CO4	To draw shear force diagram and bending moment diagram for skill development and employability.
CO5	Understand Newton's law in motion, and recognize different kinds of particle motions for skill development and employability and develops local and global interest.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEEC201
Course Name	Electronics Engineering

COs	Description
CO1	Measure voltage, current through multimeter for skill development achieving national and international interest.
CO2	Understand the practical working of a diode for employability.
CO3	Understand the graph transitions of a transistor for skill development.
CO4	Develops local and global interest by understanding the concept of logic gates for employability.
CO5	To build clamper circuit using diode for skill development and employability.

Course Code	TECS201
Course Name	Computer Fundamentals & Programming

COs	Description
CO1	Understanding the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming for skill development and employability.
CO2	Write, compile and debug programs in C language and use different data types for writing the programs for skill development and employability.
CO3	Design programs using the concepts decision statements, loops, functions, arrays pointers etc. for skill development, employability and entrepreneurship achieving national and international interest.
CO4	Design programs using Conditional Program Execution, switch statements, Iteration etc. for skill development, employability and entrepreneurship.
CO5	Design programs using Modular Programming, scope rules and global variables, recursive functions, conditional compilation etc. for skill development, employability and entrepreneurship and develops local and global interest.

Course Code	TECS251
Course Name	Computer Lab

COs	Description
CO1	Understanding the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming for skill development and employability achieving national and international interest.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Write, compile and debug programs in C language and use different data types for writing the programs for skill development and employability.
CO3	Design programs using the concepts decision statements, loops, functions, arrays pointers etc. for skill development, employability and entrepreneurship.
CO4	Design programs using Conditional Program Execution, switch statements, Iteration etc. for skill development, employability and entrepreneurship.
CO5	Design programs using Modular Programming, scope rules and global variables, recursive functions, conditional compilation etc. for skill development, employability and entrepreneurship and develops local and global interest.

Course Code	TECH251
Course Name	Chemistry Lab

COs	Description
CO1	Students are able to estimate the impurities present in water for skill development and employability.
CO2	Ability to prepare advanced polymer materials for skill development and employability achieving national and international interest.
CO3	Ability to know the strength of an acid present in secondary batteries for skill development and employability.
CO4	Ability to find the Fe^{+2}, Ca^{+2} & CI using titrimetric for skill development and employability and develops local and global interest.
CO5	Ability to find the functional group identification of organic compounds for skill development and employability

Course Code	TEEC251
Course Name	Electronics Engineering Lab

COs	Description
CO1	Measure voltage, current through multimeter for skill development achieving national and international interest.
CO2	Understand the practical working of a diode for employability.
CO3	Understand the graph transitions of a transistor for skill development.
CO4	Develops local and global interest by understanding the concept of logic gates for employability.
CO5	To build clamper circuit using diode for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEME251
Course Name	Mechanical Engineering Lab

COs	Description
CO1	Describe the behavior of materials upon normal external loads for skill development and employability.
CO2	Predict the behavior of the material under impact conditions for skill development and employability achieving national and international interest.
CO3	Recognize the mechanical behavior of materials for skill development and employability.
CO4	Recognize parts of IC engines for skill development and employability and develops local and global interest.
CO5	Recognize components of boilers for skill development and employability.

Course Code	EMA301
Course Name	Engineering Mathematics- III

COs	Description
CO1	Develop the concepts of Laplace transformation & Inverse Laplace Transformation with its property to solve PDE for local, national and international interest which is helpful in all engineering & research work for skill development and employability achieving national and international interest.
CO2	Gain knowledge of Fourier series representation for even/odd functions and Z- transforms and its applications for skill development and employability.
CO3	Apply the concept of analyticity and the Cauchy-Riemann equations to analyze results on harmonic and including the fundamental theorem of algebra for skill development and employability.
CO4	Learn about Cauchy's theorem and its uses in complex integration for national and international projects. Taylor's and Laurent's series in complex form for skill development and employability.
CO5	To be able to apply the knowledge of least square and curve fitting of straight lines for skill development and employability and develops local and global interest.

Course Code	EME301
Course Name	Thermodynamics

COs	Description
CO1	To understand the Fundamental Concepts and Definitions of

Sanjeev Dawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Thermodynamics for skill development and employability.
CO2	To understand and study the First law of Thermodynamics for skill development and employability at local and international level achieving national and international interest.
CO3	To understand the Second law of Thermodynamics for skill development and employability.
CO4	To gain interest at local and international level to understand the concept of Entropy for skill development and employability.
CO5	To understand the concept of Steam generation at constant pressure and. Simple Rankine cycle for skill development and employability and develops local and global interest.

Course Code	EME302
Course Name	Mechanics Of Solids

COs	Description
CO1	The students will be able to understand the mechanical properties of solids under various type of applied load and will be skilled to plot property diagram diagrams.
CO2	The students will be able to get employment in design sector for finding out the maximum and minimum stresses on a cross sectional plane of a material and role of strain energy under applied load for national and international interest achieving national and international interest.
CO3	The students will be able to start their entrepreneurship in designing of beams in pure bending at various projects in construction.
CO4	The students will be able to understand the behavior of shafts under torsion and design the shafts with skill development.
CO5	The students will be able to develop local and global interest in designing thick and thin-walled pressure vessels and their deformation due to internal and external force and will be employable in this area and develops local and global interest.

Course Code	EME303
Course Name	Fluid Mechanics

COs	Description
CO1	Understanding the concepts of fluid behavior and developing working models for skill development employability achieving national and international interest.
CO2	Applying the concept of fluid mechanics on static as well as dynamic conditions which helps in employability and skill development.
CO3	Developing the employability and entrepreneurship skills by analyzing the mechanics related to fluid motion and develops local

Sanjeev Dawra
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and global interest.
CO4	Evaluating different problems related to the fundamental principles of fluid statics, fluid kinematics and fluid dynamics for skill development and develops local and global interest.
CO5	Creating designs of different machining equipment's for national and international projects and using fluid as a working medium for creating employability and developing entrepreneurship skills.

Course Code	**EME304**
Course Name	**Measurement & Metrology**
COs	**Description**
CO1	Define the measurement and measuring instruments for national and international projects. Describes the static and dynamic performance characteristics of measurement instruments for skill development and employability.
CO2	Understand the types of sensors and transducers and also working of transducer and sensor for skill development and employability.
CO3	Apply the various measuring instruments and appropriate method for inspection for measuring different physical quantities for skill development and employability.
CO4	Understand the standards of length, angles; they can understand the evaluation of surface finish and measure the parts with various comparators for skill development and employability.
CO5	Understand and apply various geometrical forms like straightness, flatness etc. Also know the working of different metrological tool for skill development and employability and develops local and global interest.

Course Code	**EME307**
Course Name	**Industrial Engineering**
COs	**Description**
CO1	Understanding various concepts and techniques of Industrial Engineering like productivity, work study, facility location decisions, principles of facility layout and material handling and use this knowledge for skill development and employability.
CO2	Applying functions of PPC like routing, scheduling, dispatching, loading and follow-up in industry for skill development and employability in achieving national and international interest.
CO3	Analyzing break even chart, acceptance sampling plans and various maintenance strategies for skill development and employability.
CO4	Evaluating depreciation of fixed assets through various methods,

Sanjeev Dawar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	economic order quantity for inventory management, job evaluation, merit rating and wage incentive plans for skill development, employability and entrepreneurship development and develops local and global interest.
CO5	Creating organizational charts as per organization's needs for skill development and employability.

Course Code	**EME351**
Course Name	**Thermodynamics Lab**
COs	**Description**
CO1	Water tube boiler and fire tube boiler working and its parts for skill development and employability in gaining national and international interest.
CO2	Working and study of different parts of two stroke and four stroke petrol engine for skill development and employability.
CO3	Working and study of different parts of two stroke and four stroke diesel engine for skill development and employability.
CO4	Working of steam engine and gas turbine for skill development and employability
CO5	Develops local and global interest by study of ignition engine for skill development.

Course Code	**EME352**
Course Name	**Machine Drawing -I Lab**
COs	**Description**
CO1	Identify the national and international standards pertaining to machine drawing for skill development and employability.
CO2	Illustrate various machine components through drawings for skill development and employability in achieving national and international interest.
CO3	Student will get the concept of orthographic projection at the same time he will also be able to draw orthographic projections of isometric views for entrepreneurship, skill development and employability.
CO4	Student will understand about the threaded fasteners for skill development and employability and develops local and global interest.
CO5	Student will know about the keys, cotter, rivet joint and shaft couplings and also able to make assembly drawing as well as free hand sketching of various mechanical parts for entrepreneurship, skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EME353
Course Name	Fluid Mechanics Lab

COs	Description
CO1	Achieving national and international interest to understand the application of Bernoulli's theorem to various flow measuring devices for skill development and employability.
CO2	Understand the significance of Reynolds number for skill development and employability.
CO3	Learn the concept of surface tension of various liquids for skill development and employability.
CO4	Understand the application of momentum equation in turbines for skill development and employability.
CO5	Understand the concept of friction factor in pipe flow for skill development and employability and develops local and global interest.

Course Code	EME354
Course Name	Measurement & Metrology Lab

COs	Description
CO1	Demonstrate the necessary skills for calibration and testing of different gauges and instruments for entrepreneurship.
CO2	Demonstrate the necessary skills to collect data perform analysis and interpret results to draw valid conclusions through standard test procedures using various metrology instruments for entrepreneurship and in achieving national and international interest.
CO3	Understand the measurement and working of measuring instruments for entrepreneurship.
CO4	Understand the standards of length and develops local and global interest.
CO5	Understand and apply various geometrical forms like straightness.

Course Code	EME401
Course Name	Applied Thermodynamics

COs	Description
CO1	To understand the Thermodynamics relations and fuel and their combustions for skill development and employability in achieving national and international interest.
CO2	To understand the Boilers and Condenser for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	To understand the Steam Engine and Steam & Gas Nozzle for skill development and employability.
CO4	To understand the Vapor power cycles and Steam turbines for skill development and employability.
CO5	To understand the Gas Turbine and Jet Propulsion for skill development and employability and develops local and global interest.

Course Code	EME402
Course Name	Advance Mechanics of Solids

COs	Description
CO1	Analyze and design structural members subjected to tension, compression, torsion, bending and combined stresses using the fundamental concepts of stress, strain and elastic behavior of materials for skill development.
CO2	Achieving national and international interest by utilizing appropriate materials in design considering engineering properties, sustainability, cost and weight for skill development and employability.
CO3	Understand basic concept and function of different types of spring for skill development and employability
CO4	Analyze stress in column and strut subjected to different end condition for skill development and employability.
CO5	Develops local and global interest by performing engineering work in accordance with ethical and economic constraints related to the design of structures and machine parts for skill development and employability.

Course Code	EME403
Course Name	Materials Science

COs	Description
CO1	Achieving national and international interest by applying the knowledge of science, engineering and technology in synthesis of new materials with upgrading for their skill development.
CO2	Explain the testing, micro-structural exam and phase diagram of ferrous and non-ferrous metals and can get employment in testing labs.
CO3	Understand the properties and application of ferrous and no-ferrous metals and requirement of heat treatment process for skill development and employability.
CO4	Understand the magnetic and electrical properties of materials for various applications and can get employment in new Era of Automobile Electric Vehicle and develops local and global interest.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Select advanced materials or non-metals based on their application for designing of new materials, which will be beneficial for getting employment and skill development.

Course Code	**EME404**
Course Name	**Kinematics of Machines**

COs	Description
CO1	Understanding the kinematic links, pairs and kinetic linkages. Describe the velocity diagram for skill development
CO2	Identify the basic relations between distance, time, velocity, and acceleration in achieving national and international interest. Drawing velocity and acceleration diagrams for different mechanisms for skill development and employability.
CO3	Analyzing the kinematics synthesis of planner Linkages for skill development and employability.
CO4	Drawing displacement diagrams and cam profile diagram for followers executing different types of motions and various configurations of follower's skill development and employability.
CO5	Define and selecting gear and gear train depending on application for skill development and employability and develops local and global interest.

Course Code	**EHU401**
Course Name	**Disaster Management**

COs	Description
CO1	Achieving national and international interest and ability to understand major types of disaster in Indian context for skill development.
CO2	Understanding of approaches to reduce disaster risks for employability.
CO3	Capable of understanding relationship between development and disaster. Sustainable development for skill development.
CO4	Understanding of when an event becomes disaster and the phases to handle the situation for employability and develops local and global interest.
CO5	Ability to analyze how to handle a situation of disaster by taking case studies of events in past for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	PSD401
Course Name	Professional Skill Development-II

COs	Description
CO1	Communicate effectively verbally and non-verbally.
CO2	Develop national and international repute by exhibit accurate sense of self and to demonstrate knowledge of personal belief and values.
CO3	Work well with other people in teams or group formally and informally and to face interview with confidence.
CO4	Learn to argue and argue to learn and to improve their reasoning/argumentative and presentation skills.
CO5	Gain not just a positive impression but also respect in the workplace and to know how to cope up according to the organization culture and develops local and global interest.

Course Code	EEE405
Course Name	Electrical Machines& Automatic Control

COs	Description
CO1	Differentiate between single phase, three phase and auto transformer for skill development and also understand the concept of dc motors in achieving national and international interest.
CO2	Acquire knowledge about the three phase induction motor, synchronous motor and servo motor.
CO3	Differentiate different types of signal & systems and also understand the modeling of mechanical systems.
CO4	Analyze the time response and stability of open loop and closed loop systems and develops local and global interest.
CO5	Understand the root locus techniques and analyze the frequency response along with the characteristics of different types of controllers.

Course Code	EME451
Course Name	Applied Thermodynamics Lab

COs	Description
CO1	Find out the Indicated H.P. of I.C. Engine by Morse Test for skill development and employability
CO2	Prepare the heat balance sheet for Diesel Engine and Petrol Engine by test rig for skill development and employability improving national and international interest.
CO3	Understand the working of velocity and pressure compounded steam turbine and Impulse & Reaction turbine for skill development and

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability.
CO4	Students also understand the working of vapor compression Refrigerator unit tutor / refrigerator and window type Air conditioner for entrepreneurship, skill development and employability.
CO5	Moreover students also understand the working of braking system of any vehicle and types of Dynamometer for skill development and employability and develops local and global interest.

Course Code	EME452
Course Name	Machine Drawing -II Lab

COs	Description
CO1	Identify the national and international standards pertaining to machine drawing for skill development and employability.
CO2	Student will get the concept of orthographic projection at the same time he will also be able to draw orthographic projections of isometric views for skill development and employability.
CO3	Student will be able to make assembly drawing of different mechanical components like as (Screw jack, connecting rod, stuffing box etc.) for skill development and employability and develops local and global interest.
CO4	Student will learn to specify the material; he will also understand material different designation system for skill development and employability.
CO5	Student will learn about the limits, fits and tolerances system, he will also understand the meaning of different system for skill development and employability.

Course Code	EME453
Course Name	Materials Testing Lab

COs	Description
CO1	Understand the physical properties of various materials by examining the color, odor, density and surface finish for skill development and employability in achieving national and international interest.
CO2	Understand the tests on Universal Testing Machine (UTM), Impact Testing Machine, Hardness Testing Machine, Fatigue Testing Machine and Spring Testing Machine for employability and entrepreneurship skills.
CO3	Understand the micro structure of different materials by examining them under microscope for employability and skill development.
CO4	Understand the basics of Non Destructive Testing methods for skill

Sanjeev Dawp
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development and employability and develops local and global interest.
CO5	Understand the concept and importance of various heat treatment processes such as annealing, normalizing, quenching, case hardening, etc. for skill development and employability.

Course Code	EEE455
Course Name	Electrical Machine And Automatic Control Lab

COs	Description
CO1	Explain the methods of speed control and efficiency of DC motor in achieving national and international repute.
CO2	Perform OC & SC Tests on a single phase transformer.
CO3	Know about the concept of stability and transient response.
CO4	Obtain speed control and load test on a three phase induction motor and develops local and global interest.
CO5	Check the performance of controllers.

Course Code	EME501
Course Name	Heat Transfer

COs	Description
CO1	Achieving national and international interest by understand the basic laws of heat transfer for skill development.
CO2	Analyze problems involving steady state heat conduction in simple geometries for skill development and employability
CO3	Understand the fundamentals of convective heat transfer process for skill development.
CO4	Analyze problems involving effectiveness and LMTD of different heat exchanger for skill development and entrepreneurship development
CO5	Calculate radiation heat transfer between black body surfaces & heat exchange between gray body surfaces for skill development and employability and develops local and global interest.

Course Code	EME502
Course Name	Machine Design-I

COs	Description
CO1	Define the basic concepts of design and describe basic process design for skill development and employability. It also deals with introduction of materials for entrepreneurship.

Sanjeev Dawp
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Provides the information about static load & fluctuating load, It also provides the design procedures when different mechanical components are subjected to such loading for skill development and entrepreneurship helps in achieving national and international interest.
CO3	Describe and discuss different types of threads, power screw, shaft, keys and couplings and their designing procedures for skill development and employability.
CO4	Develops local and global interest by providing the information about springs and riveted joints. It also develops the ability of designing of these components for skill development and entrepreneurship.
CO5	Provide information relating to welded joint, knuckle joint and cotter joint, it also provides the information about the application and designing of these joint at different places skill development and employability.

Course Code	EME503
Course Name	Manufacturing Engineering-I
COs	**Description**
CO1	To acquire national and international interest by the knowledge of the tools, equipment, machinery and their applications use this knowledge for employability and entrepreneurship.
CO2	To acquire the knowledge of the tools, equipment, machinery and applications and use this knowledge for skill development.
CO3	To acquire the knowledge about the tools, equipment, machinery and operations and use this knowledge for skill development, employability and entrepreneurship.
CO4	To understand different unconventional metal forming processes and use this knowledge for skill development and employability.
CO5	To acquire the knowledge of various types of casting processes and use this knowledge for skill development, employability and entrepreneurship and develops local and global interest.

Course Code	EME504
Course Name	Fluid Machinery
COs	**Description**
CO1	Understand the fluid mechanics and equations of the fluid. Describe the thrust of jet on fixed and moving surface for skill development and employability.
CO2	Derive and apply general governing equations for Impulse and reaction Turbines for skill development and employability in achieving national and international interest.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand and analyze the working of centrifugal pumps and also derive the different efficiencies of centrifugal pump for skill development and employability.
CO4	Understand and analyze the working of Reciprocating pumps and also derive the different efficiencies of Reciprocating pump for skill development and employability and develops local and global interest.
CO5	Understand the working of hydraulic machines like hydraulic accumulator, hydraulic press, cranes etc. Evaluate the performance characteristics of hydraulic Machines skill development and employability.

Course Code	EME507
Course Name	I.C. Engines
COs	**Description**
CO1	Achieving national and international repute by understands the Fundamental Concepts of Air-Standard Cycles and types of fuels used in SI and CI engines for skill development and employability.
CO2	To understand the phenomenon of Combustion in SI engine for skill development and employability.
CO3	To understand the phenomenon of Combustion in CI engine for skill development and employability.
CO4	To understand the Engine cooling, lubrication and Supercharging for skill development and employability and develops local and global interest.
CO5	To understand the concept Compressor for skill development and employability.

Course Code	EME011
Course Name	Gas Dynamics
COs	**Description**
CO1	Understanding the different types of flow and its equation for skill development and employability.
CO2	Understanding the different types of waves of flow for skill development and employability helps in achieving national and international interest.
CO3	Explain design of converging-diverging nozzles and their characteristics for skill development, employability and entrepreneurship
CO4	Analyzing Unsteady wave motion, Moving normal shocks, reflected shock waves, Physical aspects of wave propagation and Basic elements of acoustic theory for skill development and employability

Sanjeev Dwivedi

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Describe 2-Dimentional Compressible Flow Velocity considerations, velocity potential, linearized solutions for skill development, employability and develops local and global interest.

Course Code	EME012
Course Name	Computational Aerodynamics

COs	Description
CO1	Understand compressible flow model and its governing equation in achieving national and international interest. Execute Compressible potential flow model for skill development and employability
CO2	Understand and apply the Boundary Conditions, construction of numerical solution and aerodynamics loads, for skill development, employability and entrepreneurship.
CO3	Understand and analyze characteristic form of the Euler Equation and its physical Interpretation, its solutions for skill development and employability.
CO4	Design Finite Difference Methods for Model Wave Equations for skill development, employability and entrepreneurship and develops local and global interest.
CO5	Analyze and apply the Numerical method for Euler's Equation/ Navier Stokes Equation for skill development and employability.

Course Code	EME013
Course Name	Tribology

COs	Description
CO1	Understand the different techniques used to solve mechanical engineering problems for skill development.
CO2	Achieving national and international interest by understand Mechanism of wear, Quantitative laws, Hypothesis, theories for skill development.
CO3	Explain the elastic & Plastic deformation of surfaces. Contact of Solids, Contact of Ideally Smooth Surfaces. Distribution of Pressure over elastic contact of two curvilinear bodies for skill development and employability
CO4	Analyze the generalized Reynold's equation .Flow and shear stress and boundary layers for skill development and employability.
CO5	Understand and apply Bearing design considerations & characteristics for skill development and employability and develops local and global interest.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EME014
Course Name	Advanced Welding Technology

COs	Description
CO1	To acquire the knowledge about the principle, working and applications of different conventional welding techniques such as gas welding, arc welding etc. and use this knowledge for skill development, employability and entrepreneurship in achieving national and international interest.
CO2	To acquire the knowledge about the principle, working and applications of different unconventional welding techniques and use this knowledge for skill development, employability and entrepreneurship.
CO3	To acquire the knowledge of various welding defects their causes and remedies for skill development and employability.
CO4	To prepare various types of welding joints for skill development and employability and develops local and global interest.
CO5	To determine/inspect and analyze the weld through various destructive and non-destructive techniques for skill development and employability.

Course Code	EME015
Course Name	Finite Element Methods

COs	Description
CO1	Understand the structural dynamics, boundary, initial and Eigen value for skill development.
CO2	Analyze the Finite element analysis of one dimensional problems-second order boundary value problems for skill development and employability in achieving national and international repute.
CO3	Solve structural, thermal, fluid flow and impact problems for skill development and employability.
CO4	Formulate the numerical integration, natural coordinates, approximation of geometry for skill development and employability and develops local and global interest.
CO5	Solve the finite element analysis of 2D problems for skill development and employability.

Course Code	EME016
Course Name	Operations Research

COs	Description
CO1	Achieving national and international repute by understanding the

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Basics of Operation research like linear programming and its problem solving techniques for skill development.
CO2	Analyze the transportation & assignment problems like deterministic dynamic problem and its solution for skill development and employability.
CO3	Solve Decision theory, Game Theory, Sequencing problems for skill development and employability.
CO4	Formulate the Stochastic inventory models, Monte-Carlo simulation and Application to queuing, inventory & other problems for skill development and employability.
CO5	Solve Queuing models and Applications of CPM and PERT techniques in Project planning and control for skill development and employability and develops local and global interest.

Course Code	EME017
Course Name	Mechanical System Design

COs	Description
CO1	Understand the Basics concept of systems, system types and its application for skill development and also he can able to formulate the problem related to high speed belt drive systems for employability.
CO2	Analyze the system and the system theories & system models for skill development and employability achieving national and international repute.
CO3	Solve the Optimization Concepts, and graph modeling problems for skill development and employability.
CO4	Evaluate the system and he can optimize the models by various methods for skill development and employability.
CO5	Analyze the decision problems under certainty and uncertainty risk and also simulate the system for skill development, employability and entrepreneurship and develops local and global interest.

Course Code	EME018
Course Name	Reliability Engineering

COs	Description
CO1	Gaining national and international repute by understanding the Basics of reliability engineering, its definition and factors which affect the system effectiveness for skill development.
CO2	Analyze the probability of system effectiveness by various methods for skill development and employability.
CO3	Understand the types of system and methods of reliability evaluation methods for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Analyze the reliability improvements, component redundancy and system redundancy for skill development and employability and develops local and global interest.
CO5	Test all the reliability testing like life testing, testing planning and test standards for skill development, employability and entrepreneurship.

Course Code	EME019
Course Name	Thermal Turbo Machines

COs	Description
CO1	Understand the Basics of blower, pumps, compressors, turbojets for skill development.
CO2	Analyze the working of centrifugal compressors and axial flow and its characteristics and application and also degree of reaction for skill development and employability achieving national and international repute.
CO3	Solve the elementary theory of axial flow turbine, energy transfer equation and vortex theory for skill development and employability.
CO4	Understand the working of steam turbines, pumps, radial flow turbines and its construction and performance for skill development and employability.
CO5	Analyze the gas turbine starting and control system, turbine blades coding and its design choices for skill development employability and entrepreneurship and develops local and global interest.

Course Code	EME020
Course Name	Composite Materials

COs	Description
CO1	Understand the Basics of composite materials, its types and the types of matrices material and reinforced materials achieving national and international repute for skill development.
CO2	Understand the macro mechanics of a lamina and also solve the problems for skill development and employability.
CO3	Understand the macro mechanical analysis of a lamina and biaxial strength theories and also solve the problems for skill development and employability.
CO4	Understand the macro mechanical analysis of a laminate and its manufacturing process for skill development and employability and develops local and global interest.
CO5	Analyze the application of the composite materials and reinforced materials for skill development and employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EME551
Course Name	Heat Transfer Lab

COs	Description
CO1	Evaluate heat transfer through lagged pipe, Insulating powder and Drop and Film wise condensation for skill development and employability.
CO2	Experiment the Thermal conductivity of a given metal Rod for skill development and employability achieving national and international repute.
CO3	Measure the Heat transfer coefficient for Pin Fin, Forced convection, Natural Convection for employability and entrepreneurship skills.
CO4	Measure the parallel and counter flow heat exchanger and to Experiment on Transient heat conduction for employability and skill development.
CO5	Test Emissivity, Stefan Boltzmann Constant and Critical Heat flux for skill development and employability and develop local and global interest.

Course Code	EME552
Course Name	Machine Design I Lab

COs	Description
CO1	The students will demonstrate the ability to apply the fundamentals of stress analysis, theories of failure and material science in the design of machine components for skill development and employability achieving national and international repute.
CO2	The students will demonstrate the ability to make proper assumptions, perform correct analysis while drawing upon various mechanical engineering subject areas for skill development and employability.
CO3	Specifically, the students will demonstrate the preceding abilities by performing correctly: for employability and entrepreneurship skills.
CO4	Students will demonstrate the ability to seek and learn new material in addition to the class topics new material identified and used by the students are measurable indicators for employability and skill development.
CO5	The breadth and depth of the issues taken into account by students are measurable indicators of their performance for skill development and employability and develops local and global interest.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EME553
Course Name	Manufacturing Engineering Lab

COs	Description
CO1	To acquire knowledge about the various tools, equipment, machinery and operations required for these basic manufacturing processes for skill development and employability.
CO2	To define and use different manufacturing process e.g. casting, forging, turning, drilling etc. for skill development and employability achieving national and international repute.
CO3	To define and use different welding processes e.g. gas welding and electric arc welding for employability and entrepreneurship skills.
CO4	Develops local and global interest by the use of forging like hand forging processes, power hammer study &operation for employability and entrepreneurship skills.
CO5	To acquire thorough knowledge of carrying out various operations in this lab for skill development and employability.

Course Code	EME554
Course Name	Fluid Machinery Lab

COs	Description
CO1	Calibrate flow measuring devices such as Venturimeter, orifice meter and v-notch for skill development and employability achieving national and international repute.
CO2	Determine friction factor in pipes for employability and skill development.
CO3	Determine minor losses in the pipes for employability and entrepreneurship skills.
CO4	Verify Bernoulli's theorem for skill development and employability and develops local and global interest.
CO5	Understand the performance of hydraulic turbine and pumps under different working conditions for employability and skill development.

Course Code	EME601
Course Name	Refrigeration and Air Conditioning

COs	Description
CO1	Understanding the method of refrigeration, Air craft refrigeration systems and DART for skill development and employability.
CO2	Understand vapor compression system and determine the COP of vapor compression refrigeration system achieving national and international repute. Also describe the use of T-S diagram and P-H

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	chart for skill development and employability.
CO3	Understand the working of vapor absorption cycle and component assemblies. Also know about the refrigerants and its nomenclature and properties for skill development and employability.
CO4	Introduction of air conditioning and its properties and Evaluating and interpret different psychometric process, cooling and heating load calculations and grand sensible heat factor for skill development and employability and develops local and global interest.
CO5	Elementary knowledge of air conditioning equipment's like compressors, condensers, evaporators etc. And also knowledge about cold storage, Ice plants, water cooler etc. for skill development and employability.

Course Code	EME602
Course Name	Machine Design-II

COs	Description
CO1	Define the basic concepts of gear, their classification, their designing and their selection for different machinery for skill development and entrepreneurship achieving national and international repute.
CO2	Provides the information about bevel gear and worm gears. It also provides the design procedures of bevel gears and worm gears for entrepreneurship and employability.
CO3	Describe and discuss different types of sliding contact bearing, hydrodynamic bearing, and hydrostatic bearings, it also provides the information about lubrication and importance of lubrication for skill development, entrepreneurship and employability.
CO4	This unit of course explorers the world of anti-friction bearings, ball bearing and roller bearings, It provides the information about bearing selection process and their designing for skill development and entrepreneurship and develops local and global interest.
CO5	Describe and discuss some important components of internal combustion engines (cylinder, piston, crank shaft and connecting rod, etc.), it also provides basic knowledge of these components, selection of material for these components and designing process of these mentioned components for skill development, entrepreneurship and employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EME603
Course Name	Dynamics of Machine

COs	Description
CO1	Understanding the static & dynamics force analysis of objects, turning moment and flywheel for skill development and employability.
CO2	Applying the theoretical balancing of rotating masses, variation of tractive force, swaying couple, and hammer blow for skill development and employability achieving national and international repute.
CO3	Be proficient in the use of mathematical methods to analyze the friction forces on belt, gears and brakes for skill development and employability.
CO4	Analyzing problems related to governors for skill development and employability.
CO5	Evaluating problems related to flywheel, effect of gyroscopic couple upon the stability of aero planes, ships, two & four-wheelers and mechanical vibrations for skill development and employability and develops local and global interest.

Course Code	EME604
Course Name	Manufacturing Engineering-II

COs	Description
CO1	To understand the mechanism of metal cutting and different parameters involving in metal cutting achieving national and international repute for skill development and employability.
CO2	To acquire the knowledge about the principle and working of different machine tools used in metal cutting such as lathe, shaper, drilling machine etc. and use this knowledge for skill development, employability and entrepreneurship.
CO3	To acquire the knowledge about the principle and working of different grinding machines and super finishing process and use this knowledge for skill development, employability and entrepreneurship.
CO4	To understand the principle and working of different welding process, welding defects and residual stresses in weld for skill development and employability and develop local and global interest.
CO5	To understand different unconventional machining and welding processes such as EDM, ECM and LBW, USW etc. for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EME605
Course Name	Production Planning & Control

COs	Description
CO1	To develop an ability to apply PPC concepts in a various areas like marketing, accounting, finance, logistics etc. Applying various techniques of forecasting and production planning for skill development and employability.
CO2	Achieving national and international repute by applying functions of PPC like routing, scheduling, dispatching, loading & follow-up in industry for skill development and employability.
CO3	Applying inventory management techniques for skill development and employability.
CO4	To understand various concepts and techniques like productivity and Maintenance Process for skill development and employability.
CO5	Evaluating human abilities and creating workplace for skill development, employability and entrepreneurship development and develops local and global interest.

Course Code	EHU601
Course Name	Human Values & Professional Ethics

COs	Description
CO1	It ensures students sustained happiness through identifying the essentials of human values for skill development and employability achieving national and international repute.
CO2	It facilitates a correct understanding between profession and happiness resulting in the development of entrepreneurship skills.
CO3	It helps students in skill development and employability by understanding practically the importance of trust, mutually satisfying human behavior and enriching interaction with nature.
CO4	Provide ability to develop appropriate technologies for employability and management patterns to create harmony in professional and personal life for skill development.
CO5	Understanding about the global issues for skill development and entrepreneurship and develops local and global interest.

Course Code	EME651
Course Name	Refrigeration and Air Conditioning Lab

COs	Description
CO1	Understand different refrigeration cycles for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the functions of basic components of air conditioning systems for skill development and employability achieving national and international repute.
CO3	Understand the working of window air conditioner for employability and entrepreneurship skills.
CO4	Develops local and global interest by determining the volumetric efficiency of compressor for skill development and employability.
CO5	Understand the working of a central air conditioning plant for skill development and employability.

Course Code	EME652
Course Name	Machine Design II Lab

COs	Description
CO1	The students will demonstrate the ability to apply the fundamentals of stress analysis, theories of failure and material science in the design of gears, bearings and I.C. Engine components for employability and skill development achieving national and international repute.
CO2	The students will demonstrate the ability to make proper assumptions, perform correct analysis while drawing upon various mechanical engineering subject areas for skill development and employability.
CO3	Specifically, the students will demonstrate the preceding abilities by performing correctly: The design, analysis and sizing of spur gear, helical gear, bevel gear and worm and worm gear, Student will learn how to design and select a bearing for different purpose for employability and entrepreneurship skills.
CO4	Students will demonstrate the ability to seek and learn new material in addition to the class topics through the completion of an open-ended project. The amounts as well as the depth of new material identified and used by the students are measurable indicators of the students' performance for employability and skill development and develop local and global interest.
CO5	The breadth and depth of the issues taken into account by students are measurable indicators of their performance for skill development and employability.

Course Code	EME653
Course Name	Dynamics of Machine Lab

COs	Description
CO1	To analyze the forces and motion of complex systems of linkages, gears and cams for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Achieving national and international repute by Designing linkage, cam and gear mechanisms for a given motion or a given input/output motion or force relationship for employability and entrepreneurship skills.
CO3	Analyze the motion and the dynamical forces acting on mechanical systems composed of linkages, gears and cams for employability and entrepreneurship skills.
CO4	Analyzing problems related to governors for skill development and employability and develops local and global interest.
CO5	Evaluating problems related to flywheel, effect of gyroscopic couple upon the stability of aero planes, ships, two & four-wheelers and mechanical vibrations for employability and skill development.

Course Code	EME701
Course Name	Power Plant Engineering
COs	**Description**
CO1	To understand the Power and Energy for skill development and employability achieving national and international repute.
CO2	To understand the Steam Power Plant and Water Treatment for skill development and employability.
CO3	To understand the Diesel Power Plant and Gas Turbine Power Plant for skill development and employability.
CO4	To understand the Nuclear Power Plant for skill development and employability.
CO5	To understand the Electrical System, Instrumentation and Pollution for skill development and employability and develops local and global interest.

Course Code	EME702
Course Name	Computer Aided Design
COs	**Description**
CO1	Able to get familiar with the elements of CAD, its necessity, importance and application in field of engineering. Also various components of computer graphics like input, output devices, storage devices, display devices for skill development and employability.
CO2	Able to understand software configuration, standard geometric transformations in 2D & 3D followed by composite & multiple transformation for skill development and employability achieving national and international repute.
CO3	Understand the significance of different curves, their properties and application in the field of computer graphics for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Able to the key concepts of solid modeling, constructive solid geometry, color models and application commands of AutoCAD & ProE software for skill development and employability and develops local and global interest.
CO5	Able to understand the various techniques of numerical methods and finite element method for skill development and employability.

Course Code	**EME703**
Course Name	**Computer Aided Manufacturing**

COs	**Description**
CO1	Able to understand the requirement, advantages and disadvantages of automation in manufacturing system achieving national and international repute. Also the fundamentals, classification of NC system and its correlation with factors like productivity for skill development and employability.
CO2	Able to understand part programming & ATP programming followed by examples like drilling, turning, subroutines & macro statement for skill development and employability.
CO3	Able to be familiar with system devices like controller, converters interpolators followed by various controls in NC systems like open loop, closed loop, contouring systems and adaptive control for skill development and employability.
CO4	Able to application of group technology, FMS, CIM, CAPP, mechatronics and computer aided inspection for skill development and employability and develops local and global interest.
CO5	Able to understand the concept of robotics, operation and application and application followed by the concept of artificial Intelligence for intelligent manufacturing for skill development and employability.

Course Code	**EME704**
Course Name	**Automobile Engineering**

COs	**Description**
CO1	To acquire the knowledge of various components and working of IC engine in details and use this knowledge for skill development
CO2	To understand working of transmission system (gear box) and steering system and their functions and use this knowledge for skill development achieving national and international repute.
CO3	To acquire the knowledge of different types of braking system and suspension system their functions and use this knowledge for skill development
CO4	To acquire the knowledge of starting system and develops local and global interest.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	To understand the working and function of air conditioning.

Course Code	**EME705**
Course Name	**Unconventional Manufacturing Processes**

COs	Description
CO1	Achieving national and international repute by understanding the limitations of conventional/traditional manufacturing Processes for skill development and employability.
CO2	Applying the best suitable machining process for a work piece based on its material properties for skill development and employability.
CO3	Analyzing working principles and processing characteristics of ultra-precision machining processes for skill development and employability.
CO4	Develops local and global interest by evaluating the precision using high speed machining methods, and nontraditional machining to the production of precision components for skill development and employability.
CO5	Creating an in-depth approach regarding application of unconventional manufacturing processes for Industrial production for skill development, employability and entrepreneurship development.

Course Code	**EME021**
Course Name	**Total Quality Management**

COs	Description
CO1	Understand the quality concept and its application in producing quality product leading to employability by developing better relation between producer and consumer.
CO2	Understand various organizational structures with the techniques of redesigning, identifying and evaluate strategies to increase organizational effectiveness for skill development and employability achieving national and international interest.
CO3	Develop entrepreneurship skills by understanding the cost associated to produce quality product and importance of manpower and its coordination to develop user friendly environment.
CO4	Provide information to use control charts effectively to minimize losses improving entrepreneurship skills. Analyze reliability and defect analysis methods and apply them to diagnose problems for skill development.
CO5	To understand ISO standards and various methods of developing quality awareness and its evaluation for skill development and to

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	minimize losses facilitating employability and develops local and global interest.

Course Code	EME022
Course Name	Ergonomics

COs	Description
CO1	Understand the importance of ergonomics and its theories like information theory achieving national and international interest.
CO2	Analyze the human physiology
CO3	Able to get a brief knowledge of Anthropometry: static and Dynamic
CO4	Able to understand the effect of environmental stressors like Noise etc. and develops local and global interest.
CO5	Able to understand Human error Accident and safety

Course Code	EME023
Course Name	Numerical Control of Machine Tool

COs	Description
CO1	Understand basic concepts of machines operated through numerical control for skill development.
CO2	Investigate; understand new and ongoing developments in the area of numerical control of machine tool for skill development and employment achieving national and international interest.
CO3	Understand the principles of computer numerical control (CNC) and machine Structures for entrepreneurship and skill development and employability.
CO4	Be able to interpret a component specification and produce an operational plan for its manufacture for entrepreneurship and skill development and employability and develops local and global interest.
CO5	Develop simple part programs with the help of programming languages and manufacture a component for entrepreneurship and skill development and employability.

Course Code	EME024
Course Name	Applied Computational Fluid Dynamics

COs	Description
CO1	Understand basic governing equation of mass and modeling of fluid flow for skill development achieving national and international interest.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Propose the most appropriate CFD model for the problem in hand and use commercial CFD packages for skill development and employment.
CO3	Model most appropriate turbulence prediction methodology for their particular applications for skill development and employment.
CO4	Be able to interpret a component specification and produce an operational plan for its manufacture for skill development and employment.
CO5	Propose numerical simulation to design and improve experiments and equipment for skill development and employment and develops local and global interest.

Course Code	EME025
Course Name	Micro Manufacturing

COs	Description
CO1	Understand basic concepts of macro manufacturing and also the challenges in meso, micro and nano manufacturing for skill development.
CO2	Investigate; understand new and ongoing developments in the area of micromachining for skill development and employment achieving national and international interest.
CO3	Understand the principles of microjoining, micro forming and micro fabrication for entrepreneurship and skill development and employability.
CO4	Be able apply the micro molding processes like soft lithography technique, polymer micro molding etc. for entrepreneurship and skill development and employability.
CO5	Analyze the dimensional metrology for micro manufacturing and fabrication for entrepreneurship and skill development and employability and develops local and global interest.

Course Code	EME026
Course Name	Mechanical Vibrations

COs	Description
CO1	Achieving national and international interest by understand basic concepts of mechanical vibrational motions and some theories of vibrations for skill development.
CO2	Understand the single degree freedom and Harmonic excitation with viscous damping and also use of some vibration measuring machines for skill development and employment
CO3	Understand the principles of two degree freedom systems for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Ability to analyze the mathematical model of a linear vibratory system to determine its response for skill development and employability and develops local and global interest.
CO5	Analyzing the need and importance of vibration analysis in mechanical design of machine parts that operate in vibratory conditions for entrepreneurship and skill development and employability.

Course Code	EME027
Course Name	Optimization Techniques in Engineering

COs	Description
CO1	Understand basic concepts of unconstrained optimization and some terms used in it for skill development.
CO2	Understand basic concepts of constrained optimization and some terms used in it for skill development achieving national and international interest.
CO3	Formulate the method and its linear programing for some problem for skill development and employability.
CO4	Analyze the optimization and functions of a complex variable and numerical analysis for entrepreneurship and skill development and employability and develops local and global interest.
CO5	Develop some programming for optimization in operation research like transportation, discrete simulation and integer programming for entrepreneurship and skill development and employability.

Course Code	EME028
Course Name	Management Information System

COs	Description
CO1	Understand basic concepts of organization, types and characteristics of information for skill development achieving national and international interest.
CO2	Investigate and understand the foundation of information system in business and its problems for skill development and employment.
CO3	Understand the business application of information technology like internet, intranet, extranet etc. for entrepreneurship and skill development and employability.
CO4	Be able to manage the information technology for global management for entrepreneurship and skill development and employability.
CO5	Understand the advanced concept in information system and enterprise resource planning for entrepreneurship and skill development and employability and develops local and global interest.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EME029
Course Name	Supply Chain Management

COs	Description
CO1	Understand the role of supply chain management, scope and its importance for skill development.
CO2	Understand the forecasting, inventory strategy, transportation strategy, warehouse management for skill development achieving national and international interest.
CO3	Analyze the capacity planning and forecasting in supply chains for skill development and employability.
CO4	Be able to learn the management and economics of inventory and supply chain for skill development and employability and develops local and global interest.
CO5	Develop design of network of distribution and application of E-business for skill development and employability.

Course Code	EME030
Course Name	Entrepreneurship Development Programme

COs	Description
CO1	Understand the evolution of the Concept of Entrepreneur Functions of Entrepreneur for skill development achieving national and international interest.
CO2	Investigate and understand the small scale industries and project identification and project formulation for skill development and employment
CO3	Understand the principles of accounting for small enterprises, and project appraisal for entrepreneurship, skill development and employability.
CO4	Be able to interpret the marketing management and laws concerning entrepreneur for entrepreneurship, skill development and employability.
CO5	Develops local and global interest by gaining knowledge about the government policies for small scale entrepreneurs, institutional setup and women entrepreneurship for entrepreneurship, skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TEME031
Course Name	Renewal Energy Resources and its Utilization

COs	Description
CO1	Understand the review and Impact of Fossil Fuel Based Systems. Traditional Energy Sources and also the basic of solar energy for skill development.
CO2	Understand the principle of wind energy conversion, wind turbine and application of wind energy for skill development and employment achieving national and international interest.
CO3	Knowledge about the biomass, biogas and concept of bio diesel for skill development and employability.
CO4	Analyze the component of wave energy system, ocean thermal energy conversion and tidal wave for skill development and employability.
CO5	Investigate the hybrid system, fuel cell, geothermal energy and energy management for skill development and employability and develops local and global interest.

Course Code	TEME032
Course Name	Industrial Automation & Control Systems

COs	Description
CO1	Achieving national and international interest by understanding the concept and scope of industrial automation, socio-economic considerations of automation for skill development.
CO2	Understand the fluid power control elements and standard graphical symbols for them and simple hydraulic and pneumatic circuit for skill development and employment
CO3	Knowledge regarding the working of elements such as hydraulic generator, hydraulic & pneumatic actuator, hydraulic & pneumatic valves used in heavy construction equipment for skill development and employability.
CO4	Knowledge regarding key components and functioning of an automated industry for skill development and employability.
CO5	Knowledge regarding the methods used to handle the materials in automated industry, such as AGV's for skill development and employability and develops local and global interest.

Course Code	TEME033
Course Name	Basics of Nano Technology

COs	Description
CO1	Understand the size and shape dependence of material properties at the nanoscale for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the intel-IBM approach to nanotechnology: lithography, etching, ion implantation, thin film deposition for skill development and employment achieving national and international interest.
CO3	Knowledge about the Difference in nano and macro material along with various approaches of manufacturing and synthesis of nanomaterials for skill development, employability and entrepreneurship.
CO4	Importance of characterization and characterization devices is main outcome of this for skill development, employability and entrepreneurship and develops local and global interest.
CO5	Provides expertise to develop new nanomaterials with the help of chemical synthesis and laser ablation techniques for skill development, employability and entrepreneurship.

Course Code	TEME034
Course Name	Modern Manufacturing Processes
COs	**Description**
CO1	Understand the limitations of conventional manufacturing processes need of modern manufacturing processes for skill development and employability achieving national and international interest.
CO2	Describe the specific process characteristics of various modern manufacturing technologies for skill development, employability.
CO3	Describe the working and application of high energy rate forming processes for skill development, employability and entrepreneurship
CO4	Analyze the working and application of modern joining processes such as ultrasonic welding for skill development, employability and entrepreneurship and develops local and global interest.
CO5	Comparatively analyze and evaluate the benefits of modern manufacturing processes and discuss their limitations for skill development, employability and entrepreneurship

Course Code	TEME035
Course Name	Project Management
COs	**Description**
CO1	Understand the project characteristics, project identification & formation for skill development.
CO2	Understand the project appraisal and its types for skill development and employment achieving national and international interest.
CO3	Estimate of cost components of projects, sources of finances, role of financial institutions for skill development and employability.
CO4	Analyze the scheduling techniques, PERT & CPM, network preparation, updating network of project management for skill

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development and employability and develops local and global interest.
CO5	Enhances career development prospects through having achieved recognized project management knowledge for skill development and employability.

Course Code	**TEME036**
Course Name	**Robotics & FMS**

COs	**Description**
CO1	Understand the persisted inefficiency & desired system of robotics for skill development.
CO2	Understand the robot & robotics, basic element of robot, robot classification for skill development and employment achieving national and international interest.
CO3	Embedded intelligence is now in products ranging from cars to domestic appliances for skill development and employability.
CO4	Intelligent systems range from unmanned vehicles in aerospace and robots in sub-sea exploration, to consumer products and the creative arts for skill development and employability.
CO5	FMS is not an end in itself, but a means to an end and the natural partner to integrate to existing CAD/CAM systems and progress toward CIM for skill development and employability and develops local and global interest.

Course Code	**EME752**
Course Name	**Computer Aided Design Lab**

COs	**Description**
CO1	Be able to create a detailed drawing and assemble a manufacturing environment for skill development and employability.
CO2	Be able to create basic NC sequences necessary for material removal for employability and skill development achieving national and international interest.
CO3	Be able to use a commercial CAD software package as an engineering tool for employability and entrepreneurship skills.
CO4	Analyze the technical drawings using both CAD and basic manual tools to develop entrepreneurship skills and develops local and global interest.
CO5	Apply the stages of the design process from scratch using engineering graphics techniques such as sectional projections, dimensioning and computer-generated drawings (2D) for employability and skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EME753
Course Name	Computer Aided Manufacturing Lab

COs	Description
CO1	Understand the environmental impact of the investigation, work individually and in a team for conducting the experiments for employability and skill development.
CO2	Be able to create a detailed drawing and assemble a manufacturing environment to develop entrepreneurship skills achieving national and international interest.
CO3	Be able to create basic NC sequences necessary for material removal for skill development and employability.
CO4	Use modern tools for measurements/modeling and simulation/draw the graphs etc. for employability and entrepreneurship skills.
CO5	Effectively communicate and explain the experimental analysis for skill development and employability and develops local and global interest.

Course Code	EME754
Course Name	Automobile Engineering Lab

COs	Description
CO1	Achieving national and international interest understanding the environmental impact of the investigation and Work individually and in a team for conducting the experiments for employability and skill development.
CO2	Ability to work professionally in mechanical systems including design, analysis, production, measurement and quality control for skill development and employability.
CO3	Ability to work on diverse disciplinary tasks including manufacturing, materials, thermal, automobile, robotics, Mechatronics, engineering software tools, automation and computational fluid dynamics for employability and entrepreneurship skills.
CO4	To enable students for higher studies and competitive examinations for skill development and develops local and global interest.
CO5	To facilitate students and industry professionals for continuous improvement and innovation for employability and entrepreneurship skills.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EME801
Course Name	Maintenance Engineering & Management

COs	Description
CO1	Understanding principles and practices of maintenance planning for skill development and employability gaining national and international interest.
CO2	Applying policies of planned maintenance. Also describe the strategies of preventive maintenance and breakdown maintenance for skill development and employability.
CO3	Applying methods of condition based maintenance like pillars of condition monitoring, CBM and its implementation and its benefits. Also understand condition monitoring techniques for skill development and employability.
CO4	Analyzing the maintenance planning and scheduling and also describe the Gantt chart, PERT, CPM and CPA network etc. and knowledge about the CMMS and components of CMMS for skill development and employability.
CO5	Knowledge about maintenance management and production management. Also describe the material planning, parts planning and control for skill development and employability and develops local and global interest.

Course Code	EME802
Course Name	Non-Conventional Energy Resources

COs	Description
CO1	Define the basic concepts of conventional & non-conventional energy resources, introduction, availability, classification, merits and demerits of conventional & non-conventional energy resources for skill development and entrepreneurship.
CO2	It provides the information about the importance of solar energy, its application, new technology by we can extract the solar energy for entrepreneurship and employability gaining national and international interest.
CO3	Describe and discuss geothermal energy, MHD power plants and fuel cells. It also provides the information about MHD power plants, fuel cells for skill development, entrepreneurship and employability.
CO4	This unit explores the world of wind energy, its classification, uses, merits, demerits and designing of wind energy power plant. It also provides a basic knowledge about thermo electrical and thermionic conversions for skill development and entrepreneurship and develops local and global interest.
CO5	Describe and discuss the importance of bio mass, classification of

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	biomass, use of biomass for non-conventional energy resources. It also provides the basic information about ocean thermal energy, wave energy and tidal energy for development, entrepreneurship and employability.

Course Code	EHU801
Course Name	Industrial Management

COs	Description
CO1	Understand the concept, development, application and scope of Industrial Management for employability and skill development.
CO2	To apply various management tools in systems of different industrial configurations to develop entrepreneurship skills gaining national and international interest. .
CO3	Facilitate employability and entrepreneurship skills by understanding the importance of inventory and the concept of supply chain management.
CO4	Analyze the mechanism and tools of quality control enhancing employability and introduction to total quality management for skill development.
CO5	To control and develop models for environmental pollution by various management techniques gaining insight for skill development and employability and develops local and global interest.

PROGRAMME NAME – M. Tech. (Mechanical Engineering)

Course Code	TMME101
Course Name	Advanced Operations Research

COs	Description
CO1	Demonstrate the operation research theory, application, and algorithms relevant to solving linear programming problems for skill development.
CO2	Understand the various data structures available in game theory and apply them in solving computational problems for skill development and employability gaining national and international interest.
CO3	Identify the goals and objectives of inventory management and describe the importance of stocks in an organization and the reasons for holding stock for skill development and employability.
CO4	To develop dynamic programming associated with network flows and related real life applications for skill development and employability and develops local and global interest.
CO5	Know various discrete and continuous probability distributions along with their characteristics and identify the situations where they

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	provide realistic models for skill development and employability.

Course Code	TMME102
Course Name	Advanced Thermal Engineering

COs	Description
CO1	To understand the basic definitions & concepts, Equation of State, calculation of thermodynamic properties and Generalized Compressibility Chat for skill development and employability gaining national and international interest.
CO2	To understand the Second law analysis, Availability, Irreversibility, Maxwell equations, Joule-Thompson co-efficient, Thermodynamic of reactive mixtures and Stoichiometry for skill development and employability.
CO3	To understand the generalized conduction equation, steady and unsteady heat conduction in a slab of finite thickness; Effect of heat generation; Non-zero initial condition for skill development and employability.
CO4	Develops local and global interest by understanding the Constant flux and convective boundary conditions, Heat conduction in an inhomogeneous medium; Examples of composite media for for skill development and employability.
CO5	To understand the Radiation heat transfer, Surface properties, Configuration factor, Radiative heat exchange between grey surfaces for skill development and employability.

Course Code	TMME103
Course Name	Modeling and Simulation

COs	Description
CO1	Study the internal behavior (perhaps unobservable) of the system e.g. biological system for skill development and employability.
CO2	Understand and study various types of models used in system study for skill development and employability gaining national and international interest.
CO3	Understand different types of simulation techniques for skill development and employability.
CO4	Understand and apply simulation techniques in mechanical system e.g. translational system for skill development and employability.
CO5	Understand and apply simulation in manufacturing system e.g. flexible manufacturing system, waiting line etc. for skill development and employability and develops local and global interest.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMME111
Course Name	Advanced Mechanics of Solids

COs	Description
CO1	Elementary understanding of the concepts of stress and strain in mechanics of solids and structures and material properties for employability and skill development.
CO2	Apply the fundamental concepts of 3-dimesional stress and strain, Constitutive relationships, failure theories, Torsion of non-circular sections, and stress-strain relationships to the solid and structural mechanics problems for employability and skill development gaining national and international interest.
CO3	Analyze Structure and behavior of polymers, Composites and their applications, development of various structures in composites to develop entrepreneurship skills.
CO4	Applying equilibrium, compatibility, and force-deformation relationships to structural elements are emphasized for employability and entrepreneurship skills and develops local and global interest.
CO5	Understand the theory of laminates, computer based analysis and solutions to problems in mechanics of solids for skill development and employability.

Course Code	TMME112
Course Name	Advanced Materials Technology

COs	Description
CO1	Gaining national and international interest by understanding the concept, development, application and scope of materials for employability and skill development.
CO2	To apply various testing methods in alloys, composites, ceramics configurations to develop skills.
CO3	Facilitate employability and entrepreneurship skills by understanding the importance of plastic working of materials.
CO4	Understand the concept of super alloys-refractory materials, ceramics, alloys, composites and Ti and Ni based alloys for gas turbine applications for skill development and employability and develops local and global interest.
CO5	To develop techniques/models for creating newer materials and their treatment for automobile, military, naval and nuclear applications for employability and entrepreneurship skills development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMME113
Course Name	Production, Planning and Control

COs	Description
CO1	Understand the Function of production, planning and control, Its importance in an organization, Economics of new design, Sales forecasting and estimating, Sales trend analysis and activity charts for employability and entrepreneurship skills gaining national and international interest.
CO2	To apply production facilities in the best possible manner along with the proper systematic planning ofproduction activities for skill development and employability.
CO3	Facilitate employability and entrepreneurship skills by providing men, machines, materials etc. of right quality, quantity and also providing them at the right time forms a very important factor.
CO4	Analyze the Different forms of scheduling, Sequencing, Scheduling-maximum profit for whole schedule, Maximum return to whole schedule for employability and skill development
CO5	To control and develop various elements of control procedure, Dispatching, Expediting, Computer aided production control. Quality control, JIT system of production control develops entrepreneurship skills and develops local and global interest.

Course Code	TMME114
Course Name	Interfacial Tribology

COs	Description
CO1	Understand the basic concepts, Definition and scope of Tribology in engineering applications for employability and skill development.
CO2	Gaining national and international interest by analyzing the mechanisms of friction applicable to forming processes and effect on pressure, wear, adhesive, abrasive, surface fatigue and corrosive & erosive wear, cavitations and fretting wear for employability and skill development.
CO3	To apply various type of Lubrications use in metal working, different regimes of lubrication, attributes of agood lubricant, Lubricants for industrial processes, e.g. rolling, forging, extrusion, sheet metal etc. to develop entrepreneurship skills.
CO4	Analyze the basic processes under different Tribological conditions, governing equations, yield criteria & flow rules, for skill development and employability and develops local and global interest.
CO5	To control the pressure distribution & die loads for rolling, forging, wire drawings, extrusion, water hammer forming, melt spin process for employability and entrepreneurship skills.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMME115
Course Name	Metal Casting

COs	Description
CO1	Survey and scope of foundry industry and the mechanism of solidifications of solid materials during casting for skill development.
CO2	Understand the design of gating and risering system for casting of the products and to get employment in foundry industry gaining national and international interest.
CO3	Compare various existing mold and core making methods and design of them by following recent updates for employability and skill development.
CO4	Develop entrepreneurship by learning how the melting furnaces for casting of any metal are selected and which parameters affect the fluidity of a material during casting and develops local and global interest.
CO5	Understand defects and their causes in casting and to learn recent developments in castings for skill development and employment.

Course Code	TMME116
Course Name	Machining Science

COs	Description
CO1	Analyze the mechanics of metal, cutting Chip control methods, Analysis of cutting process, Machining with rotary tools for skill development and employability.
CO2	Understand the concept of thermodynamics of chip formation, Machining at super high speeds, Machinability and evaluation for employability and entrepreneurship skills gaining national and international interest.
CO3	To control and develop for economics of metal cutting-Single and multipass machining operations and restrictions for the economical conditions for employability and skill development.
CO4	To apply dynamic metal cutting-Comparison of steady and dynamic process, theory of wheel wear and Grinding of drills, form cutters etc., to develop entrepreneurship skills.
CO5	Facilitate employability and entrepreneurship skills by understanding the Problems associated with machining of plastics, Tools for plastic cutting, Analysis of nonconventional machining processes ECM, EDM, LBM, WJM, USM etc. and develops local and global interest.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMME117
Course Name	Advanced Welding Technology

COs	Description
CO1	Understand the concept of Welding Metallurgy and Metallurgical aspects of joining, Conditions of soldering, Brazing and welding of materials for employability and skill development gaining national and international interest.
CO2	To apply weld design & quality control in welds, their causes and remedies and quality conflicts for employability and entrepreneurship skills.
CO3	Facilitate to develop entrepreneurship skills by understanding the Modern Trends in Welding.
CO4	Analyze the mechanism and Manufacture of welding longitudinal welded pipes by induction, TIG, Plasma and SA welding of spiral welded pipes for skill development and employability and develops local and global interest.
CO5	To control and develop models for Robot design and applications in welding, Programming of welding robots, tolerances for assemblies for robot welding, New generation of welding robots and Efficiency of robotics in welding for employability and skill development.

Course Code	TMME118
Course Name	CNC, FMS & CIM

COs	Description
CO1	Gaining national and international interest by understanding the concept CNC machine tools, development of CNC machine, Types of control, CNC controllers, Characteristics, Interpolators, Applications, DNC concept for employability and skill development.
CO2	Understand the concept CNC Programming, G & M Codes, developing simple part programmers Pro Engineer, CATIA, ESPIRIT, Master CAM etc., and use of standard controllers for employability and entrepreneurship skills.
CO3	Facilitate employability and skill development by understanding the robotics and material handling systems.
CO4	Apply and understand the principles of group technology and flexible manufacturing system to develop entrepreneurship skills.
CO5	Analyze and apply the concept of computer integrated manufacturing for employability and skill development and develops local and global interest.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMME 119
Course Name	Unconventional Machining

COs	Description
CO1	Understand the manufacturing processes and need of nontraditional manufacturing process, and ultrasonic machining process for employability and skill development.
CO2	Understand the various non-tradational machining processes like Abrasive machining and its applications, water jet machining and its principles, Material removal rate and Electro chemical grinding, honing for skill development and employability gaining national and international interest.
CO3	Student will be gaining knowledge on Electro chemical machining process and constraints of the EDM process and its applications for employability and entrepreneurship skills.
CO4	Understand the WEDM Process and its applications of the ECM Process. Thermal processes and laser beam for employability and skill development and develops local and global interest.
CO5	Understand the Plasma machining process and its metal removal mechanism, Chemical machining processes, Magnetic abrasive machining , Electro steam drilling to develop entrepreneurship skills.

Course Code	TMME120
Course Name	Enterprise Resource Planning

COs	Description
CO1	Understand and apply the basics of enterprise resources and its role in enabling business strategy to develop entrepreneurship skills.
CO2	Gaining national and international interest by applying and understanding the different forms of industrial organization, Theories of Industrial location, Process of preparing project reports for employability and skill development.
CO3	Analyze and apply the working knowledge of the fundamental technology and principles underlying the development, implementation, and use of integrated enterprise information systems for skill development and employability.
CO4	Ability to identify the components of ERP systems chose an ERP System, identify ERP implementation issues, and determine how ERP systems should be managed for skill development and employability.
CO5	Understanding of the problems faced by small scale industries for employability and entrepreneurship skills and develops local and global interest.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMME121
Course Name	Advanced Computer Aided Design

COs	Description
CO1	Understand the concept, development, application and scope of CAD software and functions, Graphics standards for skill development and employability gaining national and international interest.
CO2	Analyze and apply the concept of the drawing in different co-ordinate system, which gives the freedom to the students to work with global system for employability and entrepreneurship skills.
CO3	Apply theoretical and experimental techniques for make the different surfaces and patches using mathematics and programming of different curves for employability and skill development.
CO4	Apply theoretical and experimental techniques for make the different surfaces and developable surfaces to develop entrepreneurship skills.
CO5	Analyze and apply the data between CAD and CAM using various interfaces of 3D graphics for employability and entrepreneurship skills and develops local and global interest.

Course Code	TMME122
Course Name	Advanced Machine Design

COs	Description
CO1	Gaining national and international interest by understanding and applying the principles of design of machine, Factor of Safety and Reliability for employability and skill development.
CO2	Analyze and apply the design of Non Metallic material: Like Plastic, Composite Material, and Ceramic for employability and skill development.
CO3	Apply the fatigue strength, creep, Creep rapture, Strength, Creep Testing, Accelerated creep curve for employability and skill development.
CO4	Understand the design against Impact. Thermal Stress, Concept of large deflection for employability and entrepreneurship skills and develops local and global interest.
CO5	Understand the design simple cantilever beam, Effect of corrosion and stress concentration for skill development and employability.

Course Code	TMME123
Course Name	Fracture Mechanics

COs	Description
CO1	Understand the concept of fracture mechanics and strength of

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	materials, Elasticity, plasticity and deformation theory for skill development and employability gaining national and international interest.
CO2	Analyze and apply the concept of elastic fracture mechanics, fracture toughness, path invariant integrals and numerical approach for employability and skill development.
CO3	Analyze and apply the concept of Plastic crack-tip fields, Engineering approach to plastic fracture, numerical concepts, standard tests and testing procedures for skill development and employability.
CO4	To apply the fracture of welded structures, Notch toughness, weld cracks and joint restrains, Weld defects and service behavior, for develop entrepreneurship and develops local and global interest.
CO5	To control and develop Weld cracking tests and elimination of joint restraints, Residual stress and its interaction in fracture behavior, Numerical approaches for estimation of fracture parameters for employability and entrepreneurship skills.

Course Code	TMME201
Course Name	Numerical Methods and Analysis

COs	Description
CO1	Apply Numerical analysis which has enormous application in the field of Science and different fields of Engineering for skill development and employability.
CO2	Familiar with numerical solutions of nonlinear equations in a single variable for skill development and employability gaining national and international interest.
CO3	Familiar with numerical integration and differentiation, numerical solution of ordinary differential equations for skill development and employability.
CO4	Familiar with calculation and interpretation of errors in numerical method for skill development and employability.
CO5	Familiar with programming with numerical packages like MATLAB for skill development and employability and develops local and global interest.

Course Code	TMME202
Course Name	Advanced Mechanics of Solids

COs	Description
CO1	Understand the concepts of stress and strain at a point, stress-strain relationships and failure theories and use this knowledge for skill development and employability.
CO2	Gaining national and international interest by understanding the

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	behavior of shafts under torsion and review of fatigue analysis for skill development and employability.
CO3	Analyzing fracture mechanics for skill development and employability.
CO4	Analyzing inelastic behavior and behavior of polymers for skill development and employability and develops local and global interest.
CO5	Evaluating computer based analysis and solutions to problems in mechanics of solids for skill development, employability and entrepreneurship development.

Course Code	**TMME203**
Course Name	**Combustion Engineering**
COs	**Description**
CO1	Recognize and understand reasons for differences among operating characteristics of different engine types and designs for skill development & entrepreneurship
CO2	Differentiate among different internal combustion engine designs for skill development gaining national and international interest.
CO3	Develop an understanding of real world engine design issues for skill development and employability.
CO4	Develop an ability to optimize future engine designs for specific sets of constraints (fuel economy, performance, emissions) for skill development.
CO5	Develops local and global interest by understanding pollution generation and adaptive ways to control it for skill development.

Course Code	**TMME211**
Course Name	**Industrial Automation & Robotics**
COs	**Description**
CO1	Knowledge regarding key components and functioning of an automated industry for skill development & employability gaining national and international interest.
CO2	Knowledge regarding the working of elements such as hydraulic generator, hydraulic & pneumatic actuator, hydraulic & pneumatic valves used in heavy construction equipment for skill development & employability.
CO3	Understand about the Robotic technology and applications, Laws of robotics, Robot systems and anatomy, Robot classification for skill development & entrepreneurship.
CO4	Knowledge regarding the functioning of Robotic systems such as motors, controllers, converters etc., for skill development &

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	entrepreneurship.
CO5	Ability to understand the robot application, robot capabilities in manufacturing industry for skill development & employability and develops local and global interest.

Course Code	TMME212
Course Name	Advanced Mechanical Vibrations

COs	Description
CO1	Understand the concept, application and scope of engineering vibration in mechanical design of machine parts and related problems for skill development and entrepreneurship gaining national and international interest.
CO2	Be able to obtain linear and non-linear vibratory models of single and multi-degree of Freedom Systems with changing complexities for entrepreneurship and employability.
CO3	Be able to perform modal analysis for linear and non-linear vibratory models of dynamic systems for skill development and employability.
CO4	Be able to do Solve Vibration models for free, damped and forced (harmonic, periodic and non-periodic excitation) condition to gain entrepreneurship techniques and skill development and develops local and global interest.
CO5	To help the design process for better comfort of customer for entrepreneurship and skill development and employability.

Course Code	TMME213
Course Name	Supply Chain Management

COs	Description
CO1	Understand the concept of supply chain management and its efficient integration with suppliers, factories, warehouses and stores for entrepreneurship and skill development.
CO2	Gaining national and international interest to create activities in the supply chain that transcends the activities of particular entities in the chain of different industrial configurations to skill development and employability.
CO3	Managing supply chain and balancing act among competing interests to facilitate employability and entrepreneurship skills.
CO4	Add value for customers and stakeholders, improve customer service, and effectively use system wide resources for enhancing employability and introduction to information system for skill development.
CO5	To understand decision support models of supply chain management

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	gaining insight for entrepreneurship skills and employability and develops local and global interest.

Course Code	TMME214
Course Name	Heat Treatment Processes

COs	Description
CO1	Understand the role of heat treatment process, their requirement and how the properties of metals can be modified for their skill development and employability.
CO2	Able to select the appropriate process to modify a particular property of the ferrous metals for skill and entrepreneurship development gaining national and international interest.
CO3	Be able to get employment in an industry related to manufacturing of metal products.
CO4	Be able to select the appropriate heat treatment process to modify the properties of the non-ferrous metals like aluminum and magnesium for skill development and employability and develops local and global interest.
CO5	Be able to modify the properties of titanium, copper and nickel and to utilize proper energy in heat treatment process for skill and employability development.

Course Code	TMME215
Course Name	Design of Production Tooling

COs	Description
CO1	Understand the concept, development, application and design aspects of jigs and fixtures for employability and skill development.
CO2	Gaining national and international interest understanding the design aspects of jigs and fixtures for turning, milling and indexing to develop employability entrepreneurship skills.
CO3	Facilitate employability and entrepreneurship skills by understanding the construction and working of press dies and terminology associated with it.
CO4	Analyze the design aspects of cutting tools for the production of holes and other surfaces to enhance employability and skills development and develops local and global interest.
CO5	To gain insight of various materials used for cutting tools, cutting dies and forming dies for skills development and employability.

Sanjeev Grand
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMME216
Course Name	Machine Tool Design

COs	Description
CO1	Apply cutting mechanics to metal machining based on cutting force and power consumption for skill development and employability.
CO2	To apply selected cutting tool materials and tool geometries for different metals for employability and entrepreneurship skills gaining national and international interest.
CO3	Analyze the design procedure for beds, columns, housings and tables. concept of dimension chain in design of machine tools to develop entrepreneurship skills.
CO4	To develop fundamental knowledge on tool materials, cutting fluids, tool wear mechanisms and importance of metal cutting parameters for employability and entrepreneurship skills.
CO5	To apply knowledge of basic Control systems and its functions for machine tools, requirement for different machining processes, Design aspects of conventional machine tools and case studies to develop entrepreneurship skills and develops local and global interest.

Course Code	TMME217
Course Name	Product Design and Development

COs	Description
CO1	Understand modern product development processes, customer need, patents for employability and skill development gaining national and international interest.
CO2	Understand and explain the concept of Industrial design and robust design concepts to develop skills and entrepreneurship.
CO3	Understand the concept of Design for manufacture and assembly for employability and entrepreneurship skills.
CO4	Understand the legal factors, social issues, engineering ethics related to product design enhancing employability and skills development and develops local and global interest.
CO5	Prepare primary designs taking into consideration ergonomics and aesthetic aspects of the product. Understand the concept of Concurrent engineering, rapid prototyping for skills development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TMME218
Course Name	Industrial Design & Ergonomics

COs	Description
CO1	Gaining national and international interest by understanding structure for industrial design in engineering, approach to the man-machine relationship, work station design, working position for employability and skill development.
CO2	Understand and explain the concept of controls and displays for machine tools, automobiles etc. to develop skills and entrepreneurship.
CO3	Understand and apply the concept of ergonomics in automated systems for employability and entrepreneurship skills.
CO4	Understand the visual effects of line and color enhancing employability and skills development.
CO5	Prepare primary designs taking into consideration ergonomics and aesthetic aspects of the industrial design in design process for skills development and employability and develops local and global interest.

Course Code	TMME219
Course Name	Micro Manufacturing

COs	Description
CO1	Understand the concept, development, application and scope of micro manufacturing for employability and skills development.
CO2	Understand different types of micro machining processes to develop entrepreneurship and skills development gaining national and international interest.
CO3	Facilitate employability and entrepreneurship skills by understanding the different types of advanced micro machining processes.
CO4	Analyze the mechanism and concept of micro welding , micro joining laser and other processes enhancing employability and skills development.
CO5	Understand dimension of metrology for micro/meso-scale manufacturing for skills development and employability and develops local and global interest.

Course Code	TMME220
Course Name	Concurrent Engineering

COs	Description
CO1	Understand the concept, development, application and scope of

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Industrial Management for employability and skill development gaining national and international interest.
CO2	An expression for the ambition to increase the competitiveness by decreasing the lead-time and still improving quality and cost to develop employability and entrepreneurship skills.
CO3	Facilitate employability and entrepreneurship skills by understanding and design modern way to develop new products.
CO4	Handle issues of high costs, product robustness, and long lead times associated with product development enhancing employability and skills development and develops local and global interest.
CO5	Basic knowledge of design of manufacture methods and value engineering for skills development and employability.

Course Code	TMME221
Course Name	Reliability, Maintenance Management & Safety

COs	Description
CO1	Understand the concept, development, application and scope of reliability engineering for employability and skill development.
CO2	Understand the basic techniques of quality improvement, fundamental knowledge of statistics and probability to develop entrepreneurship and skills development gaining national and international interest.
CO3	Facilitate employability and entrepreneurship skills by understanding the use control charts to analyze processes.
CO4	Analyze the mechanism and concept of sampling plans enhancing employability and skills development.
CO5	Understand importance, dimension of safety aspects for skills development and employability and develops local and global interest.

Course Code	TMME222
Course Name	Theory of Plasticity

COs	Description
CO1	Understand the concept, development, application and scope of theory of plasticity for employability and skill development.
CO2	Understand the elastic and plastic behavior from stress-strain curves for materials to develop entrepreneurship and skills development gaining national and international interest.
CO3	Facilitate employability and entrepreneurship skills by recognizing typical plastic yield criteria established in constitutive modeling.
CO4	Develops local and global interest by understanding the physical interpretation of material constants in mathematical formulation of

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	constitutive relationship enhancing employability and skills development.
CO5	Solve analytically the simple boundary value problems with elasto-plastic properties and develop constitutive models based on experimental results on material behavior for skills development and employability.

Course Code	TMME223
Course Name	Rapid Prototyping and Tooling

COs	Description
CO1	Understand the concept, need, application and scope of Rapid Prototyping processes for employability and skill development.
CO2	Gaining national and international interest by understanding the Process Technology and Rapid Prototyping Technology over the existing traditional methods in present competitive scenario in terms of product development cycle for entrepreneurship and skill development.
CO3	Facilitate employability and entrepreneurship skills by recognizing advanced concept of Laminated Object Manufacturing for skill development.
CO4	Understand the insight into various modern rapid prototyping techniques, how the different processes work, how they have developed, as well as weaknesses of each technology enhancing employability and skill development.
CO5	Develop the conceptual design, manufacturing framework and systematic analysis of design problems on the machine tools for skill development and employability and develops local and global interest.

Course Code	MME301
Course Name	Production Technology

COs	Description
CO1	Ability to understand Welding and its types, classification, metallurgy and design of weld, also the recent welding techniques for skill development & entrepreneurship
CO2	Able to understand process like Cladding, Metallizing, fabrication and cutting of important engineering materials, including clear concept of weld quality for skill development & entrepreneurship gaining national and international interest.
CO3	Capable to understand forming process followed by direct & indirect compression process for skill development.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the importance of tool geometry & signature, tool wear & lubrication during metal cutting operations for skill development.
CO5	Able to understand the method of chip formation and importance of shear zone temperature at the tool chip interface. Also familiar with the recent advancements in the field of metal cutting science for skill development & entrepreneurship and develops local and global interest.

Course Code	MME302
Course Name	Non Destructive Testing

COs	Description
CO1	Define the NDT. It also deals with introduction of materials for entrepreneurship gaining national and international interest.
CO2	Provides basic concepts of different methods of destructive and non-destructive testing methods; it also describes the merits and demerits of destructive and non-destructive testing for skill development and employability
CO3	Describe and discuss the use of X-Ray radiography, their classification, their uses and its application in industry for skill development and employability.
CO4	It provides the information about ultra-sonic testing of different components in the industry and develops local and global interest. It also develops the ability to use ultra-sonic testing methods for different purposes for skill development and entrepreneurship.
CO5	Provides information relating to eddy current inspection, use of eddy current inspection for different purpose. It also develops the ability of student to use eddy current inspection methods in different way for skill development and employability.

Course Code	MME311
Course Name	Neural Network and Fuzzy Systems

COs	Description
CO1	Understand the concept of neural network and fuzzy systems; Artificial neural networks and their biological roots; ANN as numerical data/signal processing device for skill development and employability.
CO2	To apply various training methods; Importance of back propagation methods; Adoptive resonance theory for employability and entrepreneurship skills gaining national and international interest.
CO3	Understand the fundamentals of fuzzy logic systems; Operations on fuzzy sets, Complements, intersections and unions etc., Fuzzy arithmetic, Crisp vs fuzzy relations; Fuzzy equivalence; Compatibility

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and ordering relations for skill development and employability.
CO4	Apply theoretical and experimental equations and approximate solutions; Fuzzy logic and multi valued logic; Fuzzy propositions; Fuzzy quantifiers; Linguistic hedges; Fuzzy system controllers- an operative and examples to develop entrepreneurship skills and develop local and global interest.
CO5	Analyze and apply the concept of Fuzzy dynamic systems such as pattern recognition systems and its applications for employability and skill development.

Course Code	**MME312**
Course Name	**Micro-Electro Mechanical Systems**

COs	**Description**
CO1	Understand the principle Elements – such as mechanics, electronics, microelectronics, power electronics and information technologies for employability and skill development.
CO2	Analyze and apply the concept of Mechanical elements with integrated electronics, Suspension systems, Vibration dampers, Clutches, Bearings- Mechanical/magnetic, gears etc. for skill development and employability gaining national and international interest.
CO3	Understand and apply the principles of Micro-motors, DC motors, PCB motors, Disc motors, Reluctance motors, PM motors, Brushless motors for skill development and employability.
CO4	Analyze the mechanism and tools Stepper motors, Universal motors, Aerial field motors, Induction motors, and synchronous motors, Applications to Tele-communication technology equipment to develop entrepreneurship skills and develops local and global interest.
CO5	To control and develop Computer printers, Actuators, Consumer products such as cameras, Camcorder, Timers, Clock, VCR, wipers, Fax machines, and Recorders for employability and entrepreneurship skills.

Course Code	**MME313**
Course Name	**Advance Instrumentation**

COs	**Description**
CO1	Achieving national and international interest by understanding the concept of Electro mechanical transducers, Resistance, Inductance, capacitive and piezoelectric transducers for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Analyze and apply the concept of Analog and digital transducers including semiconductor and optical type, Application to measurement of temperature, Pressure for employability and entrepreneurship skills.
CO3	Understand the Flow displacement and other non-electrical quantities for skill development and employability.
CO4	Understand the model of data acquisition system, A/D and D/A converters, Sample and hold circuit, MUX and DEMUX, Signal transmission for employability and skill development and develops local and global interest.
CO5	To control and develop AM, FM, FSK, PSK and PWM modulation and demodulation, Signal to noise ratio and band width considerations for employability and skill development.

Course Code	MME314
Course Name	Industrial Tribology

COs	Description
CO1	Understand the concept, development, application and scope of Industrial Tribology for employability and skill development.
CO2	Analyze the mechanism of friction for employability and entrepreneurship skills achieving national and international interest.
CO3	Understand and apply the principles wear for employability and entrepreneurship skills.
CO4	To apply various type of lubricants and lubrication process in systems of different regimes for employability and entrepreneurship skills.
CO5	Understand the application of Tribology in manufacturing processes to develop entrepreneurship skills and develops local and global interest.

Course Code	MME315
Course Name	Advance Fluid Mechanics

COs	Description
CO1	Analyze the forces in fluid flow, similitude & dimensional analysis and uniform flow in open channels for skill development and employability.
CO2	Understand the Three-Dimensional Irotational Flow for employability and skill development achieving national and international interest.
CO3	Apply theoretical and experimental techniques for vortex motion for skill development and employability.
CO4	Apply theoretical and experimental techniques for viscous flow for employability and skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Develops local and global interest by applying the fundamentals of Compressible Fluid Flow for skill development and employability.

Course Code	MME316
Course Name	Total Quality Management

COs	Description
CO1	Understand detailed philosophy of TQM and realize the importance of quality for skill development and employability.
CO2	To learn how to use control chart techniques and applying statistical methods for improving processes and use this knowledge for skill development, employability and entrepreneurship development achieving national and international interest.
CO3	Analyze the tools of quality improvement and reliability problems for skill development and employability.
CO4	Develops local and global interest by learning how to promote and implement TQM in industries for skill development and employability.
CO5	Demonstrate the importance of ISO Quality systems for skill development and employability.

Course Code	MME317
Course Name	Engineering Design Optimization

COs	Description
CO1	Achieving national and international interest by understanding the concept, development, application and scope of Optimization for employability and skill development.
CO2	Understand the concept of Classical Optimization Techniques with minimization problems, Examples for employability and skill development.
CO3	To apply various Constrained Optimization and Unconstrained Optimization Techniques for employability and entrepreneurship skills.
CO4	Apply the fundamentals of Geometric Programming for employability and skill development and develops local and global interest.
CO5	Analyze and apply the concept of Novel methods for Optimization with Examples of simulated algorithm, genetic annealing and Neural Network method for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MME318
Course Name	Research Methodology

COs	Description
CO1	Understand the concept of research, types of research, research process, research design research approaches, criteria of good research, forms of plagiarism, copyright infringement, collaborative work for skill development and employability achieving national and international interest.
CO2	To control and develop Data collection, sampling, Statistical tools and techniques: Measures of dispersion, correlation, regression, hypothesis testing parametric tests, construction of control charts to develop entrepreneurship skills.
CO3	Apply theoretical and experimental techniques for Simulation and numerical methods, experimental designs and analysis, development of theory and linkages and interpretation of results, Concepts of Artificial intelligence and associated techniques for employability and entrepreneurship skills.
CO4	Analyze and apply the concept of Research problems, Setting feasible goals & objectives, writing and speaking skills. Communication Skills, Principles of research paper, report and thesis writing for skill development and employability and develops local and global interest.
CO5	To control and develop models for style manuals, report format-writing and presentation of preliminary, Bibliography and Annexure in the Report, development of research proposals and patents for employability and entrepreneurship skills.

Course Code	MME 319
Course Name	Nanotechnology and its Applications

COs	Description
CO1	Understand the concept, structure, properties and determination of Nanotechnology for employability and skill development.
CO2	To apply various microscopy Overview of current industry applications, Nanoscale science and engineering principles, engineering principles for nanotechnology materials and applications to develop entrepreneurship skills achieving national and international interest.
CO3	Facilitate employability and entrepreneurship skills by understanding the importance of CNT and MWCNT, Nanolithography, Thin film processes, imaging using scanning electron micro-scope (SEM), SPM-AFM
CO4	Develops local and global interest by analyzing the Traditional surface

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and materials analysis techniques, Molecular manufacturing, Self-assembly and 'bottom-up' manufacturing, Applications in thin film deposition for skill development and employability.
CO5	To control and develop models for nano machines and nano devices, microelectronic mechanical systems (MEMS), Nano electromechanical systems (NEMS) for skill development and employability.

Course Code	**MME 320**
Course Name	**Gas Turbines And Jet Propulsion**
COs	**Description**
CO1	Understand and apply the different types of flow like Rayleigh flow and Fanno flow for skill development and employability.
CO2	Achieving national and international interest by analyzing and applying the concept the basic function, and Methods of improving efficiency and power output of gas turbine plants for employability and entrepreneurship skills.
CO3	Apply the concept the basic function, design consideration, troubleshooting and performance evaluation of gas turbine plants to develop entrepreneurship skills.
CO4	Understand the model of Basic theory of Jet & rocket propulsion devices and types of various jet propulsion plants like air screw, turboprop, turbojet, Ram jet, pulse jet, rocket propulsion, etc. and their comparative study for employability and entrepreneurship skills and develops local and global interest.
CO5	Apply the fundamentals of various jet propulsion devices from ideal and practical consideration, recent advances in jet propulsion and Rocket propulsion devices for skill development and employability.

Course Code	**TMME321**
Course Name	**Design of Experiments**
COs	**Description**
CO1	Understand the concept of DOE, Review of basic statistical concepts, introduction to ANOVA for skill development achieving national and international interest.
CO2	Understand experimentation is a process; list the guidelines for designing experiments for employability and skill development.
CO3	To apply various dispersion versus location effects and the randomized complete block design for employability and entrepreneurship skills.
CO4	Apply the fundamentals of factorial design, blocking, and response

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	surface Methods to process optimization for employability and entrepreneurship skills.
CO5	Analyze and apply the Canonical form of second order response surface model, Taguchi approach to robust design, Taguchi's Technical Methods for skill development and employability and develops local and global interest.

Course Code	TMME322
Course Name	Technology of Competitive Manufacturing
COs	**Description**
CO1	Understand the manufacturing strategy: conceptual framework and competitive environment for skill development.
CO2	Understand the concept of Strategic planning, product and process design for improved Manufacturability for employability and skill development achieving national and international interest.
CO3	Analyze and apply the concept of value & function, reasons for unnecessary cost, methodology & techniques for employability and skill development.
CO4	Apply the fundamentals of Lean Manufacturing and manufacturing strategy for employability and skill development.
CO5	Develops local and global interest by formulating and reviewing the manufacturing strategies for competitive environment for employability and entrepreneurship skills.

Course Code	TMME323
Course Name	Energy Conservation and Management
COs	**Description**
CO1	Understanding of energy conservation and identification of energy conservation management for employability and skill development.
CO2	Knowledge of various tools and components of energy auditing for employability and skill development achieving national and international interest.
CO3	To apply technologies for energy conservation, design for conservation of energy materials, for employability and entrepreneurship skills.
CO4	Ability to evaluate the performance of industrial boilers, furnaces etc. by direct and indirect methods for employability and entrepreneurship skills.
CO5	Analyzing and Understanding of cogeneration in industry and waste heat recovery techniques and devices for skill development and employability and develops local and global interest.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

SCHOOL OF LAW

PROGRAMME NAME – LL.B. (Bachelor of Laws)

Course Code	LBC101
Course Name	Constitutional Law- I

COs	Description
CO1	Understand the historical development & Preamble **at National level.**
CO2	To know about the characteristics & Nature of the Indian Constitution.
CO3	To know about the concept of FR, Duties and various Constitutional remedies.
CO4	Demonstrate knowledge about the Welfare Policy of State under DPSP.
CO5	Understand the Constitutional amendment and Basic structure of the constitution.

Course Code	LBC102
Course Name	Law of Contract- I

COs	Description
CO1	Know the fundamental and essentials of contract.
CO2	Understand minor's agreement and its effect.
CO3	To know the modes of discharge of contract.
CO4	To understand remedies for Breach of contract.
CO5	How to claim remedies under Specific Relief Act 1963, at National level.

Course Code	LBC103
Course Name	Family Law- I (Hindu Law)

COs	Description
CO1	Understand the nature, origin, sources and schools of Hindu Law.
CO2	Understand the concept of marriage, legal effects and matrimonial remedies under the HMA, 1955, at National level.
CO3	Understand the concept of Hindu joint family, karta and its power and liabilities, partition and re-union of the property.
CO4	Understand the provisions related to Hindu Succession, heirs, *Stridhan* etc. under Hindu Succession Act, 1956.
CO5	Learn the Guardians and Minority under Hindu Minority and Guardianship Act, 1956 and also the concept and law related to adoption as well the provisions of maintenance under HAMA, 1956.

Course Code	LBC104

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name	Indian Penal Code- I

COs	Description
CO1	Understand the historical background of the Indian criminal system.
CO2	Application of stages of crime and general explanations of criminal law in India at National level.
CO3	Analyse various kinds and punishment given under criminal law in India.
CO4	Evaluate and appreciate the principles of general exceptions and private defence.
CO5	Create the liability of persons for crime in India.

Course Code	LBC105
Course Name	Law of Torts & Consumer Protection Act

COs	Description
CO1	Understand the concept and principles of torts
CO2	Understand the defenses available in an action for torts
CO3	Understand tortious liability of a person and state.
CO4	Understand to study and evaluate the specific torts against the individual and property.
CO5	Understand the consumer rights and constitution and working of consumer courts in India at National level.

Course Code	LBC201
Course Name	Constitutional Law- II

COs	Description
CO1	Know the structure of Parliament, House of the Parliament and process of law making at National level.
CO2	Understand the Union Executive, President and his power and position
CO3	Understand the Distribution of Legislative & Administrative powers between Union &State.
CO4	Understand working of Union and State Judiciary.
CO5	Understand Emergency provisions.

Course Code	LBC202
Course Name	Law of Contract- II

COs	Description
CO1	Understand the Contract of indemnity, guarantee at National level.
CO2	Understand the Contract of Bailment and Pledge.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	To understand the Contract of Agency.
CO4	Know the formation of partnership.
CO5	Understand the rights of seller and unpaid seller, Rule of Caveat Emptor.

Course Code	LBC203
Course Name	Family Law- II (Muslim Law)

COs	Description
CO1	Understand the nature, origin, sources and school of Muslim Law.
CO2	Understand the Basic concept of Muslim law such as Hiba, Waqf, Acknowledgement, Preamption, Guardianship, and Will.
CO3	Understand the meaning and concept of Muslim Marriage &Dower.
CO4	Able to understand the statutory provision relating to maintenance and dissolution ofMuslim marriage.
CO5	Examine historical and social conditions which have influence with development ofMuslim law in India.

Course Code	LBC204
Course Name	Indian Penal Code- II

COs	Description
CO1	Understand and remember the offence against body in criminal law in India at National level.
CO2	Application of offences against body in criminal law in India.
CO3	Analyse various kinds of offence against women given under criminal law in India.
CO4	Evaluate the offences against property in criminal law in India.
CO5	Create the liability of persons in offences against marriage and defamation in India.

Course Code	LBC205
Course Name	Administrative Law

COs	Description
CO1	Understand the evolution theory of administrative law and various principles related toadministrative law.
CO2	Understand the constitutionality and need of the delegated legislation and its control.
CO3	Understand legislative actions and its control, administrative tribunal and the Principle of Nature Justice at National level.
CO4	Learn the administrative discretion and its judicial control by various methods of judicial review, writs, PIL etc and also Tortious and

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Contractual liability of the government.
CO5	Gain the knowledge about several public corporations like: Lokpal, CVC. Enquiry commission etc.

Course Code	LBC301
Course Name	Public International Law

COs	Description
CO1	Understand the history and development of international law and its relevancy at Global level.
CO2	Understand Municipal Law and its relation with International Law, Subjects of States, and Concept of Recognition.
CO3	Understand creation of new states and their recognition and inter-state relationship.
CO4	Understand the concept of Asylum, Extradition and Diplomatic agent.
CO5	Understand means of settlement of international disputes, rights and duties of natural states and role of UNO.(Global)

Course Code	LBC302
Course Name	Company Law

COs	Description
CO1	Understand the basic statutory provision of Company law in India at National level.
CO2	Understand the concept, formation of company and various kinds of companies.
CO3	To know various doctrine such as Lifting the corporate veil, Doctrine of Ultra-virus, andindoor management etc.
CO4	Understand the various documents and working of company.
CO5	Understand the concept of corporate social responsibility of company.

Course Code	LBC303
Course Name	Criminal Procedure Code- I

COs	Description
CO1	Know introduction of criminal procedure code, definition and working of Criminal Courts of India and their power at National level.
CO2	To understand the provision of investigation, arrest, search.
CO3	To understand proceedings before magistrate.
CO4	To understand Public Order and Alimony.
CO5	To understand Bail and Sentencing Opportunity of hearing concept before criminal courts, and limitation for taking cognizens.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBE304
Course Name	Legal Philosophy Including Theory of Justice (E-I)

COs	Description
CO1	What is law?", "What are the criteria for its legal validity?",
CO2	Historical development of Philosophy of law at Global level.
CO3	Philosophical aspects of law by various Philosophers.
CO4	"What is the relationship between law, Justice and morality.
CO5	Theories of justice by various jurist.

Course Code	LBE304
Course Name	Indian Federalism and Judicial Independence (E-II)

COs	Description
CO1	Concept of Federalism.
CO2	Operation of Federalism in India at National level.
CO3	Centre-State Relations in India.
CO4	Understanding of the key elements of judicial institutions and legal systems cross nationally as well as understand how institutions shape behavior of judges and the legal community.
CO5	It will include the study of legal systems, courts, judicial process, judicial behavior, the rule of law, and the role of courts across political spectrums and regimes.

Course Code	LBE304
Course Name	Comparative Constitution (E-III)

COs	Description
CO1	Compare the various forms of government, its branches and its functioning in different countries and Distinguish between constitution and constitutionalism.
CO2	Analyse the leading constitutional principles in different jurisdictions.
CO3	To critically analyse the process of amendment of the constitution in various countries and the limitations on the amendment power.
CO4	Gain insights of the model of state, its practices and good governance.
CO5	Understand the significance of doctrine of judicial review and limitations thereof at National level.

Course Code	LBE304

Sanjeev Dawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name	Human Right Law and Practice (E-IV)

COs	Description
CO1	Understand the key historical, political, legal and moral influences that have shaped the idea of "human rights" at Global level.
CO2	Explain the concept of a right, and to analyze the contemporary challenges and trends in human rights theory and practice.
CO3	Understand the general affinities and divergences in sources, substance and application of rights in international, regional, constitutional and domestic contexts.
CO4	Identify the major international declarations, treaties, and covenants governing human rights, and identify mechanisms for monitoring and enforcing human rights standards.
CO5	They should also have a strong working knowledge of the major human rights conventions, processes and techniques and be able to identify and use the human rights instruments Bulgaria is a party to and apply those mechanisms in concrete situations.

Course Code	LBE304
Course Name	Gender Justice and Feminist Jurisprudence (E-V)

COs	Description
CO1	To Understand the concept of Feminism in India at National level.
CO2	To Understand the Status of Women in India.
CO3	To know the laws about women welfare.
CO4	To know Global Status of the women.
CO5	To Understand law For Protection of women.

Course Code	LBE304
Course Name	Local Self-Government Including Panchayt Administration (E-VI)

COs	Description
CO1	To give an insight into the introductory aspects, the historical and philosophical background for the Local Self –Government.
CO2	To learn and familiarize the student about the Constitutional scheme for the local self-government at National level.
CO3	This gives the students an understanding about the structure, powers and functions of the urban local self government.
CO4	To learn about addressing the issues of decentralization and grass- root planning of the local self-government.
CO5	To give an insight into the modern dimensions of local self government.

Course Code	LBE304

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name	Right to Information (E-VII)

COs	Description
CO1	Understand historical background of RTI Act, 2005, at National level.
CO2	Know the process of file RTI.
CO3	Understand the meaning of Public Authorities and its liabilities.
CO4	Understand the constitution of central and state information commission.
CO5	the exempted rights under the Official Secrets Act, 1923 and Public records Act, 1993.

Course Code	LBE304
Course Name	Civil Society & Public Grievance (E-VIII)

COs	Description
CO1	Understand the concept and historical background of Civil Society.
CO2	To make students familiar with Public Grievances and need to study Judicial Executive.
CO3	Understand the public grievance system along with Alternate dispute resolution.
CO4	Understand the different factors of life which helps in civilized society.
CO5	To make students familiar with quasi- judicial system, at National level.

Course Code	LBE304
Course Name	Law on Education (E- IX)

COs	Description
CO1	Understanding the system by which we educate the nation's children requires understanding a significant and complex hierarchy of laws and policy at the federal, state and local level.
CO2	This course will examine the interplay of law with fundamental areas of education policy and practice at National level.
CO3	Upon completion of the course students should be able to: demonstrate, orally and in writing, an understanding of fundamental education law concepts; appreciate both the hierarchy and the interaction between state and federal law as it relates to essential aspects of education policy and practice.
CO4	Identify how questions of education policy become issues of law; and, compare and critique existing legal approaches to certain specific key area of education policy in practice.
CO5	The student will be able to critique and recommend changes to current school policies based upon the legal aspects learned in this class and offer this critique in a manner suitable for presentation to a local board of education.
Course Code	LBE304

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name	MEDIA & LAW (E- X)
COs	**Description**
CO1	To discuss and analyze the legal, ethical and regulatory framework governing Media in India.
CO2	To discuss and analyze the Constitutional framework in relation to freedom of speech and expression, freedom of Press, Right to Privacy, at National level.
CO3	To analyze and evaluate the latest developments and issues in the field of Media Law.
CO4	To analyze the principles laid down in the judgments of the courts.
CO5	To explain and discuss the importance and necessity of media ethics and journalistic integrity

Course Code	LBE304
Course Name	Health Law (E- XI)
COs	**Description**
CO1	To impart the students with the knowledge of the relation between law and medicine and right to health.
CO2	To provide an understanding of legal framework relating to medicine and health.
CO3	To provide an understanding of Drugs and Cosmetics Act and Product Liability.
CO4	Explain the law relating to reproductive health and 'right' issue connected to it.
CO5	To discuss rights of special (disability) categories of people; and Mental health and the law pertaining to it at Global level.

Course Code	LBE304
Course Name	Citizenship & Immigration Law (E- XII)
COs	**Description**
CO1	Explain the structure of US immigration law; - Discuss the roles of the different branches of government and why immigration law is almost exclusively in the federal sphere.
CO2	Identify and describe federal statutes and regulations that govern key issues in immigration law at Global level.
CO3	Describe how U.S. immigration law impacts immigrants who seek to enter the country on a temporary basis.
CO4	Explain how foreign nationals who seek to come to the United States on a legal immigrant basis can do so under the provisions of Indian immigration laws.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Describe how lawful permanent residents can become US citizens through the process of naturalization.

Course Code	**LBE304**
Course Name	**Legislative Drafting (E- XIII)**

COs	**Description**
CO1	Understanding the Art and Science of Legislation in India.
CO2	Identify the key concepts of Legislative Drafting & Legislative Enactments.
CO3	Analyze and interpret various legislative schemes in India.
CO4	Acquire and apply necessary tools and techniques employed by draftsman.
CO5	Understand legislative amending process drafting at National level.

Course Code	**LBE304**
Course Name	**Law and Economics (E- XIV)**

COs	**Description**
CO1	Recognize the economic issues in a legal problem and apply the economic way of thinking to analyse it;
CO2	Make a comparative analysis of alternative legal arrangements based on transaction costs, incentives, and risk allocation.
CO3	Assess the efficiency effects of legal rules and policies.
CO4	Making use of economics to understand the rules we have and to decide what rules we should have.
CO5	To understand methods and of law and economics, at National level

Course Code	**LBE304**
Course Name	**Investment Law (E- XV)**

COs	**Description**
CO1	To Developed knowledge and understanding of the general principles of investment law and related dispute settlement mechanisms.
CO2	To Understand The Legal Regulations of Foreign Investment In Indian.
CO3	To understand the process of Foreign Investment Laws AND Foreign Exchange Management at Global level
CO4	To understand the Various types of investment and application of existing rules to new types of investment.
CO5	To know the Protection of Foreign Investment.

Course Code	**LBS305**

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name	Legal Language

COs	Description
CO1	Introduction of Legal Language in India **at National level.**
CO2	Various legal terms used in civil and criminal law.
CO3	Various Latin Maxims used in legal field.
CO4	Essay Writing, Letter Writing and Legal Abbreviations.
CO5	Precise Writing, Translations.

Course Code	LBP311
Course Name	**Professional Ethics & Professional Accounting System**

COs	Description
CO1	Understand the legal profession in the regulatory context and have information aboutprofessional associations and registration requirements.
CO2	Understand the aspects related to Contempt of Court.
CO3	Understand the various ethical and professional issues such as competence, confidentiality, consent, professional conduct, etc. which are covered in the context of landmark cases.
CO4	To know about the accountability of Lawyers, at National level.
CO5	To understand the role of legal profession in the social transformation.

Course Code	LBC401
Course Name	**Property Law**

COs	Description
CO1	Understand General principles and concept and meaning of property.
CO2	Understand the Doctrines and other provisions related to transfer of property.
CO3	Know the various kinds of mortgage.
CO4	How can we transfer the property through different modes, like sale and lease?
CO5	Understand the concept of gift, exchange and actionable claims at National level.

Course Code	LBC402
Course Name	**Labour & Industrial Laws**

COs	Description
CO1	Understand the Industrial Laws **at National level.**
CO2	Understand the know the dispute settlement process.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the Social Security and wages problems.
CO4	Understand working conditions and learn the enquiry procedural and industrial discipline.
CO5	Understand the powers and procedure of authorities.

Course Code	LBC403
Course Name	Criminal Procedure Code- II
COs	**Description**
CO1	To Understand the Introduction to Trial Procedure.
CO2	To Understand Appeal, Revision and Reference.
CO3	To Understand miscellaneous.
CO4	To understand process for appearance and security for keeping peace and good behaviour.
CO5	To understand juvenile law at National level.

Course Code	LBE404
Course Name	Financial Market Regulation (E- I)
COs	**Description**
CO1	To understand the overview of financial market system.
CO2	To understand the financial institution.
CO3	To understand the financial regulation laws at National level.
CO4	To understand the commodity market.
CO5	To understand foreign investment market.

Course Code	LBE404
Course Name	Financial Market Regulation (E- II)
COs	**Description**
CO1	Interpret and adequately treat the individual components of the gravity model of international trade for theoretical analysis, estimation, and simulation.
CO2	Use the theoretical foundations to estimate a structural gravity model o international trade, employing state-of-the-art methods.
CO3	Produce rigorous counterfactual simulations of the global economy under alternative trade policy scenarios.
CO4	Local impacts of global integration, including labor-market consequences. Produce original econometric work to address a global economic or policy issue of your choice.
CO5	To understand international trade at National level.
Course Code	LBE404

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name	Transportation Law (E- III)

COs	Description
CO1	Providing an overview of the major Federal, State, regional and local agencies involved in the planning, funding, and award of transportation related public works contracts and grants.
CO2	Summarizing the major Federal and State schemes of laws and regulations governing transportation planning and finance and the award of transportation-related public works contracts and grants.
CO3	Discussing the major sources of funding Federal, State and local; traditional as well as innovative available for the planning and construction of transportation infrastructure project.
CO4	Explaining the requirements imposed on transportation planning and the construction of transportation related public works projects by competitive bidding laws, the State and Federal Clean Air Acts, other major environmental laws, civil rights laws, and labor laws.
CO5	Imparting a practical overview of the Federal and State laws prohibiting and penalizing corruption in the government contracting process and protecting whistleblowers at Global level.

Course Code	LBE404
Course Name	Bankruptcy and Insolvency (E- IV)

COs	Description
CO1	To understand Concepts and Evolution Introduction to Insolvency and Bankruptcy.
CO2	To understand Insolvency Resolution of Corporate Persons. Resolution Strategies.
CO3	To understand Bankruptcy Order for Individuals and Partnership firms: Bankruptcy if insolvency resolution process fails.
CO4	To understand Insolvency Resolution Process.
CO5	To understand Professional and Ethical Practices for Insolvency Practitioners at Global level.

Course Code	LBE404
Course Name	Corporate Governance (E- V)

COs	Description
CO1	To understand corporate governance.
CO2	To Understand agent and institutional system.
CO3	To Understand social responsibility laws in india, at National level.
CO4	To understand public policy and global society.
CO5	To understand obligation to investor.
Course Code	LBE404

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name	Direct Taxation (E- VI)

COs	Description
CO1	Tax planning and management under Direct Tax.
CO2	Explain case laws governing core provisions of the above Acts.
CO3	Explain tax assessment for various assesses and return procedures.
CO4	Explain powers of various assessing authorities.
CO5	Explain international Taxation and other relevant issues at Global level.

Course Code	LBE404
Course Name	Indirect Taxation (E- VII)

COs	Description
CO1	To understand overview on GST.
CO2	To understand the concept of GST in India at National level.
CO3	To understand the concept of determination of Value of Supply / Time of Supply.
CO4	To understand the Registration under GST Act.
CO5	To understand Levy and Collection of Tax under GST.

Course Code	LBE404
Course Name	Indirect Taxation (E- *VIII*)

COs	Description
CO1	Contextualize the modern law of trusts within its historical origins and the role of equity in its enforcement.
CO2	Classify types of trusts and identify their main distinctive features and purposes.
CO3	Identify and apply relevant statutory frameworks to the law of trusts.
CO4	Explain how breaches of trusts arise and identify appropriate available remedies, at National level.
CO5	Explore key issues in judicial decision making, including ethical and societal considerations, and demonstrate knowledge of the wider academic debates.

Course Code	LBE404
Course Name	Law on Corporate Finance (E- IX)

COs	Description
CO1	Understand the principles of corporate finance and its regulation in the India.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Analyse the interaction between corporate law, finance and the regulation of capital markets.
CO3	Discuss the relationship between risk and return, and modern portfolio theory.
CO4	Understand how capital markets work and the theories of capital structure and valuation, at Global level.
CO5	understanding the regulatory and other body of the corporate Finance.

Course Code	LBE404
Course Name	**Law of Infrastructure Development (E- X)**

COs	Description
CO1	Understand the constitutional aspect of infrastructure law for skill development, at National level.
CO2	To know about the mechanism of infrastructure law for employability.
CO3	To know about the concept land acquisition law for entrepreneurship.
CO4	Demonstrate knowledge about oil, Petroleum and natural gas reform law for skill development.
CO5	Understand the transport and real state law for skill development and employability.

Course Code	LBE404
Course Name	**Special Contract (E-XI)**

COs	Description
CO1	Understand the Indemnity and guarantee for skill development, at National level.
CO2	To know about the contract of agency for employability.
CO3	To know about the concept of sales and goods for entrepreneurship.
CO4	Demonstrate knowledge about the partnership for skill development.
CO5	Understand the Negotiable Instrument Act for skill development and employability.

Course Code	LBE404
Course Name	**International Trade Economics (E-XII)**

COs	Description
CO1	Understand the economic growth and International trade for skill development, **at Global level.**
CO2	To know about the economic expansion for employability.
CO3	To know about the concept international trade and market for

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	entrepreneurship.
CO4	Demonstrate knowledge about the trade and product market for skill development.
CO5	Understand the international trade and inter movement for skill development and employability.

Course Code	LBE404
Course Name	General agreement on Tariff & Trade (E-XIII)

COs	Description
CO1	Understand the historical background of the general agreement on trade for skill development.
CO2	To know about the world trade organization for employability, at Global level.
CO3	To know about the concept WTO agreement and ruling for entrepreneurship.
CO4	Demonstrate knowledge about national treatment for skill development.
CO5	Understand the domestic industry for skill development and employability.

Course Code	LBE404
Course Name	Double Taxation (E-XIV)

COs	Description
CO1	Understand the double taxation for skill development.
CO2	To know about the kind of double tax for employability.
CO3	To know about the concept of double taxation relief for entrepreneurship.
CO4	Demonstrate knowledge about the elimination of double taxation for skill development.
CO5	Understand the GST & double taxation for skill development and employability, at National level.

Course Code	LBE404
Course Name	Dispute Resolution (E-XV)

COs	Description
CO1	Understand the ADR mechanism for skill development.
CO2	To know about the Negotiation for skill development.
CO3	To know about the concept mediation & conciliation for entrepreneurship & employability for entrepreneurship.
CO4	Demonstrate knowledge about the Court & ADR for skill development

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and employability.
CO5	Understand the Arbitration and Lok adalat for skill development and employability, at National level.

Course Code	LBS405
Course Name	Law of Taxation (E-XVI)

COs	Description
CO1	Understand the concept of taxation in India, at National level.
CO2	Kinds of Tax in India, Concept of GST.
CO3	Understand the Constitutional Provisions related to Taxation.
CO4	Understand Distribution of Tax Revenue between Centre and States and Inter Governmental Tax Immunities in a Federation.
CO5	Concept of Tax Evasion and its effects, Black Money, Tax avoidance and Tax Planning.

Course Code	LBP412
Course Name	Alternative Dispute Resolution System (E-XVI)

COs	Description
CO1	Appreciate the conceptual framework related to various ADR processes.
CO2	Identify and analyze the key provisions of the Arbitration and Conciliation Act, 1996 and the Legal Services Authorities Act, 1987.
CO3	Understand the complexities involved in drafting "Arbitration Clause".
CO4	Understand the skills and elements involved in Negotiation, Mediation and Conciliation.
CO5	To discuss the case laws relating to ADR, at National level.

Course Code	LBC501
Course Name	Law of Evidence

COs	Description
CO1	The fundamental principles of evidence law such as relevancy of facts, kinds of evidence and definition clause.
CO2	Concept of Admission, Confession, dying declaration & their evidentiary value.
CO3	Relevancy of judgment, expert opinion, relevancy of character & oral & documentary evidences and rules of their production.
CO4	On whom burden of proof lies and doctrine of estoppels & its kinds, at National level.
CO5	About witness's mode of examinations of witnesses, Admissibility of evidences & other related concepts.

Sanjiv Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBC502
Course Name	Civil Procedure Code & Limitation Act

COs	Description
CO1	How a suit of civil nature may file in proper court or place, Doctrine of Res–Judicata and Res-subjudice.
CO2	To know parties of the civil suit, frame of suit, Summon & its service and pleading &plaint.
CO3	To understand suit against government, minor &indigent person etc. Attachment, Injunction etc.
CO4	Execution of Decree and order, Provisions of Appeal, reference Review and Revision, Judgment, Decree & Order, at National level.
CO5	Concept of law of limitation &Time for filing a suit and extension of such time etc.

Course Code	LBE503
Course Name	International Monetary Fund (E- I)

COs	Description
CO1	Understand the historical development of International Monetary Fund.
CO2	To know about the objectives of IMF for employability.
CO3	To know about the concept of governing bodies of IMF for entrepreneurship.
CO4	Demonstrate knowledge about the role and responsibilities for skill development.
CO5	Understand the relation of IMF & RBI India for skill development and employability, at Global level.

Course Code	LBE503
Course Name	Trade in Intellectual Property (E- II)

COs	Description
CO1	Understand the Intellectual property for skill development, at Global level.
CO2	To know about the patent for employability.
CO3	To know about the concept copy right for entrepreneurship.
CO4	Demonstrate knowledge about trade secrets for skill development.
CO5	Understand the concept of trademark for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBE503
Course Name	International Banking and Finance (E- III)

COs	Description
CO1	Understand the fundamental of international finance for skill development, at Global level.
CO2	To know about the international banking operation for employability.
CO3	To know about the concept crypto currency for entrepreneurship.
CO4	Demonstrate knowledge about the foreign exchange market for skill development.
CO5	Understand the exchange rate system for skill development and employability.

Course Code	LBE503
Course Name	Capital Market Regulations (E- IV)

COs	Description
CO1	Understand the capital market for skill development.
CO2	To know about the development of capital market in India for employability, at National level.
CO3	To know about the rating and grading of instrument for entrepreneurship.
CO4	Demonstrate knowledge about the market intermediaries for skill development.
CO5	Understand the security regulation for skill development and employability.

Course Code	LBE503
Course Name	International Commercial Arbitration and ICC (E- V)

COs	Description
CO1	Understand the Arbitration in international and domestic commerce for skill development.
CO2	To know about the principle international commercial arbitration for employability at Global level.
CO3	To know about the concept of Ad Hoc Arbitration for entrepreneurship.
CO4	Demonstrate knowledge about the arbitration procedure, DPSP for skill development.
CO5	Understand the recognition and enforcement of arbitral award for skill development and employability.

Sanjeev Bhanu
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBE503
Course Name	International Financial Institutions (E- VI)

COs	Description
CO1	Understand the historical development of IFIs for skill development.
CO2	To know about the origin of IFIs for employability, at Global level.
CO3	To know about the concept of regional financial institutions for entrepreneurship.
CO4	Demonstrate knowledge about origin of financial institutions for skill development.
CO5	Understand the other function financial institutions for skill development and employability.

Course Code	LBE503
Course Name	Real State and Infrastructure Law (E- VII)

COs	Description
CO1	Understand the real estate industry and enhance Skill Development, at National level.
CO2	To know about the real estate law and enhance Skill Development.
CO3	To know about the regulation of Real estate for employability.
CO4	Demonstrate knowledge about the real estate law and enhance Skill Development.
CO5	Understand the monitoring committee and enhance Skill Development.

Course Code	LBE503
Course Name	International Commercial Law (E- VIII)

COs	Description
CO1	Understand the International commercial law to enhance skill Development, at Global level.
CO2	To know about the International organizations for skill Development.
CO3	To know about the concept of national commissions on trade law and enhance Skill Development.
CO4	Demonstrate knowledge about the International sales and goods and enhance Skill Development.
CO5	Understand commercial and legal consideration for entrepreneurship

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBE503
Course Name	Criminal Psychology (E- IX)

COs	Description
CO1	Understand the criminal psychology to enhance skill development, at Global level.
CO2	To know about the Criminal behavior for the skill development.
CO3	To know about the concept of perspective of crime and to enhance skill development.
CO4	Demonstrate knowledge about the special offender groups for skill development.
CO5	Understand the rehabilitation in family for employability.

Course Code	LBE503
Course Name	Forensic Science (E- X)

COs	Description
CO1	Understand the historical development of forensic science and to enhance skill Development, at Global level.
CO2	To know about the material facts to enhance skill development.
CO3	To know about the concept drug abuse for entrepreneurship.
CO4	Demonstrate knowledge about the Firearms to enhance skill development.
CO5	Understand the Explosion to enhance skill development.

Course Code	LBE503
Course Name	International Criminal Law (E- XI)

COs	Description
CO1	Understand the International Criminal Law to enhance skill development, at National level.
CO2	To know about Kind of International Crime to enhance skill development.
CO3	To know about the concept of International crime investigation for skill development.
CO4	Demonstrate knowledge about the ICCJ to enhance skill development.
CO5	Understand procedure of ICCJ for employability.

Course Code	LBE503
Course Name	Prison Administration (E- XII)

COs	Description
CO1	Understand the law of arrest to enhance skill development.
CO2	To know about the prison administration to enhance skill development.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	To know about the prison administrator for skill development, at National level.
CO4	Demonstrate knowledge about the medical care for skill development.
CO5	Understand the welfare of prisoners for entrepreneurship and employability.

Course Code	LBE503
Course Name	**Penology & Victimology (E- XIII)**

COs	Description
CO1	Understand the victimology to enhance skill development.
CO2	To know about the penology for skill development.
CO3	To know about the concept of punishment for the skill development.
CO4	Demonstrate knowledge about the theories of punishment, at Global level.
CO5	Understand the prison reforms for employability.

Course Code	LBE503
Course Name	**Offence against Child & Juvenile Offences (E- XIV)**

COs	Description
CO1	Understand the child and juvenile for skill development.
CO2	To know about offence against child for skill development.
CO3	To know about the protection of child for better employability, at National level.
CO4	Demonstrate knowledge about juvenile delinquency skill development.
CO5	Understand treatment and rehabilitation for skill development, entrepreneurship and employability.

Course Code	LBE503
Course Name	**Women & Criminal Law (E- XV)**

COs	Description
CO1	Understand the historical development of women & criminal law in India and enhance employability, at National level.
CO2	To know about the Characteristics of the crime against women and enhance skill Development.
CO3	To know about the concept of, crime against women under IPC and enhance skill Development.
CO4	Demonstrate knowledge about dowry prohibition and enhance skill Development.
CO5	Understand the domestic violence & immoral trafficking and enhance skill Development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBE504
Course Name	IT Offences (E- I)

COs	Description
CO1	Understand the historical development of IT law and enhance Skill Development.
CO2	To know about the Characteristics of IT offences and enhance Skill Development.
CO3	To know about the concept of cybercrime & remedies and enhance Skill Development.
CO4	Demonstrate knowledge special issues of IT Act and enhance Skill Development, at National level.
CO5	Understand the IT offences in different statutes and for entrepreneurship.

Course Code	LBE504
Course Name	Probation and Parole (E- II)

COs	Description
CO1	Understand the Probation and parole and to enhance skill development.
CO2	To know about the probation officer & justice and to enhance skill development, at National level.
CO3	To know about the treatment theory and their employability.
CO4	Demonstrate knowledge about the intermediate punishments and enhance Skill Development.
CO5	Understand the future of probation & parole and enhance Skill Development.

Course Code	LBE504
Course Name	Criminal Sociology (E- III)

COs	Description
CO1	Understand the concept of crime and to enhance Skill Development, at Global level.
CO2	To know about the nature of crime and to enhance Skill Development.
CO3	To know about the theories of crime and to enhance Skill Development.
CO4	Demonstrate knowledge about the punishment and to enhance Skill Development.
CO5	Understand the preventive measure to control crime and to enhance employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBE504
Course Name	Comparative Criminal Procedure (E- IV)

COs	Description
CO1	To critically analyze and compare basic Criminal Law issues in different jurisdictions, to enhance knowledge and skill development.
CO2	To generate your own solutions to Criminal Law problems, identify and evaluate the political and social implications of your proposed solutions, and compare these solutions to those offered in other legal traditions and cultures; for better entrepreneurship in legal system.
CO3	Critically reflect on media and cultural products dealing with Criminal Law issues in Canada, Australia, and other jurisdictions; for better entrepreneurship and employability in legal sector, at Global level.
CO4	Read academic texts on Comparative Criminal Law deeply; and communicate basic arguments; and for the enhancement of skill development.
CO5	Make connections to theories and readings when analyzing comparative Criminal Law issues; and theorize, generalize, and hypothesize on these issues better knowledge to enhance the employability in legal sector.

Course Code	LBE504
Course Name	Financial And Systematic Fraud (E- V)

COs	Description
CO1	Understand Different types, forms, causes and factors of fraud to enhance skill development.
CO2	Understand the characteristics of fraud and gain Knowledge of the basics of detecting fraud for better opportunity of employability in legal system.
CO3	Knowledge of basic principles and methods of prevention of fraud to enhance the entrepreneurship.
CO4	Understanding of Indian financial systems and understand the civil and criminal process involving, at National level.
CO5	Fraud to better skill development and entrepreneurship in legal fields.

Course Code	LBE504
Course Name	White Collar Crime (E- VI)

COs	Description
CO1	Understand the definition, nature and scope of White collar crime for skill development and employability, at National level.
CO2	To know about the Characteristics of various types of white collar crimes and make grounds for entrepreneurship.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	To know about the various statutory provisions regarding the white collar crimes to make opportunities for employability.
CO4	To know about the remedies to combat these types of crimes for skill development and employability.
CO5	To know about the sanctions and penalties for this types of crimes for better knowledge of entrepreneurship and skill development .

Course Code	LBE504
Course Name	International Human Rights (E- VII)

COs	Description
CO1	Understand the historical development of Human Rights important for skill development, at Global level.
CO2	To analyse Indian Constitution and to know about the Characteristics of various types of Human Rights to enhance the knowledge of entrepreneurship.
CO3	To know about the International Prospects of Human Rights necessary for skill development and provide employability opportunities.
CO4	To know about International covenant and UN Charter of Human Rights which built a atmosphere for better entrepreneurship.
CO5	To know about the enforcement agencies of Human Rights making opportunities for employment opportunities.

Course Code	LBE504
Course Name	IMF & World Bank (E- VIII)

COs	Description
CO1	To understand the IMF & World Bank organization and governance skill development and employability.
CO2	To understand Products and Services analysis for entrepreneurship.
CO3	To understand Project Cycle of IMF & WB Partnerships for entrepreneurship & employability.
CO4	To understand IMF &World Bank regions overview, Debt Relief, Education, Small Businesses Development, sustainable Development understanding for entrepreneurial skill, at Global level.
CO5	To understand the controversy over the IMF & World bank or skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBE504
Course Name	UNCITRAL Model Codes (E- IX)

COs	Description
CO1	To understand the historical background of UNCITRAL to enhance skill development.
CO2	To understand the procedure of UNCITRAL and andit's role in enhancement of skill development.
CO3	To understand the international conventions on UNCTRAL and it's role in skill enhancement.
CO4	To understand the UNCITRAL practices at national & international level for better opportunity of employability in legal system, **at Global level.**
CO5	To understand the statutory provisions in Indian Prospect for the better knowledge to enhance the employability in legal sector.

Course Code	LBE504
Course Name	International Labour Organization& Labour Law (E- X)

COs	Description
CO1	To understand the historical background of ILO, to enhance skill development, at Global level.
CO2	To understand the procedure of labour law and it's role in enhancement of skill development.
CO3	To understand the international conventions and it's role in skill enhancement.
CO4	To understand the labour practices at national & international level law for better skill development and entrepreneurship in legal fields.
CO5	To understand the statutory provisions in Indian Prospect better knowledge to enhance the employability in legal sector.

Course Code	LBE504
Course Name	International Dispute Resolution Bodies (E- XI)

COs	Description
CO1	To understand the origin of IDR and how it has evolved over time to enhance skill development.
CO2	To understand the technicalities and legal functioning of Arbitration Law for better opportunity of employability in legal system.
CO3	To understand the implement international law on arbitration especially International Commercial Arbitration to enhance the entrepreneurship, at Global level.
CO4	To understand Dedication of Conciliation as it is the fastest growing

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	commercial dispute resolution mechanism and to better skill development and entrepreneurship in legal fields.
CO5	To understand Commercial laws and how they should be aware how disputes are resolved in commercial sector for the better knowledge to enhance the employability in legal sector.

Course Code	**LBE504**
Course Name	**Maritime Law (E- XII)**
COs	**Description**
CO1	Understand the historical development of sea law to enhance skill development. .
CO2	To know about the various concept of maritime; Law for better opportunity of employability in legal system.
CO3	To know about the International Prospect of maritime law to enhance the entrepreneurship, at Global level.
CO4	To know about International covenant and legal provisions of maritime law better skill development and entrepreneurship in legal fields.
CO5	To know about the jurisdictional issues related maritime law better knowledge to enhance the employability in legal sector.

Course Code	**LBE504**
Course Name	**Law of the Sea and International Rivers (E- XIII)**
COs	**Description**
CO1	Understand the historical development of sea law.
CO2	To know about the various concept of maritime law.
CO3	To know about the International Prospects of maritime law, at Global level.
CO4	To know about international covenant and legal provisions of maritime law
CO5	To know about the jurisdictional issues related maritime law.

Course Code	**LBE504**
Course Name	**International Humanitarian Law (E- XIV)**
COs	**Description**
CO1	Understand the historical development of Human Rights to enhance the knowledge and development of the student, at Global level.
CO2	To know about the Characteristics of various types of Human Rights to enhance the knowledge and skill of the student.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	To know about the International Prospects of Human Rights to make their view to enhance the knowledge of students.
CO4	To know about International covenant and UN Charter of Human Rights skill development and employability.
CO5	To know about the inforcement of Human Rights to enhance the knowledge and development of the student.

Course Code	LBE504
Course Name	International Refugee Law (E- XV)

COs	Description
CO1	The historical development of refugee law time to enhance skill development.
CO2	To know about the refugee Rights Law for better opportunity of employability in legal system.
CO3	To know about the International Prospects of refugee law to enhance the entrepreneurship.
CO4	To know about International covenant and UN Charter on refugee law. to better skill development and entrepreneurship in legal fields, at Global level.
CO5	To know about the rehabilitation of refugee Rights for the better knowledge to enhance the employability in legal sector.

Course Code	LBE505
Course Name	(E- XV)

COs	Description
CO1	The historical development of refugee law time to enhance skill development. .
CO2	To know about the refugee Rights Law for better opportunity of employability in legal system.
CO3	To know about the International Prospects of refugee law to enhance the entrepreneurship.
CO4	To know about International covenant and UN Charter on refugee law. to better skill development at Global level.
CO5	To know about the rehabilitation of refugee Rights for the better knowledge to enhance the employability in legal sector.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBE505
Course Name	**Law on Agriculture Infrastructure: Seed, Water, Fertilizer, Pesticide Etc (E- I)**

COs	Description
CO1	To enhance the economic development of all stake-holders.
CO2	To enhance the economic development of all stake-holders.
CO3	To enhance the per capita income to minimize the difference between rural and urban.
CO4	To improve nutritional standards for betterment of health.
CO5	To discourage rural to urban migration and thereby minimize congestion & other associated problems in the society at National level.

Course Code	LBE505
Course Name	**Law on Agriculture Finance (E- II)**

COs	Description
CO1	To Know The Breeds of Poultry.
CO2	Methods of Rearing, Breeding, Leading.
CO3	Preservation and marketing of eggs.
CO4	Broiler production.
CO5	Incubation hatching and breeding, vaccination and prevention of Diseases, at National level.

Course Code	LBE505
Course Name	**Farming and Cultivation (E- III)**

COs	Description
CO1	Demonstrate the ability to communicate effectively in diverse and team environment both orally and in writing.
CO2	Demonstrate critical thinking and problem solving skills by analyzing situations and constructing and selecting viable solutions to solve agricultural problems.
CO3	Demonstrate ethical practices impacting agriculture enterprises and exhibit an understanding of the ethical implications of decisions.
CO4	Demonstrate knowledge, integrative skills and technical competences in multiple areas of agricultural sciences, emerging technologies in the field, and their applications.
CO5	Acquire the ability to engage in independent and life-long learning in the ever-changing agricultural production system/enterprises at National level.

Sanjeev Prasad
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBE505
Course Name	Farmer And Breeder's Rights (E- IV)

COs	Description
CO1	This course familiarizes Student with PVPR Act, 2001 and international treaties and conventions regarding protection of plant varieties, at National level.
CO2	Understanding the exclusive rights available to farmers and breeders.
CO3	Emphasized on Infringement and defenses to infringement and other limitations.
CO4	Student ultimately will understand the registration procedure and other contemporary issues in PVPR law.
CO5	Centre on the sui-generis system for protection of plant varieties developed to integrate the rights of breeders, farmers and village communities, and taking care of the concerns for equitable sharing of benefits.

Course Code	LBE505
Course Name	Cooperative and corporization of Agriculture (E- V)

COs	Description
CO1	Understand and comprehend the Corporate Finance.
CO2	To know the Fundamental of Agricultural economics, at National level.
CO3	To know the Fundamental of Agricultural Cooperation.
CO4	know the Entrepreneurship management understanding.
CO5	To understand the Study of agri-input markets governance.

Course Code	LBE505
Course Name	Dispute Resolution And Legal Aid (E- VI)

COs	Description
CO1	Appreciate the advantages of resolving disputes through dispute resolution mechanisms.
CO2	Appreciate the conceptual framework related to various DR processes.
CO3	Appreciate the skills required for successfully conducting the DR proceedings.
CO4	Identify various styles of drafting the arbitration clause in an agreement
CO5	Identify and analyze the key provisions of the Arbitration and Conciliation Act, 1996 and the Legal Services Authorities Act, 1987, at National level.

Sanjeev Dawar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBE505
Course Name	Agricultural Insurance (E- VII)

COs	Description
CO1	To know about Agricultural Insurance.
CO2	To know about Contract of agriculture insurance, at National level.
CO3	To know the Scheme for crops.
CO4	Demonstrate knowledge about the Agriculture Insurance.
CO5	Understand Administering the Insurance Schemes Understands the basic concepts of advanced Mathematics.

Course Code	LBE505
Course Name	Law on SMEs, Agriculture Processing and Rural Industry (E- VIII)

COs	Description
CO1	Understand Fundamentals of Entrepreneurship and SMEs.
CO2	To know about Management of Industrial Relation.
CO3	To know about Agricultural Policies, at National level.
CO4	Demonstrate knowledge Rural Entrepreneurship.
CO5	Understand Industry: Growth and Structure.

Course Code	LBE505
Course Name	Patent Right Creation and Registration (E- IX)

COs	Description
CO1	Define, distinguish and apply the basic concepts and terminology of the law of contract.
CO2	Define and distinguish amongst the various processes involved in contract formation.
CO3	Identify the relevant legal issues that arises on a given.
CO4	To know the process of applying for a patent, at Global level.
CO5	To know the Actions for patent infringement.

Course Code	LBE505
Course Name	Patent Drafting and Specification Writing (E- X)

COs	Description
CO1	Interpret the laws relating to attempt drafting and specification writings.
CO2	Draft patent applications and specification in a professional manner.
CO3	Recall and explain the rules and formats relating to patent drafting and specification, at Global level.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand Claim Construction.
CO5	To know Specific Types of Claims.

Course Code	**LBE505**
Course Name	**IPR Management (E- XI)**

COs	**Description**
CO1	Intellectual Properties and their classification, and analyse their features, at Globa level.
CO2	Analyse the significance of Intellectual Property in strategic pursuits of an organisation.
CO3	Calculate the quantifiable value of Intellectual Properties, based on certain financial details of an organisation.
CO4	Examine the socio-economic and legal impact of the Intellectual Properties against the motive of the corporate.
CO5	Develop a perspective on the sustainability of providing protection to Intellectual Properties in the light of public policy and outlook of opposition.

Course Code	**LBE505**
Course Name	**Copyright Laws (E- XII)**

COs	**Description**
CO1	Understand Prevention of monetary loss: There are many advantages of copyright registration for the authors of original works.
CO2	To know about Legal protection: There are other benefits that copyright registration gives under the law.
CO3	To know about the concept of Legal protection: There are other benefits that copyright registration gives under the law.
CO4	Legal protection: There are other benefits that copyright registration gives under the law.
CO5	Understand Legal protection: There are other benefits that copyright registration gives under the law at National level.

Course Code	**LBE505**
Course Name	**Trade Mark and Design Laws (E- XIII)**

COs	**Description**
CO1	Understand IPR and its importance.
CO2	Process of Patent, Copyright, trademark and other IP's
CO3	Remedies in case of infringement of registered IPRs.
CO4	Working procedure of International instruments and treaty. at Global

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

.	level.
CO5	To make students familiar with registration and infringement procedure.

Course Code	LBE505
Course Name	Trade Secret and Technology transfer (E- XIV)

COs	Description
CO1	This course familiarizes Student with innovations in IPR, at National level.
CO2	Understanding meaning and concept of trade secrets.
CO3	Emphasized on DTSA, UTSA.
CO4	Student will understand the promotions of innovations and due diligence in patent transactions.
CO5	Understand the concept of technology transfer, technology protection.

Course Code	LBE505
Course Name	Other Forms of IPR creation and registration (E- XV)

COs	Description
CO1	This course familiarizes Student with intellectual property rights.
CO2	Understanding the concept of trade secrets with their used.
CO3	Emphasized on Geographical indication with Indian laws, at National level.
CO4	Student will understand he indigenous and bio-prospecting knowledge with legal aspects.
CO5	Centre around the Industrial designs, integrated circuits.

Course Code	LBP-513
Course Name	Drafting, Pleading And Conveyancing

COs	Description
CO1	Acquaint the knowledge of drafting
CO2	Do legal and professional task
CO3	Prepare every type of legal document like; plaint, W.S., Affidavit, bail application, will, deed of lease etc
CO4	Differentiate between pleading and conveyancing
CO5	Learn various provisions or legislation related to drafting, pleading and Conveyancing, at National level.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBC-601
Course Name	Jurisprudence

COs	Description
CO1	Introduction of Jurisprudence & Various sources of law as custom, precedent, legislation etc.
CO2	Different schools of Jurisprudence as natural law school, analytical school etc.
CO3	Concept of justice and, various theories relating to justice. And enhance Skill Development Relation between rights and duties, Legal personalities and liability.
CO4	Law and morality & other legal concepts as possession and ownership etc,
CO5	Understand the concept of Possession and Ownership, at National level.

Course Code	LBC-602
Course Name	Environmental Law

COs	Description
CO1	To know the historical development of Environmental law in India. at National level.
CO2	To understand the legal provisions regarding the Environmental law.
CO3	To apply the different statutory provisions regarding environment law.
CO4	To analyze the depth of environmental Protection law.
CO5	To evaluate the special areas of law.

Course Code	LBE-603
Course Name	IPR Litigation (Elective-I)

COs	Description
CO1	Understand IPR and its importance.
CO2	Registration process of Patent, Copyright, trademark and other IP's. at National level.
CO3	Remedies in case of infringement of registered IPRs.
CO4	Working procedure of International instruments and treaty.
CO5	To make students familiar with registration and infringement procedure.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBE-603
Course Name	IPR Transactions (Elective-II)

COs	Description
CO1	Understand IPR and its importance.
CO2	Registration process of Patent, Copyright, trademark and other IP's.
CO3	Remedies in case of infringement of registered IPRs.
CO4	Working procedure of International instruments and treaty at Global level.
CO5	To make students familiar with registration and infringement procedure.

Course Code	LBE-603
Course Name	Farmers and Breeder Rights (Elective-III)

COs	Description
CO1	This course familiarizes Student evolution of plant varieties, jurisdiction of IPR.
CO2	Understand the breeder variety, its kinds, requirement of Novelty. at Global level.
CO3	Understanding the exclusive rights available to farmers and breeders.
CO4	Student ultimately will understand the registration procedure, infringement and remedies.
CO5	Centre around the sui generis system for protection of plant varieties developed to integrate the rights of breeders.

Course Code	LBE-603
Course Name	Bio Diversity Protection (Elective-IV)

COs	Description
CO1	This course familiarizes Student with PVPR Act, 2001 and international treaties and conventions regarding protection of plant varieties, at National level.
CO2	Understanding the concept of Biodiversity, their consumptive and productive.
CO3	Emphasized on biodiversity at global, national and local levels.
CO4	Students ultimately understand about India as a Diversity Nation.
CO5	Focus on threat to Biodiversity that cause Habitat Loss, man-wildlife conflicts.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBE-603
Course Name	IPR in Pharma Industry (Elective-V)

COs	Description
CO1	Understand the basic fundamental of Intellectual Property Rights.
CO2	Assess and critique some basic theoretical justifications for Patents, Copyrights and Plant varieties.
CO3	Analyze the effects of intellectual property rights on International society, at Global level.
CO4	Understand the civil and criminal liability, licensing clause of IPR.
CO5	Understand the working of International Organization related to IPRs.

Course Code	LBE-603
Course Name	Law of Patents (Elective-VI)

COs	Description
CO1	Understand the historical background of patents and how they deal according to Constitution of India.
CO2	To make students familiar with the amendments of Patents Act, at National level.
CO3	Understand the rights of patentee along with license acquisition.
CO4	Understand the meaning of infringement.
CO5	Understand the right and remedies against infringement.

Course Code	LBE-603
Course Name	Traditional Knowledge, GI and Farmers right (Elective-VII)

COs	Description
CO1	Understand history and origin of traditional knowledge and indigenous knowledge.
CO2	Value of traditional knowledge in global economy.
CO3	Understand geographical indication, NAFTA, TRIPS.
CO4	Registration of geographical indication, comparative analysis.
CO5	Understand the Constitutional amendment and Basic structure of the constitution. And Requirement of valid nomination at National level.

Course Code	LBE-603
Course Name	Election Law (Elective-VIII)

COs	Description
CO1	Understand the concept of Democracy and Election with regard to Parliament.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	To know about the parliament, state legislature and President of India.
CO3	To know about the election commission of India under Article 324.
CO4	Demonstrate knowledge about the Welfare State, DPSP at National level.
CO5	To understand the procedure of election.

Course Code	LBE-603
Course Name	**Socio Economic Offences (Elective-IX)**

COs	Description
CO1	Understand the historical development & Preamble. **at National level.**
CO2	To know about the Characteristics of the Indian Constitution &Nature of Indian Constitution.
CO3	To know about the concept of FR, Duties and various Constitutional remedies.
CO4	Demonstrate knowledge about the Welfare State, DPSP.
CO5	To know types of socio economic offences.

Course Code	LBE-603
Course Name	**Socio-Legal Dimension of Gender (Elective-X)**

COs	Description
CO1	This course familiarizes Student with social structure along with the emergence gender issues.
CO2	Understanding the ideology of gender, agents of gender socialization.
CO3	Emphasized on social construction approach and production of masculinity.
CO4	Student will understand concept patriarchy, socio-legal dimensions of Honour Killings.
CO5	Students will understand Gender in Media, Violation of Human Rights at Global level.

Course Code	LBE-603
Course Name	**Judicial Institutions in India: The Law, The Courts and The Judicial process (Elective-XI)**

COs	Description
CO1	This course familiarizes Student with Judicial system prevail in India, at National level.
CO2	Understanding the types of courts, hierarchy of courts.
CO3	Emphasized on Constitution of India, supreme courts as guardian and powers of judiciary.
CO4	Student will understand contempt of court, CPC, the Advocate Act, 1961.
CO5	Centre around jurisdiction of courts, judicial activism, judicial review.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	LBE-603
Course Name	**Interpretation of Statutes (Elective-XII)**

COs	Description
CO1	To analyze the legislative intent of statute and various principles pertaining to that law.
CO2	The role of courts and guided principles for interpretation of any statutes, at National level.
CO3	Will understand the provisions of law, the growth of judicial boundaries and limitations.
CO4	Understand the various statutes along with provision of Constitution of India.
CO5	Understand the concept of various doctrines and statute.

Course Code	LBE-603
Course Name	**Competition Law (Elective-XIII)**

COs	Description
CO1	Understand the historical development of Competition Law and constitution provision.
CO2	Read the Anti Competitive Agreements along with market compatibility.
CO3	To know about the provision and penalties under Competition Act and the concept of Dominance in Market.
CO4	To know about the mergers and acquisition with respect corporate world.
CO5	Understand the working of quasi judicial authority and investigation by the Competition Appellate Tribunal, at National level.

Course Code	LBE-603
Course Name	**Insurance Law (Elective-XIV)**

COs	Description
CO1	Gain knowledge and understanding of the concept of insurance law; its history and concepts.
CO2	The various principles of the insurance; classification of insurance; various other terminology used in insurance.
CO3	Critically evaluate the relationship between insurer and insured; Various authorities under different Acts related to Insurance Law, LIC establishment and Functioning and looking.
CO4	Understanding about the Marine and Fire Insurance, their nature, scope and terms & conditions.
CO5	Know about other types of insurances like Motor Vehicle, burglary etc; establishment of IRDA and its powers and functioning, at National level.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

SCHOOL OF SCIENCES

PROGRAMME NAME – M.Sc. (Physics)

Course Code	MPHY– 101
Course Name	Classical Mechanics

COs	Description
CO1	Understand the discipline-specific knowledge and skill development in classical mechanics, covering the basic concepts, Newton's laws and applications.
CO2	Derive Lagrange's equations and its employability in real problems, Hamiltonian formulations and oscillation's.
CO3	Able to describe and develop skills to understand planar and spatial motion of a rigid body, Rutherford scattering in laboratory and centre of mass frames, motion of a rigid body.
CO4	Understand the concept of small oscillations and to solve local problems of small oscillations.
CO5	Explain Hamiltonian formulation and its physical significance in global scenario.

Course Code	MPHY-102
Course Name	Mathematical Methods in Physics

COs	Description
CO1	Develop skills to understand the Hermite and Legendre polynomials and their generating functions.
CO2	Explain Bessel function of first kind and to solve Bessel differential equation.
CO3	Develop skills to understand basic concept of complex variables and group theory.
CO4	Analyze the wide range of special functions and transformations of different series and its employability in real physical problems of global importance.
CO5	Describe various processes involved in understanding the behavior of different systems through Mathematics. Implement mathematical skills like Fourier series, Fourier transform etc. to solve local physical problems.

Course Code	MPHY-103
Course Name	Quantum Mechanics

COs	Description
CO1	Develop skill to understand the importance of quantum mechanics compared to classical mechanics at microscopic level and solve the

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Schrodinger equation to obtain wave functions for some basic physically important types of potential in one dimension solve Schrödinger equation for simple local potentials.
CO2	Develop skill to understand and interpret the wave function, and apply operators to it to obtain information about a particle's physical properties such as position, momentum and energy.
CO3	Gain knowledge about spin, angular momentum states, angular momentum addition rules and its employability scope in real physical problems.
CO4	Develop skill to relate the matrix formalism to the use of basis states, and solve simple problems in global scenario using that formalism.
CO5	Develop skill to understand the employability scopes in time dependent first and second order perturbation theory for non-degenerate and degenerate levels.

Course Code	**MPHY-104**
Course Name	**Semiconductor Physics**
COs	**Description**
CO1	Develop skills to understand and explain the basic properties of semiconductors including the band gap, charge carrier concentration, doping and charge carrier injection/excitation and express the local conduction mechanism in semiconductor.
CO2	Develop skills to understand and analyze various transistor circuits in global perspective.
CO3	Illustrate various biasing circuits of a transistor.
CO4	Explain the working, design considerations and applications of various semiconducting devices including FETs. JFET and MOSFET.
CO5	Apply the concept of feedback in operational amplifiers and its employability.

Course Code	**MPHY-151**
Course Name	**Physics Lab – 1**
COs	**Description**
CO1	Develop skills to understand practical knowledge of basic electronic circuits and components by performing experiments in laboratory.
CO2	Determine modulation index for national/global level employability scope in Analog communications.
CO3	Plot V-I characteristics of photovoltaic cell.
CO4	Design T type and π type attenuators
CO5	Understand frequency variation in Hartley oscillator for the employability scope in electronics globally.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MPHY-201
Course Name	Solid State Physics

COs	Description
CO1	Develop skill to understand the Bloch theorem, the Kronig-Penny model and understand the concept of reciprocal space lattice and know the significance of Brillouin zones.
CO2	Describe the dielectric properties and Polarizability and also its employability scopes globally.
CO3	Explain various types of magnetic phenomenon, physics behind them, their properties, applications and understand the origin of dia-, para-, and ferro-magnetic properties of solids.
CO4	Develop skills to understand Photoconductivity & Luminescence and their employability scopes in global perspective.
CO5	Understand the basics of phase transitions and the preliminary concept of superconductivity in solid.

Course Code	MPHY-202
Course Name	Atomic & Molecular Spectroscopy

COs	Description
CO1	Develop skills to understand and interpret spectra, types of spectra, Hydrogen spectra, atomic emission / absorption spectroscopy.
CO2	Study alkali spectra and alkaline spectra, L-S and J-J couplings & their global scopes in employability.
CO3	Understand Born Oppenheimer approximation Heitler-London theory of H_2
CO4	Difference between atomic emission spectroscopy and atomic absorption spectroscopy and atomic spectrum.
CO5	Develop skills to understand Raman spectra and X ray spectra, differentiate between vibrational and rotational energy levels.

Course Code	MPHY- 203
Course Name	Communication Electronics

COs	Description
CO1	Study the fundamental concept of the amplitude modulation and demodulation and its global employability scopes in analog signals.
CO2	Acquire knowledge of angle modulation and demodulation.
CO3	Develop skills to understand fundamentals of transmission lines, radiation propagation and antennas to deal with local issues.
CO4	Gain knowledge of signal analysis and sampling.
CO5	Develop skills to study about pulse modulation system and various digital modulation techniques.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MPHY-204
Course Name	Statistical Mechanics and Thermodynamics

COs	Description
CO1	Develop skills to explain different ensemble theories to explain behavior of the systems.
CO2	Explain fundamentals and applications of statistical physics. The students will be able to elaborate the BE, FD and BE statistics.
CO3	Understand basic concept and laws of thermodynamics and their national/global scopes in employability.
CO4	Develop skills to explain kinetic theory of gases and transport phenomena.
CO5	Deduce Maxwell's thermo dynamical relations.

Course Code	MPHY-251
Course Name	Electronics Lab -1

COs	Description
CO1	Develop skills to design and evaluate various multi-vibrators.
CO2	Develop skills to design and evaluate various counters and registers and their national/global scopes in employability.
CO3	Evaluate basic components of the digital circuits like flip-flops.
CO4	Evaluate and understand negative feedback amplifier.
CO5	Develop skills to understand frequency variation in Colpitts oscillator.

Course Code	MPHY-301
Course Name	Nuclear and Particle Physics

COs	Description
CO1	Acquire basic knowledge about nuclear properties such as mass, spin, radius, mass defect, binding energy etc.
CO2	Develop skills in the understanding of nuclear disintegration.
CO3	Develop skills to understand the characteristics of nuclear forces, exchange force and meson theory in global scenario.
CO4	Develop skills to understand the various nuclear models and its scope in employability.
CO5	Learn about the concept of elementary particle, quarks and conservation laws.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MPHY-302
Course Name	**Advanced Quantum Mechanics**

COs	Description
CO1	Develop skills to understand identical particles, scattering of identical particles.
CO2	Explain time dependent perturbation theory, first order perturbation, dipole approximation.
CO3	Develop skills to understand importance of relativistic quantum mechanics compared to non relativistic quantum mechanics for local problems.
CO4	Derive equation for central field.
CO5	Develop skills to understand scattering theory, concept of phase shifts.

Course Code	MPHY-303 A
Course Name	**Electromagnetic Theory & Electrodynamics**

COs	Description
CO1	Develop skills to understand electric and magnetic fields and apply the principles of Gauss's law to electric fields in various coordinate systems.
CO2	Explain the Biot-Savart law, Ampere's theorem, equation of continuity.
CO3	Develop skills to understand the depth of static and time-varying electromagnetic field as governed by Maxwell's equations.
CO4	Understand the electromagnetic waves, polarization and dispersion.
CO5	Develop skills to understand and study the electrodynamics of a radiating system for local problems.

Course Code	MPHY-303 B
Course Name	**Microwave Communication**

COs	Description
CO1	Develop skill to understand the concept of various microwave devices.
CO2	Develop skill to understand amplitude modulation, frequency modulation, modulators and demodulation.
CO3	Develop skill to explain spectrum of an amplitude modulated signal and its global scope in employability.
CO4	Explain quantization of signals.
CO5	Learn transmission and radiation of signals.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MPHY-304 A
Course Name	Electronics-1, Digital Electronics

COs	Description
CO1	Develop skill to understand operational amplifier and their applications.
CO2	Study fundamental designing concepts of different types of digital logic gates: symbols and truth tables, classes of digital integrated circuits.
CO3	Designing of different types of the digital circuits, study the computational details for digital circuits and convert different type of codes and number systems which are used in digital communication and computer systems.
CO4	Develop skill to analyze different types of digital electronic circuit using various mapping and logical tools and know the techniques to prepare the most simplified circuit using various mapping and mathematical methods.
CO5	Develop skill to understand microprocessor program and their national/global employability scopes.

Course Code	MPHY-304 B
Course Name	Physics of Thin Films and Device Technology

COs	Description
CO1	Develop skills to understand various techniques to grow thin films.
CO2	Develop skills to study Electrical conduction in thin films, metals and insulators.
CO3	Study the mechanical, optical and electrical properties of thin films.
CO4	Develop skills to understand optoelectronic devices, solar cells, electro chromic devices etc and its national/global employability scopes.
CO5	Learn magnetic properties of thin films, high T. superconductors and their local applications.

Course Code	MPHY-351
Course Name	Physics Lab-2

COs	Description
CO1	Develop skills to evaluate value of Planck's constants.
CO2	Study energy band gap of semiconductor.
CO3	Evaluate numerical aperture of an optical fibre.
CO4	Develop skills to study analog to digital convertor and its national/global employability scopes in digital electronics.
CO5	Develop skills to study digital to analog convertor and its national/global employability scopes in digital electronics.
CO6	Study attenuation constant.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MPHY-401
Course Name	Physics of Nanomaterial

COs	Description
CO1	Aware about nano science and nano technology in light of quantum confinement and band structure of nanomaterials.
CO2	Develop skill to understand various phenomenon's like quantum dot, quantum wire in light of Schrödinger equation.
CO3	Develop skill to explain various characterization techniques of nanomaterial.
CO4	Develop skill for optical characterization UV- VIS- NIR and their national/global scopes in employability.
CO5	Understand the synthesis of various nanomaterials by various techniques with proper understanding.

Course Code	MPHY-402
Course Name	Electronics – 2 (Fiber Optics and Optical Fiber Communication)

COs	Description
CO1	Develop skills to explain ray theory of transmission and preparation of optical fibers.
CO2	Explain different types of losses and dispersion in optical fiber.
CO3	Develop skills to understand light sources and detectors for optical fiber and its national/global scope in employability.
CO4	Distinguish step Index, graded index fibers and compute mode volume.
CO5	Develop skills to understand optical fiber communication and measurements on optical fibers.

Course Code	MPHY-403A
Course Name	ELEMENTS OF MATERIAL SCIENCE

COs	Description
CO1	Develop skills to study atomic and bonding structures- demonstrate understanding of different classes of materials and their atomic and bonding structures.
CO2	Learn the concept of entropy, applications of thermodynamics.
CO3	Develop skills to explain defects in materials: point defects, dislocations, grain boundaries and voids in local perspective.
CO4	Develop skills to understand phase diagrams: Demonstrate an understanding of equilibrium phase diagrams and phase transformations.
CO5	Study diffusion in solids: Demonstrate an understanding of solid-state diffusion mechanisms Mechanical Properties: Demonstrate an understanding of mechanical properties of engineering materials and

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	explain heat treatment and phase transformations in solids.

Course Code	MPHY-403B
Course Name	Nanotechnology

COs	Description
CO1	Develop skills to determine low dimensional materials and applications.
CO2	Develop skills to understand synthesis of nanomaterials by physical techniques.
CO3	Develop skills to understand synthesis of nanomaterial by chemical, biological and hybrid routes knows which properties of materials must possess depending on application.
CO4	Develop skills to understand analysis techniques- UV-VIS-IR spectroscopy and their national/global employability scopes in determining the materials properties.

PROGRAMME NAME – B. Sc. (Hons) Physics

Course Code	BPHYCC(H)-101
Course Name	Mechanics

COs	Description
CO1	Develop skill to understand laws of motion and their application to various dynamical situations and study of fundamental forces in nature.
CO2	Study conservation laws: conservation of energy, momentum, angular momentum and apply them to basic problems for skill development.
CO3	Understand two body central force problem, reduced mass, Kepler's law, its Classification of Kepler's orbits and to apply Kepler's law to describe the motion of planets and satellite in circular orbit through the study of law of Gravitation.
CO4	Develop skills to understand and explain frame of References, Galilean transformation, Lorentz transformation, postulates of special theory of relativity and their global employability scopes in astrophysics.

Course Code	BPHYCC(H)-102
Course Name	Thermal Physics

COs	Description
CO1	Learn the basic concepts of thermodynamics, zeroth law, first and the second law of thermodynamics for skill and employability development.
CO2	Learn Maxwell's thermodynamic relations, concept of entropy, Carnot's theorem and their employability scopes in local perspectives.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Develop skill to derive Claussius Clapeyron equation, inversion specific heat equation.
CO4	Have knowledge of the black body radiation and its applications.

Course Code	BPHYCC(H)-151
Course Name	Physics Laboratory – I

COs	Description
CO1	Determine value of Stefan's constant.
CO2	Calculate moment of inertia to develop skill.
CO3	Determine surface tension
CO4	Evaluate elastic constant to develop skill in local/global perspectives.

Course Code	BPHYCC(H)-201
Course Name	Waves and Oscillations

COs	Description
CO1	Develop of skills to study wave motion, differential equation of motion, stationary waves.
CO2	Learn Simple harmonic motion, differential equation of S.H.M and the solution of the oscillator using differential equations for additional skill development.
CO3	Understand oscillators, damped oscillator, equation of motion and its solution. Understand the principle of superposition of waves and the formation of standing waves.
CO4	Study forced oscillations, resonance and impedance. Explain several phenomena we can observe in everyday life that can be explained as local/global wave phenomena for developing skill.

Course Code	BPHYCC(H)-202
Course Name	Optics

COs	Description
CO1	Develop skill and gain knowledge on various theories of light. Understand the properties of light like coherence, interference.
CO2	Learn the applications of diffraction for skill development.
CO3	Derive an expression for resolving power of telescope etc.
CO4	Understand phenomenon of polarization, uses of polaroids, working and applications of polarimeter for skill development and related local/global applications in optics.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BPHYCC(H)-251
Course Name	Physics Laboratory – 2

COs	Description
CO1	Evaluate the wavelength of sodium light, radius of curvature for skill development.
CO2	To develop skill to evaluate focal length of combination of two lens.
CO3	Evaluate refractive index of the prism
CO4	Evaluate resolving power of plane diffraction grating for skill development in local/global perspectives.

Course Code	AECC (Audit Course)
Course Name	Environmental Studies

COs	Description
CO1	To learn about the components of environment: atmosphere, hydrosphere, lithosphere and biosphere for local/global skill development.
CO2	To develop skill to understand about the structure and function of ecosystem.
CO3	Study natural resources and types of resources, renewable and non-renewable resources.
CO4	Biodiversity patterns, energy resources.
CO5	Develop skill to understand local/global environmental pollution: types, causes, effects and controls.
CO6	Explain local/global environmental policies and practices.
CO7	Understand human communities and environment for skill development.
CO8	Demonstrate a general understanding of the breadth and interdisciplinary nature of environmental issues. Develop skill to identify common plant, birds and insects.

Course Code	BPHYCC(H)-301
Course Name	Electricity and Magnetism

COs	Description
CO1	Explain and differentiate the vector (electric fields, Coulomb's law) and scalar (electric potential, electric potential energy) formalisms of electrostatics and apply Gauss's law of electrostatics to solve a variety of local problems for skill development.
CO2	Study Biot-Savart law, Amperes' law and Ampere's circuital law. Describe the magnetic field produced by magnetic dipoles and electric currents for skill development.
CO3	Develop skill to explain Faraday's laws and Lenz's Law. Derive an electromagnetic wave equation in free space

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Study of polarization and derive an expression for Clausius Mossotti equation.

Course Code	BPHYCC(H)-302
Course Name	Circuit Fundamentals and Basic Electronics

COs	Description
CO1	Develop skill to understand the concept of basic electronics and their applications. Obtain knowledge on LCR circuits, semiconductors, diodes, rectifiers and transistors.
CO2	Compute and study characterization of diodes, rectifiers and transistors for skill and employability development in national/global perspectives.
CO3	Study of transistor biasing, amplifiers.
CO4	To develop skill to explain modulation and demodulation and study cathode ray oscillator and its local/global applications.

Course Code	BPHYCC(H)-351
Course Name	Physics Laboratory – 3

COs	Description
CO1	Measurement of specific resistance of material for skill development.
CO2	Compare two resistances.
CO3	Develop local skill to convert galvanometer into ammeter and voltmeter
CO4	Develop skill to determine magnetic moment (M) of a magnet

Course Code	UDM (Audit Course)
Course Name	Disaster Management

COs	Description
CO1	To develop skill to understand disaster, types of disasters, causes and global trends in disasters.
CO2	Explain disaster life cycle, local/global trends in disasters for skill development.
CO3	Factors affecting vulnerabilities, impact of development projects and understand role of international cooperation in disaster management
CO4	Study of disaster risk management in India.
CO5	Understand disaster management and its applications for developing skill.

Sanjay Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BPHYCC(H)-401
Course Name	Atomic & Laser Physics

COs	Description
CO1	To develop skill to understand spectrum of Hydrogen, Spectra of alkali elements and alkaline spectra, Identify atomic effect such as Zeeman effect, Paschen back effect and Stark effect.
CO2	Explain the observed dependence of atomic spectral lines on externally applied electric and magnetic fields. X-rays their generation and types of X-ray spectra.
CO3	Study laser and their types for local/global skill development.
CO4	To develop skill to study of different types of laser their working and applications.

Course Code	BPHYCC(H)-402
Course Name	Classical and Statistical Mechanics

COs	Description
CO1	Study of mechanics of a system of a particle, D' Alembert's principle for skill development.
CO2	To develop skill to understand motion of rigid body and explain law of planetary motion.
CO3	They can easily distinguish between different types of particles and statistics and can easily distribute bosons, fermions and classical particles among energy levels for local/global skill development.
CO4	Understand about statistical distributions. Liouville's theorem, ensembles, Maxwell-Boltzmann statistics, Fermi – Dirac and Bose Einstein statistics for skill development.

Course Code	BPHYCC(H)-451
Course Name	Physics Laboratory – 4

COs	Description
CO1	To develop local skill to evaluate wavelength of laser.
CO2	Determine thickness of wire for skill development.
CO3	Divergence of a laser beam.
CO4	To develop skill to verify the truth table of logic gates, half adder, full adder.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BPHYCC(H)-501
Course Name	Quantum Mechanics & Atomic Spectra

COs	Description
CO1	Understand the failure of classical physics and explain Compton effect, wave particle duality, de Broglie's hypothesis to develop related skills.
CO2	Derive Schrodinger's equation and understand physical significance of wave function Ψ for local/global skill development.
CO3	Develop skills to explain operators, orthonormality, normalization.
CO4	Study Bohr's atomic model, Sommerfeld elliptic orbits. Develop skills to understand Pauli's exclusion principle.

Course Code	BPHYCC(H)-502
Course Name	Elements of Nuclear Physics

COs	Description
CO1	Acquire basic knowledge about nuclear properties, binding energy, characteristics of nuclear forces understanding for entrepreneurial skill.
CO2	Explain various decays and their explanation for better skilling of entrepreneurship.
CO3	Describe principle, working and applications of various counters and accelerators understanding for local/global entrepreneurial skill.
CO4	Study of elementary particles and their classification for better skilling of entrepreneurship.

Course Code	BPHYCC(H)-503
Course Name	Mathematical Physics-I

COs	Description
CO1	Understand concept of a metric, spherical and cylindrical coordinates understanding for entrepreneurial skill.
CO2	Study the matrix transpose, Hermitian, orthogonal and unitary matrices to provide employability & skills.
CO3	Solve first and second order differential equations and apply these to solve physics problems for better skilling of entrepreneurship.
CO4	Learn Fourier series and Fourier transform to provide local/global employability & skills.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BPHYCC(H)-504
Course Name	Electromagnetic Theory

COs	Description
CO1	Understand the basic mathematical concepts related to electromagnetic vector fields for local/global employability skill development.
CO2	Derive Maxwell's equations and understand displacement current for skill development.
CO3	Explain propagation of electromagnetic wave in unbounded media for employability skill development.
CO4	Study the electromagnetic wave propagation through conducting media to provide better employability scope in local/global industry.

Course Code	BPHYCC(H)-505A
Course Name	Electronic Instruments and Measurement

COs	Description
CO1	Analyze the performance characteristics of various instruments. Illustrate basic meters such as voltmeters and ammeters for better employability in local/global industry.
CO2	Understand working and principle of multimeter and millivoltmeter for the local/global entrepreneurship skill development.
CO3	Construction, specification and uses of CRT and CRO for the entrepreneurship skill development.
CO4	Study Principle and working of RLC Bridge, Q meter etc for skill development.

Course Code	BPHYCC(H)-505B
Course Name	Modern Physics

COs	Description
CO1	To understand the basic properties of semiconductor and its applications.
CO2	To study the different diodes and its applications in local/global scenario.
CO3	To understand the polar and non polar molecules and Gauss's law in dielectrics.
CO4	To study the photoelectric effect, Compton effect and Davission Germer experiments.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BPHYCC(H)-505C
Course Name	Introduction to Cosmology

COs	Description
CO1	Able to describe the Big Bang, the age and origin of the Solar System.
CO2	Illustrate differences between Earth and other planets in the Solar System.
CO3	Analyze the Lambda-Cold Dark Matter model, that includes recent experimental developments.
CO4	Understand cosmic microwave background; formation of galaxies, large-scale structure in global scenario.

Course Code	BPHYCC(H)-506
Course Name	Computer Fundamentals and Programming in "C"

COs	Description
CO1	Understanding the concept of input and output devices of computers and how it works and develop skills to recognize the basic terminology used in computer programming.
CO2	Study computer memory, types of operating system to understand their scopes in local/global employability.
CO3	Develop skills to understand types of networks and transmission mode.
CO4	Write, compile and debug programs in C language, use different data types for writing the programs to understand their scopes in local/global employability.
CO5	Develop skills to learn array notation and representation.

Course Code	BPHYCC(H)-551
Course Name	Physics Laboratory – 5

COs	Description
CO1	Evaluate hybrid parameters of transistors to understand its local/global employability scopes.
CO2	Plot characteristics of L.D.R., FET, tunnel diode and Zener diode to understand their local/global employability scopes.
CO3	Evaluate ripple factor to understand its employability scopes.
CO4	Evaluate UJT parameters to understand its employability scopes.

Course Code	BPHYCC(H)-556
Course Name	Practical for Programming in C

COs	Description
CO1	Identify situations where computational methods and computers would be

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	useful.
CO2	Given a computational problem, identify and abstract the programming task involved for the development of skill and employability in global perspectives.
CO3	Write the program on a computer, edit, compile, debug, correct, recompile and run it for skill development.
CO4	Identify tasks in which the numerical techniques learned are applicable and apply them to write programs, and hence use computers effectively to solve the task.

Course Code	BPHYCC(H)-601
Course Name	Solid State and Nano Physics

COs	Description
CO1	Understand crystal structure, Bravais lattices in two and three dimensions for local/global employability opportunities.
CO2	Study crystal structure of NaCl, Diamond, CsCl and ZnS for skill development.
CO3	Relate crystalline structure to X-ray diffraction data and the reciprocal lattice and understand the influence of crystal binding energy on crystalline structure for skill development.
CO4	Understand nanoscience and nanotechnology, properties and applications of nanomaterials for employability.

Course Code	BPHYCC(H)-602
Course Name	Electronics and Fiber Optics

COs	Description
CO1	Understand concept of network and study various network theorems for skill development.
CO2	Understand various diodes and their characteristics for skill development.
CO3	To study the working and characteristics of tunnel diode, Zener diode and avalanche diode etc for skill development and local/global employability.
CO4	Study of structure of optical fiber, types of fibers and their importance for skill development.

Course Code	BPHYCC(H)-603
Course Name	Mathematical Physics-II

COs	Description
CO1	Understand complex variables - Analytic functions, Cauchy-Riemann differential equations for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Learn about Gradient, Divergence and Curl in orthogonal curvilinear and their typical local/global applications in physics for skill development.
CO3	Learn different ways of solving second order differential equations for skill development.
CO4	Understand Bessel functions and their recurrence relations and solution of Bessel's equation for skill development.

Course Code	BPHYCC(H)-604
Course Name	Material Science

COs	Description
CO1	Classify the materials to understand basic properties of materials and describe crystal structure, Ceramics, polymers, silicates for skill development and local/global employability.
CO2	Derive various thermodynamical expressions and learn applications of thermodynamics for skill development.
CO3	Learn various defects in materials for skill development and employability.
CO4	Understand the concept of Phase diagrams, Hume-Rothery rules for skill development.

Course Code	BPHYCC(H)-605A
Course Name	Molecular Spectroscopy

COs	Description
CO1	Explain Born-Oppenheimer approximation for skill development.
CO2	Study energy levels of diatomic molecules under rigid and non rigid rotator models to gain knowledge for employability.
CO3	Study energy levels of diatomic molecules under simple harmonic and anharmonic models models to gain knowledge for local/global employability.
CO4	Learn Electronic spectra of diatomic molecules and examine the electronic and vibrational spectra of diatomic molecules for skill development and employability.

Course Code	BPHYCC(H)-605B
Course Name	Astronomy and Astrophysics

COs	Description
CO1	Acquire knowledge of the physical universe and its evolution.
CO2	Communicate about celestial objects such as parent star, planets, dwarf planets, satellites etc.
CO3	Understand Stellar Processes (Nuclear) and spectral classification of Stars.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Acquire knowledge of the Asteroids, Meteors, Comets and Galaxies in global scenario.

Course Code	BPHYCC(H)-605C
Course Name	Satellite Communication and Remote Sensing

COs	Description
CO1	To Understand the knowledge of remote sensing and its applications.
CO2	Study the electromagnetic radiation and communication satellite in local/global perspectives.
CO3	Study the EMR interaction with atmosphere scattering and interaction with water.
CO4	Characteristics of Digital Satellite image enhancement filtering applications.

Course Code	BPHYCC(H)-651
Course Name	Physics Laboratory – 6

COs	Description
CO1	Verify various network theorems for skill development.
CO2	Plot V-I characteristics of diode for skill development and employability.
CO3	Evaluate characteristics of transistor for skill development and local/global employability

PROGRAMME NAME – B. Sc.

Course Code	B010101T
Course Name	Mathematical Physics & Newtonian Mechanics

COs	Description
CO1	Recognize the difference between scalars, vectors, pseudo-scalars and pseudo-vectors.
CO2	Understand the physical interpretation of gradient, divergence and curl.
CO3	Comprehend the difference and connection between Cartesian, spherical and cylindrical coordinate systems.
CO4	Know the meaning of 4-vectors, Kronecker delta and Epsilon (LeviCivita) tensors.
CO5	Study the origin of pseudo forces in rotating frame.
CO6	Study the response of the classical systems to external forces and their elastic deformation.
CO7	Understand the dynamics of planetary motion and the working of Global Positioning System (GPS).

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO8	Comprehend the different features of Simple Harmonic Motion (SHM) and wave propagation for local/global problems.

Course Code	B010102P
Course Name	Mechanical Properties of Matter
COs	**Description**
CO1	Experimental physics has the most striking impact on the industry wherever the instruments are used to study and determine the mechanical properties.
CO2	Measurement precision and perfection is achieved through Lab Experiments.
CO3	Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for related local/global modeling.

Course Code	B010201T
Course Name	Thermal Physics & Semiconductor Devices
COs	**Description**
CO1	Recognize the difference between reversible and irreversible processes.
CO2	Understand the physical significance of thermodynamically potentials.
CO3	Comprehend the kinetic model of gases w.r.t. various gas laws.
CO4	Study the implementations and limitations of fundamental radiation laws.
CO5	Utility of AC bridges in local/global scenario.
CO6	Recognize the basic components of electronic devices.
CO7	Design simple electronic circuits.
CO8	Understand the applications of various electronic instruments.

Course Code	B010202P
Course Name	Thermal Properties of Matter & Electronic Circuits
COs	**Description**
CO1	Experimental physics has the most striking impact on the industry wherever the instruments are used to study and determine the thermal and electronic properties.
CO2	Measurement precision and perfection is achieved through Lab Experiments.
CO3	Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for related local/global modeling.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B010301T
Course Name	Electromagnetic Theory & Modern Optics

COs	Description
CO1	Better understanding of electrical and magnetic phenomenon in daily life.
CO2	To troubleshoot simple problems related to electrical devices.
CO3	Comprehend the powerful applications of ballistic galvanometer
CO4	Study the fundamental physics behind reflection and refraction of light (electromagnetic waves).
CO5	Study the working and applications of Michelson and Fabry-Perot interferometers.
CO6	Recognize the difference between Fresnel's and Fraunhofer's class of diffraction.
CO7	Comprehend the use of polarimeters in local/global scenario.
CO8	Study the characteristics and uses of lasers in local/global perspectives.

Course Code	B010302P
Course Name	Demonstrative Aspects of Electricity & Magnetism

COs	Description
CO1	Experimental physics has the most striking impact on the industry wherever the instruments are used to study and determine the electric and magnetic properties.
CO2	Measurement precision and perfection is achieved through Lab Experiments.
CO3	Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for related local/global modeling.

Course Code	B010401T
Course Name	Perspectives of Modern Physics & Basic Electronics

COs	Description
CO1	Recognize the difference between the structure of space & time in Newtonian & Relativistic mechanics.
CO2	Understand the physical significance of consequences of Lorentz transformation equations.
CO3	Comprehend the wave-particle duality in local/global perspectives.
CO4	Develop an understanding of the foundational aspects of Quantum Mechanics.
CO5	Study the comparison between various biasing techniques.
CO6	Study the classification of amplifiers.
CO7	Comprehend the use of feedback and oscillators in local/global

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	perspectives.
CO8	Comprehend the theory and working of optical fibers along with its applications.

Course Code	B010402P
Course Name	Basic Electronics Instrumentation

COs	Description
CO1	Basic Electronics instrumentation has the most striking impact on the industry wherever the components / instruments are used to study and determine the electronic properties.
CO2	Measurement precision and perfection is achieved through Lab Experiments.
CO3	Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for related local/global modeling.

Course Code	B010501T
Course Name	Classical & Statistical Mechanics

COs	Description
CO1	Understand the concepts of generalized coordinates and D'Alembert's principle.
CO2	Understand the Lagrangian dynamics and the importance of cyclic coordinates.
CO3	Comprehend the difference between Lagrangian and Hamiltonian dynamics.
CO4	Study the important features of central force and its application in Kepler's problem.
CO5	Recognize the difference between macrostate and microstate.
CO6	Comprehend the concept of ensembles in local/global perspectives.
CO7	Understand the classical and quantum statistical distribution laws.
CO8	Study the applications of statistical distribution laws in local/global perspectives.

Course Code	B010502T
Course Name	Quantum Mechanics & Spectroscopy

COs	Description
CO1	Understand the significance of operator formalism in Quantum mechanics
CO2	Study the eigen and expectation value methods in local/global perspectives.
CO3	Understand the basis and interpretation of Uncertainty principle.
CO4	Develop the technique of solving Schrodinger equation for 1D and 3D problems.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Comprehend the success of Vector atomic model in the theory of Atomic spectra.
CO6	Study the different aspects of spectra of Group I & II elements.
CO7	Study the production and applications of X-rays in local/global perspectives.
CO8	Develop an understanding of the fundamental aspects of Molecular spectra

Course Code	B010503P
Course Name	**Demonstrative Aspects of Optics & Lasers**

COs	Description
CO1	Experimental physics has the most striking impact on the industry wherever the instruments are used to study and determine the optical properties.
CO2	Measurement precision and perfection is achieved through Lab Experiments.
CO3	Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for related local/global modeling

Course Code	B010601T
Course Name	**Solid State & Nuclear Physics**

COs	Description
CO1	Understand the crystal geometry w.r.t. symmetry operations.
CO2	Comprehend the power of X-ray diffraction and the concept of reciprocal lattice.
CO3	Study various properties based on crystal bindings in local/global perspectives.
CO4	Recognize the importance of Free Electron & Band theories in understanding the crystal properties.
CO5	Study the salient features of nuclear forces & radioactive decays.
CO6	Understand the importance of nuclear models & nuclear reactions in local/global perspectives.
CO7	Comprehend the working and applications of nuclear accelerators and detectors.
CO8	Understand the classification and properties of basic building blocks of nature.

Course Code	B010602T
Course Name	**Analog & Digital Principles & Applications**

COs	Description
CO1	Study the drift and diffusion of charge carriers in a semiconductor.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the Two-Port model of a transistor.
CO3	Study the working, properties and uses of FETs in local/global perspectives.
CO4	Comprehend the design and operations of SCRs and UJTs in local/global perspectives.
CO5	Understand various number systems and binary codes.
CO6	Familiarize with binary arithmetic.
CO7	Study the working and properties of various logic gates.
CO8	Comprehend the design of combinational and sequential circuits in local/global perspectives.

Course Code	B010603P
Course Name	Analog & Digital Circuits

COs	Description
CO1	Gain practical knowledge of Analog and digital circuits. Analog & digital circuits have the most striking impact on the industry wherever the electronics instruments are used to study and determine the electronic properties.
CO2	Measurement precision and perfection is achieved through Lab Experiments
CO3	Online Virtual Lab Experiments give an insight in simulation techniques and provide a basis for related local/global modeling.

PROGRAMME NAME – Master of Science (M.Sc.) Chemistry

Course Code	MCHCC-101
Course Name	Inorganic Chemistry–I

COs	Description
CO1	Understand basic concepts of wave mechanics and origin of quantum theory for skill development at local level.
CO2	Understand the relationship between the structure, chemical bonds and chemical properties in carbon compounds.
CO3	Define the structure and preparation of sulphur, nitrogen and phosphorous compounds
CO4	Understand the systematic names of simple coordination compounds.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCHCC-102
Course Name	Organic Chemistry–I

COs	Description
CO1	Understand aromaticity and types as well as mechanisms of organic reactions
CO2	Understand how to convert one molecule into another by using oxidising and reducing reagents bringing employability globally.
CO3	Apply stereochemistry to various organic compounds and reactions
CO4	Apply knowledge of pericyclic reactions for various synthesis and conversions

Course Code	MCHCC-103
Course Name	Physical Chemistry–I

COs	Description
CO1	Describe the laws of crystallography concerning to *solid state* structures
CO2	Describe specific crystal defects and properties of solids semiconductors
CO3	Understand rate law kinetics and theories of reaction rates for skill development bringing employability at local as well as national level
CO4	Understand of the laws of thermodynamics and their applications

Course Code	MCHCC-104
Course Name	Analytical Methods

COs	Description
CO1	Understand the treatment of analytical data from the point of view of the "problem Solving" approach for employability in chemical industry
CO2	Understand and apply the conventional separation methods such as precipitation, co- precipitation
CO3	Apply solvent extraction and chromatographic methods for separation of various compounds
CO4	Understand the qualitative and quantitative polarographic and amperometric analysis

Course Code	MCHCC-151
Course Name	Inorganic Chemistry Practical

COs	Description
CO1	Prepare the exact solutions for quantitative analysis for skill development.
CO2	Apply the knowledge of quantitative analysis for the determination and separation of metals from ores/alloys for employability in chemical

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	industries.
CO3	Synthesize inorganic complexes and also find their purity
CO4	Perform gravimetrically and volumetrically separation of metal ions

Course Code	MCHCC-152
Course Name	Physical Chemistry Practical

COs	Description
CO1	Analyse the solutions using conductometric titrations for employability in chemical industries
CO2	Understand mechanism of hydrolysis of an ester practically for skill development
CO3	Evaluate heat of solution and heat of neutralization on the experimental basis
CO4	Determine dissociation constant and rate constant of various reactions. Apply adsorption isotherm on adsorbent-adsorbate system

Course Code	MCHCC-201
Course Name	Inorganic Chemistry–II

COs	Description
CO1	Understand spectroscopic properties of transition metal ions
CO2	Understand the effect of various ligand field strengths in the coordination complexes for skill development.
CO3	Analyze the concept of inorganic reaction mechanisms for employ ability skills.
CO4	Understand basic principles, spectral parameters and chemical applications of Mossbauer spectroscopy for skill development and employability.

Course Code	MCHCC-202
Course Name	Organic Chemistry–II

COs	Description
CO1	Understand synthesis and structural elucidation of naturally occurring organic compounds for the skill development and employability
CO2	Understand and apply principles involved in photo chemistry
CO3	Understand the mechanisms of various organic reactions
CO4	Gain the knowledge of spectroscopic analysis of various organic compounds for employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCHCC-203
Course Name	Physical Chemistry–II

COs	Description
CO1	Understand the concept of photochemistry and photolysis of aldehydes and ketones
CO2	Understand and evaluate various electrochemical parameters
CO3	Understand adsorption isotherms, electro kinetic phenomena and their applications
CO4	Understand various concepts and reactions involved in acid-base catalysis

Course Code	MCHCC-204
Course Name	Polymer Science

COs	Description
CO1	Understand different kind of polymers and their properties
CO2	Understand various types of polymer degradation and their kinetics
CO3	Learn rheology properties of polymers and evaluate stress, strain or viscoelasticity in a polymer
CO4	Learn about various commercial, conducting and biopolymers

Course Code	MCHCC-251
Course Name	Analytical Chemistry Practical

COs	Description
CO1	Learn about gravimetric and titrimetric analysis of different metal ions for skill development
CO2	Determine the spectrophotometric concentration of amino acid for employability
CO3	Prepare buffer solution of known ionic strength for skill development
CO4	Determine various metal ions in the given sample for employability in industrial sector

Course Code	MCHCC-252
Course Name	Organic Chemistry Practical

COs	Description
CO1	Learn about the systematic identification of simple organic compounds
CO2	Separate the constituents organic compounds from the given binary organic mixture for skill development and employability
CO3	Synthesize different organic compounds for skill development and employability

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCHCC-301
Course Name	Organic Synthesis-I

COs	Description
CO1	Predict and account for the most commonly encountered reaction mechanisms in organic chemistry
CO2	Choose the optimal ways and methods for the synthesis of heterocyclic compounds
CO3	Learn different reductive methods to reduce various organic compounds for skill development and employability
CO4	Identify and apply various oxidizing agents in organic reactions

Course Code	MCHCC-302
Course Name	Chemistry of Natural Products-I

COs	Description
CO1	Identify, characterize and synthesize natural products such as amino acids and proteins.
CO2	Learn about the nomenclature, structure and synthesis of alkaloids.
CO3	Understand the classification and structure of β- carotene, anthocyanin and flavones.
CO4	Learn the constitution and synthesis of various purines and pyrimidines for employability at global level

Course Code	MCHCC-303
Course Name	Hetero Cyclic Chemistry

COs	Description
CO1	Understand the basic concepts and different methods of nomenclature of heterocyclic compounds for skill development at local level
CO2	Understand methods for preparation and properties of ring fluorinated heterocycles
CO3	Learn particular properties and reactions of pyrilium salts and pyrones
CO4	Demonstrate an understanding of synthetic methods and properties of purines

Course Code	MCHCC-304
Course Name	Instrumental Methods in Chemical Analysis

COs	Description
CO1	Understand various radio analytical methods of analysis, their principles

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and applications for employability & skill development.
CO2	Develop the ability to analyze samples using different thermal and calorimetric methods of analysis
CO3	Apply X-ray spectroscopy for determination of lattice structure of any molecule
CO4	Analyze topography, morphology, composition and size of the sample using scanning electron microscopy for employability at national as well as global level

Course Code	MCHCC-304(A)
Course Name	Green Chemistry

COs	Description
CO1	Learn the basic principles and goals of green and sustainable chemistry for skill development
CO2	Understand principles of Green Chemistry and relate them to green process metrics for application at local level
CO3	Learn alternative solvent media and energy sources for chemical processes
CO4	Review the trends in Green Chemistry and learn about oxidation reagents and catalysts

Course Code	MCHCC-304(B)
Course Name	Fuel Chemistry

COs	Description
CO1	Learn about the various fuels and their classification for skill development
CO2	Understand the various industrial applications of coal
CO3	Learn the chemistry of petroleum fuel technology and its applications for employability at national and global level
CO4	Understand the classification, properties refining processes for lubricants

Course Code	MCHCC-351
Course Name	Organic Chemistry Practical-I

COs	Description
CO1	Demonstrate mastery of basic organic chemistry laboratory techniques, including distillation, recrystallization, melting point determination, liquid-liquid extraction, gravity and liquid filtration, and chromatography for employability in local and national industries
CO2	Demonstrate the ability to safely and effectively perform synthetic organic reactions, using proper glassware set-up, handling of hazardous chemicals, and following the prescribed experimental procedures

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MCHCC-401
Course Name	Organic Synthesis–II

COs	Description
CO1	Understand basic concept of disconnection and retro-synthetic analysis for skill development
CO2	Apply carbon – halogen (C-X) Disconnection in various organic reactions
CO3	Perform carbon – carbon (C-C) Disconnection and evaluate kinetics of enolate formation
CO4	Understand the application of protecting groups to synthesize the specific product for employability in local and national industries

Course Code	MCHCC-402
Course Name	Chemistry of Natural Products-II

COs	Description
CO1	Understand occurrence, biological functions, constitution and synthesis of vitamins for skill development
CO2	Learn occurrence, biological functions, classification, properties and analysis of Lipids
CO3	Understand nomenclature, stereochemistry and synthesis of different steroids
CO4	Understand classification, structure and isolation of nucleic acids for employability in local and national pharmaceutical industries

Course Code	MCHCC-403
Course Name	Applications of Spectroscopy Inorganic Chemistry

COs	Description
CO1	Understand various concepts of UV spectroscopy and its application to conjugated dienes and carbonyl compounds for skill development
CO2	Learn about the instrumentation, analysis and application of IR spectroscopy to organic compounds for employability
CO3	Analyze and identify organic compounds on the basis of NMR spectroscopy for employability in local and national industries
CO4	Understand the importance of mass spectra in structure determination of organic compounds

Course Code	MCHCC-404
Course Name	Medicinal Chemistry

COs	Description
CO1	Understand chemical principles behind design and production of

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	pharmaceutical agents for skill development
CO2	Gain knowledge applications of antibiotics, antiviral and antibacterials compounds
CO3	Understand about the synthesis and applications of antimalarial compounds for skill development and employability
CO4	Learn about the classification, mechanism of action and synthesis of NSAIDs for employability in local, national and global pharmaceutical sector

Course Code	MCHCC-404(A)
Course Name	Pharmaceutical Chemistry

COs	Description
CO1	Understand the concept of drug discovery, design and development for employability in local and national industries
CO2	Learn the synthesis of different Non-steroidal Anti-inflammatory Drugs for employability
CO3	Learn the characteristics and methods of synthesis of antibiotics, antiviral, antibacterials and anti-fungal drugs
CO4	Understand the fermentation method for the production of various drugs, antibiotics and other organic molecules for employability and skill development

Course Code	MCHCC-404(B)
Course Name	Cosmetic Chemistry

COs	Description
CO1	Gain knowledge about the raw materials used to prepare cosmetic products for entrepreneurship and employability at local and national level
CO2	Learn about the preparation and properties of various kinds of hair dyes
CO3	Formulate and characterize various skin care products for entrepreneurship and employability
CO4	Learn practical skills in the area of cosmetics, perfumes and oral care products required to scientifically design and develop these products

Course Code	MCHCC-451
Course Name	Organic Chemistry Practical-II

COs	Description
CO1	Demonstrate ability for basic organic chemistry laboratory techniques, including Distillation, recrystallization, melting point determination, liquid-liquid extraction, gravity and liquid filtration, and chromatography for skill development and employability in local and national industries

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Demonstrate the ability to safely and effectively perform synthetic organic reactions, using proper glassware set-up, handling of hazardous chemicals, and following the prescribed experimental procedures
CO3	Isolate organic compounds from natural sources for skill development and employability
CO4	Estimate or prepare various organic compounds

PROGRAMME NAME – Bachelor of Science B.Sc. (Hons.) Chemistry

Course Code	BCHECC(H)-101
Course Name	Inorganic Chemistry

COs	Description
CO1	Describe the periodic table as a list of elements to demonstrate trends in their physical and chemical properties for skill development and employability at local level
CO2	Gain an understanding of the bonding fundamentals and predicting geometries of simple molecules
CO3	Understand properties and applications of S-block elements, hydrogen and their compounds for employability
CO4	Learn about the structure and applications of compounds of xenon, boron and carbon

Course Code	BCHECC(H)-102
Course Name	Organic Chemistry

COs	Description
CO1	Understand the mechanisms of various organic reactions as well as reaction tendency of electrophiles, nucleophiles and reaction intermediates, their importance for industries and employability at local level
CO2	Develop an understanding of characteristics of organic compounds due to three-dimensional arrangement and skill development for synthesis of compounds
CO3	Interpret the preparation, properties and reactions of cycloalkanes
CO4	Analyze the concept of aromaticity and the main properties of aromatic compounds

Course Code	BCHECC(H)-151
Course Name	Chemistry Practical

COs	Description
CO1	Demonstrate mastery of basic organic chemistry laboratory techniques,

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	including distillation, recrystallization, melting point determination, liquid-liquid extraction, gravity and liquid filtration, and chromatography for for employability in local and national industries
CO2	Demonstrate the skill development to safely and effectively perform reactions, using proper glassware set-up, handling of hazardous chemicals, and following the prescribed experimental procedures.
CO3	Demonstrate safe laboratory practices through the use of appropriate personal protective equipment and appropriate handling of all chemicals, including proper disposal of waste.
CO4	Assess the progress and success of their experiments, and be able to adjust experimental procedures when necessary.

Course Code	**BCHECC(H)-201**
Course Name	**Physical Chemistry**
COs	**Description**
CO1	Skill development for basic computer system and mathematical concepts such as logarithmic relations, differentiation and integration etc. which are useful to learn chemistry.
CO2	Understand the concept of kinetic theory of gases, behavior of real gases, basic concepts of liquid and solid state.
CO3	Apply the concepts of sol, gel and emulsions to various solutions for better employability in local industries.
CO4	Evaluate rate constant of a reaction as well as understand theories of reaction rates.

Course Code	**BCHECC(H)-202**
Course Name	**Basics of Analytical Chemistry**
COs	**Description**
CO1	Skill development by learning significant figures, accuracy, precision and errors in a given set of results.
CO2	Calibrate various analytical instruments and learn about SI units and standard solutions for employability in local industries.
CO3	Apply separation technique such as chromatography for separation of compounds.
CO4	Perform gravimetric separation and estimation of different components in a mixture.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCHECC(H)-251
Course Name	Chemistry Practical

COs	Description
CO1	Understand the principles defining analytical chemistry from the point of view of the "problem solving" approach for employability in local and national industries
CO2	Furthermore, they will develop skills about the chemical equilibria in solution, carrying out simple qualitative tests and of defining the optimal conditions for a reaction to proceed.
CO3	Volumetric and gravimetric quantitative determinations; standard analysis procedures, understanding and development of a SOP.
CO4	Statistical treatment of the data and significance tests for the final evaluation of analytical data and its applications.

Course Code	BCHECC(H)-301
Course Name	Inorganic Chemistry

COs	Description
CO1	Gain an understanding of elements of first transition series elements.
CO2	Learn about coordination compounds of transition metal complexes and their applications.
CO3	Describe the properties and applications of lanthanides and actinides.
CO4	Assess oxidation and reduction in different reactions and understand the characteristics of non-aqueous solvents for local industries.

Course Code	BCHECC(H)-302
Course Name	Organic Chemistry

COs	Description
CO1	Development of skills to learn about UV & IR spectroscopy and importance of spectroscopy to elucidate the molecular structure of organic compounds for employability in local and national industries
CO2	Describe the nomenclature, structure, bonding, preparation and properties of phenols.
CO3	Understand the chemistry of aldehydes and ketones as well mechanisms of nucleophillic addition reactions and their importance for employment in industries.
CO4	Describe the nomenclature, structure, bonding, preparation and properties of carboxylic acids.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCHECC(H)-351
Course Name	Chemistry Practical

COs	Description
CO1	Demonstrate basic organic chemistry laboratory techniques, including identification of organic compounds using paper chromatography and their application for better employability in chemical sector at national and global level
CO2	Development of skills for separation of a mixture of amino acids by paper chromatography.
CO3	Understand the estimation of hardness of water.
CO4	Assess the progress and success of their experiments, and be able to adjust experimental procedures when necessary.

Course Code	BCHECC(H)-401
Course Name	Physical Chemistry

COs	Description
CO1	Skill development to understand the concept of heat, work and internal energy.
CO2	Understand the entropic changes for reversible & irreversible process and application of Gibb's & Helmholtz equations & its impact on temperature, volume & pressure for employability at local and national level
CO3	Understand the concept of conductance and electrochemistry as well as determine the EMF of the cells.
CO4	Learn the concept of phases, component and degree of freedom and its applications to various phase diagrams

Course Code	BCHECC(H)-402
Course Name	Environmental Chemistry

COs	Description
CO1	Development of skills to understand chemical and biochemical principles of fundamental environmental processes in air, water, and soil.
CO2	Recognize different types of toxic substances & responses and analyze as well as treat toxicological compounds in air and water for employability in local and national industries
CO3	Perform sampling and analysis of various pollutants in air and water.
CO4	Describe biological and green methods of treatment of toxic environmental pollutants.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCHECC(H)-451
Course Name	Chemistry Practical

COs	Description
CO1	Understand the principles defining physical chemistry and environmental chemistry from the point of view of the "problem solving" approach for employability in local and national industries
CO2	Furthermore, he will acquired knowledge about total dissolved solids in water, Chemical Oxygen Demand (COD) of the given water sample carrying out simple qualitative tests and of defining the optimal conditions for a reaction to proceed.

Course Code	BCHECC(H)-501
Course Name	Inorganic Chemistry

COs	Description
CO1	Gain knowledge of crystal field theory & relative stability about coordination complexes.
CO2	Describe the magnetic behavior of transition metal complexes
CO3	Understand nature and bonding in metal carbonyl, silicones and phosphazenes.
CO4	Apply the concept of hard and soft acids and bases to explain feasibility of reactions for skill development to get local employability

Course Code	BCHECC(H)-502
Course Name	Organic Chemistry

COs	Description
CO1	Development of skills to analyze the structure of organic compound based on UV, IR and ^{1}H NMR spectroscopy for employability in local and national industries
CO2	Understand classification, nomenclature, preparation of monosaccharides and its role in employability.
CO3	Learn the synthesis and properties of amino acids, peptides and proteins.
CO4	Explore the knowledge about effects of fats, oils and detergents for useful applications and its role in entrepreneurship.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCHECC(H)--503
Course Name	Green Chemistry

COs	Description
CO1	Skill development to learn the basic principles and goals of green and sustainable chemistry.
CO2	Understand principles of Green Chemistry and relate them to green process metrics for application at local level
CO3	Learn alternative solvent media and energy sources for chemical processes.
CO4	Review the trends in Green Chemistry and learn about oxidation reagents and catalysts.

Course Code	BCHECC(H)-504
Course Name	Pharmaceutical Chemistry

COs	Description
CO1	Understand the concept of drug discovery, design and development
CO2	Skill development to learn the synthesis of different Non-steroidal Anti-inflammatory Drugs.
CO3	Learn the characteristics and methods of synthesis of Antibiotics, Antiviral, antibacterials and anti-fungal drugs for employability at local and national level
CO4	Understand the fermentation method for the production of various drugs, antibiotics and other organic molecules.

Course Code	BCHECC(H)-505
Course Name	Novel Inorganic Solids

COs	Description
CO1	Understand mechanisms of various methods for synthesis and modification inorganic solids for employability at local and national industries
CO2	Analyze the concept of nanotechnology for preparation and application of various nanomaterials.
CO3	Development of skills for understanding of the design, processing and behavior of composite materials
CO4	Demonstrate the importance of various specialty polymers as well as refractory materials, their mechanism of action, properties and applications.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BCHECC(H)-551
Course Name	Chemistry Practical

COs	Description
CO1	Estimate metal ions in a solution using gravimetric analysis.
CO2	Skill development to understand the synthetic process of nano materials for employability at local and national industrial sector
CO3	Learn the synthesis of drugs.

Course Code	BCHECC(H)-601
Course Name	Physical Chemistry

COs	Description
CO1	Develop basic and advance concepts of the physical properties & molecular structure for employability at local and national level
CO2	Skill development to derive mathematical expressions for different energy levels from wave functions.
CO3	Explain the Infra Red spectra of diatomic molecules.
CO4	Explain the concept of Jablonski diagram depicting various processes occurring in the excited state.

Course Code	BCHECC(H)-602
Course Name	Polymer Chemistry

COs	Description
CO1	Understand the importance of macromolecules/polymers in day to day life and apply their knowledge in sustainable development.
CO2	Development of skills to apply the learned fundamental instrumental techniques in the polymer characterization for employability at local and national level
CO3	Explain crystalline melting temperature and glass transition temperature, including the flow properties of polymer melts and polymer solutions, with respect to temperature and molecular weight both.
CO4	Acquire knowledge of processing of polymers, high performance polymers and new polymer related applications.

Course Code	BCHECC(H)-603
Course Name	Fuel Chemistry

COs	Description
CO1	Development of skills to learn about the various fuels and their

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	classification.
CO2	Understand the various industrial applications of coal.
CO3	Learn the chemistry of petroleum fuel technology and its applications for employability at local and national level
CO4	Understand the classification, properties and refining processes for lubricants.

Course Code	BCHECC(H)-604
Course Name	Cosmetic Chemistry

COs	Description
CO1	Gain knowledge about the raw materials used to prepare cosmetic products.
CO2	Learn about the preparation and properties of various kinds of hair dyes.
CO3	Development of skills to formulate and characterize various skin care products for employability at local and national level
CO4	Learn practical skills in the area of cosmetics, perfumes and oral care products required to scientifically design and develop these products.

Course Code	BCHECC(H)-605
Course Name	Organometallics and Bioinorganic Chemistry

COs	Description
CO1	Understand the reactivity stability and other properties of organometallic compounds.
CO2	Describe bond modes and confer typical organometallic reactions, explain their mechanisms.
CO3	Development of skills in understanding the role of organometallic compounds in biological systems for employability at local and national level
CO4	Explain properties such as electrophilic and nucleophilic substitution for polynuclear and heteronuclear aromatic compounds.

Course Code	BCHECC(H)-651
Course Name	Chemistry Practical

COs	Description
CO1	Understand the qualitative and quantitative analysis.
CO2	Perform the synthetic process of commercial chemical materials like cosmetics for employability at local and national level
CO3	Skill development to prepare transition metal complexes.
CO4	Determine rate constant/order in hydrolysis of ester. Determine concentration of the given solution using Beer–Lambert Law.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – Bachelor of Science (B.Sc.) Chemistry

Course Code	B020101T
Course Name	Fundamentals of Chemistry

COs	Description
CO1	Molecular geometries, physical and chemical properties of the molecules.
CO2	Current bonding models for simple inorganic and organic molecules in order to predict structures and important bonding parameters.
CO3	The arrangement of elements in the periodic table and their periodic properties.
CO4	The most primary and utmost important knowledge and concepts of organic Chemistry.
CO5	A broader theoretical picture in multiple stages in an overall chemical reaction as well as reactive intermediates and transition states.
CO6	The clear picture of two-dimensional and three-dimensional structure of the molecules, and their role in reaction mechanism.
CO7	Skill development to understand the concepts of basic computer system, its components, operating systems and computer language for employability at local and national level
CO8	Mathematical concepts such as logarithmic relations, differentiation and integration etc. which are useful to learn chemistry

Course Code	B020102P
Course Name	Quantitative Analysis

COs	Description
CO1	Portability tests of water samples
CO2	Estimation of metals ions.
CO3	Development of skills for estimation of acids and alkali contents in commercial products for employability at local level
CO4	Estimation of inorganic salts and hydrated water in samples

Course Code	B020201T
Course Name	Bioorganic and Medicinal Chemistry

COs	Description
CO1	Understand classification, nomenclature, preparation and properties of carbohydrates.
CO2	Develop skills to learn the synthesis, properties and mechanism of action of proteins.
CO3	Learn about constitution, structure, synthesis and biological role of nucleic acids.

Sanjiv Agrawal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the concept of drug discovery, design and development for employability at local and national level
CO5	Understand the laws of crystallography and determine structure of crystals.
CO6	Understand the importance of macromolecules/polymers in day to day life and apply their knowledge in sustainable development.
CO7	Learn about the techniques involved in polymerization as well as mechanism and kinetics of polymerization
CO8	Learn about the preparation and properties of various kinds of dyes.

Course Code	B020202P
Course Name	Biochemical Analysis

COs	Description
CO1	Development of skills to understand the qualitative and quantitative analysis.
CO2	Determine qualitative and quantitative information for proteins, amino acids and fats for employability at local and national industrial sector.
CO3	Determine and extract nucleic acids.
CO4	Synthesize drug molecules such as propranolol, aspirin and barbituric acid.

Course Code	B020301T
Course Name	Chemical Dynamics & Coordination Chemistry

COs	Description
CO1	Evaluate rate constant of a reaction as well as understand theories of reaction rates.
CO2	Understand the concept of equilibrium constant and free energy.
CO3	Development of skills to learn the concept of phases, component and degree of freedom and its applications to various phase diagrams
CO4	Understand the concept of kinetic theory of gases and behavior of real gases.
CO5	Understand the basic concepts of liquid state and liquid crystals for employability at local and national level
CO6	Skill development in learning about coordination compounds of transition metal complexes and their applications.
CO7	Describe metal-ligand bonding, thermodynamic and kinetic aspects of metal complexes.
CO8	Explain the electronic spectra and magnetic behavior of transition metal complexes

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B020302P
Course Name	Physical Analysis

COs	Description
CO1	Calibrate apparatus and prepare solutions of various concentrations.
CO2	Determine surface tension and viscosity of any solution.
CO3	Development of skills to perform dilatometric experiments for a given substance for employability at local and national level
CO4	Analyze component and phase in equilibrium

Course Code	B020401T
Course Name	Quantum Mechanics and Analytical Techniques Course

COs	Description
CO1	Describe atomic structure, wave function and its significance; Schrodinger wave equation and its applications.
CO2	Learn elementary quantum mechanics, molecular orbital theory, basic ideas – Criteria for forming molecular orbital from atomic orbitals.
CO3	Development of basic skills to analyze molecular Spectra such as rotational, vibrational and Raman Spectra
CO4	Learn concepts of electronic spectrum, Woodward-Fieser rules and fundamental laws of spectroscopy.
CO5	Determine various functional groups of organic molecules using IR spectra.
CO6	Determine the structure of organic molecules using NMR spectroscopic techniques for employability at local and national level
CO7	Skill development to understand the importance of mass spectra in determination of structure of organic compounds.
CO8	Develop basic skills required for purification, solvent extraction, TLC and column chromatography

Course Code	B020402P
Course Name	Instrumental Analysis

COs	Description
CO1	To develop methods for determine molecular weight of a non-volatile solute.
CO2	Apply Beer – Lambert Law for determination of concentration as well as evaluate BOD, COD of any sample.
CO3	Determine the structure of organic molecules using IR and NMR spectroscopic techniques for employability at local and national level
CO4	Develop basic skills required for purification, solvent extraction, TLC and column chromatography.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B020501T
Course Name	Organic Synthesis A

COs	Description
CO1	Development of skills to understand the synthesis and chemical properties of aliphatic and aromatic hydrocarbons.
CO2	Understand the synthesis and chemical properties of alkenes.
CO3	Understand the synthesis and chemical properties of alkynes.
CO4	Skill development to learn the concept of aromaticity and aromatic compounds.
CO5	Understand synthesis and chemical properties of alcohols, halides carbonyl compounds, carboxylic acids and esters
CO6	Learn the preparation, properties and mechanism of reactions involving phenols for employability at local and national industrial sector
CO7	Learn the preparation, properties and reactions of ethers and epoxides
CO8	Understand nomenclature, classification, methods of formation and chemical reactions of alkyl halides

Course Code	B020502T
Course Name	Rearrangements and Chemistry of Group Elements

COs	Description
CO1	Understand mechanisms of named rearrangement reactions.
CO2	Learn properties, reactions and applications of catalysts and enzyme catalysts.
CO3	Understand properties and applications of s-block, p-block elements and noble gases.
CO4	Gain an understanding of elements of first and second transition series elements.
CO5	Describe the properties, oxidation states and applications of lanthanides
CO6	Describe the properties, oxidation states and applications of actinides
CO7	Understand preparation, structure, nature and bonding in metal carbonyls for employability at local and national level
CO8	Understand the role of metal ions in biological systems including hemoglobin and myoglobin

Course Code	B020503P
Course Name	Qualitative Analysis

COs	Description
CO1	Skill development to identify acidic and basic radicals in inorganic mixtures.
CO2	Perform elemental analysis and identify functional groups in organic compounds.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Develop skills to separate organic compounds from mixture for employability at local and national level
CO4	Identify organic compound based on functional group analysis, melting point etc.

Course Code	B020601T
Course Name	Organic Synthesis B

COs	Description
CO1	Understand mechanisms of action of various reagents.
CO2	Skill development to learn properties, reactions and applications of organometallic compounds.
CO3	Understand nomenclature, structure, synthesis and applications of the carbonyl compounds.
CO4	Understand nomenclature, classification, preparation and properties of the carboxylic acids.
CO5	Describe the synthesis of organic compounds through the formation of enolates.
CO6	Understand nomenclature, structure, preparation and properties of nitrogen containing organic compounds
CO7	Development of skills to understand preparation, properties and reactions of five and six membered heterocycles for employability at local and national level
CO8	Learn the different types of alkaloids, & terpenes etc and their chemistry and medicinal importance.

Course Code	B020602T
Course Name	Chemical Energetics and Radio Chemistry

COs	Description
CO1	Understand the concept of heat, work and internal energy.
CO2	Development of basic skills to understand law of thermodynamics and application of Gibb's & Helmholtz equations & its impact on temperature, volume & pressure.
CO3	Describe the concept of conductance & electrochemistry.
CO4	Understand the concept of electrodes and determine the EMF of cells.
CO5	Skill development to learn laws of photochemistry, processes and kinetics of photochemical reactions.
CO6	Understand various colligative properties of solutions.
CO7	Explain various adsorption isotherms, colloidal properties and dipole moment for employability at local and national level
CO8	Understand radioactive decay process, measurement and applications of radioactivity.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B020603P
Course Name	Analytical Methods

COs	Description
CO1	Skill development for Quantify the product obtained through gravimetric method.
CO2	Determine Rf values & identify organic compounds through paper chromatography.
CO3	Determine Rf values & identify organic compounds through thin layer chromatography for employability at local and national level
CO4	Development of skills to perform thermo chemical reactions and determine enthalpy during the reaction.

PROGRAMME NAME – Bachelor of Science B.Sc. (Mathematics)

Course Code	B030101T
Course Name	Differential Calculus & Integral Calculus

COs	Description
CO1	To enhance knowledge of real valued functions such as sequence and series. They will also be able to know globally about continuous and differentiable functions for development of skills.
CO2	They should have knowledge about curvature, envelope and evolutes and trace curve in polar, Cartesian as well as parametric curves and many other related concepts for development of skills.
CO3	The course is to equip the student with necessary analytic and technical skills. By applying the principles of integral they learn to solve a variety of practical problems in science and engineering to develop skills.
CO4	To get the knowledge of beta gamma function and different theorems regarding vector integration to develop skills.
CO5	To increase the global knowledge of students regarding many engineering problems to develop skills.

Course Code	B030102P
Course Name	Practical

COs	Description
CO1	The main objective of the course is to give global knowledge for better employability to the student. To plot the different graph and solve the different type of equations by plotting the graph using different computer software such as Mathematica /MATLAB /Maple / Scilab / Maxima etc.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	After completion of this course student would be able to know the convergence of sequences through plotting, verify Bolzano-Weierstrass theorem through plotting the sequence, Cauchy's root test by plotting n^{th} roots and Ratio test by plotting the ratio of n^{th} and $(n+1)^{th}$ term to develop skill.
CO3	Student would be able to plot Complex numbers and their representations, Operations like addition, subtraction, and Multiplication, Division, Modulus and Graphical representation of polar form ***to*** develop skill.
CO4	Student would be able to perform following task of matrix as Addition, Multiplication, Inverse, Transpose, Determinant, Rank, and Eigen vectors, Eigen values, Characteristic equation and verification of the Cayley-Hamilton theorem, solving the systems offline are equations for better employability.

Course Code	**B030201T**
Course Name	**Matrices and Differential Equations & Geometry**
COs	**Description**
CO1	Perform the matrix operations of addition, multiplication and transposition and express a system of simultaneous linear equations in matrix form. Solve a system of linear equations by row-reducing its augmented form, inverse of a matrix to develop national skills.
CO2	Solve the problems of Complex number, Function of complex variable, Trigonometric, Exponential, Logarithmic functions to develop skills.
CO3	Determine the different types of differential equations their solutions using different methods to develop skills.
CO4	Use three dimensional geometry to understand different mathematical problems to develop skills.
CO5	Study the basic concepts regarding three dimensional geometry for better employability.

Course Code	**B030301T**
Course Name	**Algebra & Mathematical Methods**
COs	**Description**
CO1	Group theory is one of the building blocks of modern algebra. Objective of this course is to introduce students to basic concepts of Group, Ring theory and their properties to enhance student's knowledge globally.
CO2	A student learning this course gets a concept of Group, Ring, Integral Domain and their properties. These courses willed the student to basic course in advanced mathematics and Algebra for skill development.
CO3	The course gives emphasis to enhance student's knowledge of functions of two variables, Laplace Transforms, Fourier Series.

Sanjeev Agrawal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	On successful completion of the course students should have national knowledge about higher different mathematical method sand will help him in going for higher studies and research and students will also get knowledge for better employability in industry.

Course Code	B030401T
Course Name	Differential Equations & Mechanics

COs	Description
CO1	The objective of this course is to familiarize the students with various methods of solving differential equations, partial differential equations of first order and second order and to have qualitative applications for skill development.
CO2	A student doing this course is able to solve differential equations and is able to model problems in nature using ordinary differential equations. After completing this course, a student will be able to take more courses on wave equation, heat equation, diffusion equation, gas dynamics, nonlinear evolution equation etc for skill development.
CO3	The object of the course is to give students knowledge of local basic mechanics such as simple harmonic motion, motion under other laws and forces for better employment.
CO4	The student, after completing the course can go for higher problems in mechanic such as Hydrodynamics this will be helpful in getting employment in industry.

Course Code	B030501T
Course Name	Group and Ring Theory & Linear Algebra

COs	Description
CO1	Demonstrate knowledge and understanding of fundamental concepts including groups, subgroups, normal subgroups, homeomorphisms and isomorphism to develop skill.
CO2	Demonstrate local knowledge and understanding of rings, fields and their properties to develop skills.
CO3	Liner algebra is a basic course in almost all branches of science. The objective of this course is to introduce a student to the basics of linear algebra and some of its applications in industry for better employability.
CO4	Define basic terms and concepts of matrices, vectors and complex numbers for skill development.
CO5	Find the eigenvalues and eigenvectors of a square matrix using the characteristic polynomial and will know how to diagonalize a matrix for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B030502T
Course Name	Number Theory and Cryptography & Discrete Mathematics

COs	Description
CO1	Upon successful completion, students will have the global knowledge and skills to solve problems in elementary number theory and also apply elementary number theory to crypto graphy.
CO2	RSA algorithm implementation is probably the most frequently used computer program in the word now a days. Without it, nobody would be able to make secure payments over the internet, or even login securely to e-mail and other personal services. After Successful completion of this course students will be able to apply the basics of the number theory to encrypt and decrypt messages to develop the skills.
CO3	This course covers the local basic concepts of discrete mathematics used in computer science and other disciplines that involve formal reasoning. The topics Include logic, proof, counting, discrete probability, relations, graphs, trees, and Boolean algebra to develop the skills.
CO4	After successful completion, students will have the knowledge in Mathematical reasoning, Combinatorial analysis, Discrete structures, Algorithmic thinking and Applications and modeling in industry area for employability.

Course Code	B030601T
Course Name	Metric Spaces & Complex Analysis

COs	Description
CO1	Understand the Euclidean distance function on AB and appreciate its properties, and state and use the Triangle and Reverse Triangle Inequalities for the Euclidean distance function on AB. Explain the geometric meaning of each of the metric space properties (M1) – (M3) and be able to verify whether a given distance function is a metric for skill development.
CO2	Distinguish between open and closed balls in a metric space and be able to determine them for given metric spaces for skill development.
CO3	Explain the definition of continuity for functions from AB to AD and determine whether a given function from AB to AD is continuous. Also understand the concept of uniform continuity and convergence for sequences in a metric space for skill development.
CO4	Express some functions as infinite series or products to develop their skills.
CO5	Demonstrate capacity for mathematical reasoning through analyzing, proving and explaining global concepts from complex analysis to enhance the skills for skill development.
CO6	After completion of this course the student will have rigorous and deeper understanding of national fundamental concepts in Mathematics. This will

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	be helpful to the student in understanding pure mathematics and in research to increase employability for skill development.

Course Code	B030602T
Course Name	Numerical Analysis & Operation Research

COs	Description
CO1	The aim of this course is to teach the student the application of various numerical techniques for variety of problems occurring in daily life. At the end of the course the student will be able to understand the basic concept of Numerical Analysis and to solve algebraic and differential equation to develop the skills.
CO2	The main outcome will be that students will be able to handle problems and finding approximated solution. Later he can opt for advance course in Numerical Analysis in higher Mathematics and can understand industry needs.
CO3	The student will be able to solve various problems based on linear programming. After successful completion of this paper will enable the students to apply the national basic concepts of operations research to develop the skills.
CO4	Formulate real-world problems as a linear programming model and describe the theoretical workings of the graphical and simplex method, demonstrate the solution process by hand and solver to develop the skills.
CO5	Explain the relationship between a linear program and its dual, including strong duality and complementary slackness to provide global employability & skills.
CO6	Formulate specialized linear programming problems, namely transportation and assignment problems and describe theoretical workings of the solution methods for transportation and assignment problems to provide employability & skills.

PROGRAMME NAME – Bachelor of Science (Hons.) Mathematics

Course Code	BMATCC(H)-101
Course Name	Matrices and Trigonometry

COs	Description
CO1	Solve a system of linear equations by row-reducing its augmented form for skill development
CO2	Perform the matrix operations of addition, multiplication and transposition and express a system of simultaneous linear equations in matrix for skill development.
CO3	Determine whether or not a given matrix is invertible and if it is, find its inverse for global skill development.
CO4	Solve the problems of Complex number, Function of complex variable,

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Trigonometric, Exponential, Logarithmic Functions for skill development.
CO5	Solve the problems of expansions and summation of series mathematical model for local skill development.

Course Code	BMATCC(H)-102
Course Name	Calculus

COs	Description
CO1	Understand continuity and differentiability in terms of limits for skill development.
CO2	Describe asymptotic behavior in terms of limits involving infinity for skill development.
CO3	Use derivatives to explore the behavior of a given function, locating and classifying its extrema, and graphing the function for local skill development.
CO4	Study the implementation of multiple integrals knowledge for better employability in industry.
CO5	Gain knowledge of fundamental concepts of Beta and Gamma Functions for skill development.

Course Code	BMATCC(H)-201
Course Name	Vector Calculus and Co-Ordinate Geometry

COs	Description
CO1	Calculate and interpret derivatives in up to three dimensions for skill development.
CO2	Integrate functions of several variables over curves and surfaces for national entrepreneurial skill.
CO3	Use Green's theorem and the Divergence theorem to compute integrals Identify and sketch curves better skilling of entrepreneurship.
CO4	Use three dimensional geometry using vectors for skill development
CO5	Understand mathematical models to relate mathematics with daily life problems for national skill development and employability.

Course Code	BMATCC(H)-202
Course Name	Differential Equations and Integral Transforms

COs	Description
CO1	Gain an experience in the implementation of Mathematical concepts which are applied in various fields of sciences and Engineering for skill development.
CO2	Integrate functions of several variables over curves and surfaces for entrepreneurial skill.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Recognize the different methods of finding Laplace transforms and Fourier transforms of different functions for skill development
CO4	Apply the knowledge of L.T, F.T, and Finite Fourier transforms in finding the solutions of differential equations for entrepreneurship.
CO5	Solve the initial value problems and boundary value problems for skill development.

Course Code	BMATCC(H)-301
Course Name	Mechanics

COs	Description
CO1	Describe the motion of a particle in terms of its position, velocity and acceleration in different frames of reference and analyze the forces causing the motion of a particle for national skill development.
CO2	To study about simple harmonic motion and elastic strings for skill development.
CO3	Solve the mechanics problems associated with friction forces knowledge for better employability.
CO4	Solve for the resultants & moments of any force systems and determine equivalent force systems and to determine the internal forces in plane trusses and beams for better national entrepreneurship.
CO5	Obtain the centroid, first moment and second moment of an area and apply work, energy, impulse and momentum relationships for a particle in motion for global skill development.

Course Code	BMATCC(H)-302
Course Name	Numerical Methods

COs	Description
CO1	Apply various interpolation methods and finite difference concepts for skill development.
CO2	Apply numerical methods to find our solution of algebraic equations using different methods under different conditions, and numerical solution of system of algebraic equations for global skill development.
CO3	Work out numerical differentiation and integration whenever and wherever routine methods are not applicable for skill development.
CO4	Understand mathematical model divided differences table, Newton's divided and Lagrange's formula for skill development.
CO5	Develop the ability to solve the numerical differentiation and numerical integration problems national employability.

Sanjeev Agrawal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BMATCC(H)-401
Course Name	Discrete Structures

COs	Description
CO1	Understand the basic principles of sets and operations in sets also demonstrate the properties of relations and functions for skill development.
CO2	Write an argument using logical notation and determine if the argument is valid or not for skill development.
CO3	Demonstrate the ability to write and evaluate a proof or outline the basic structure and give examples of each proof of techniques described global skill development and employability.
CO4	Apply counting principles to determine probabilities for skill development.
CO5	Demonstrate different traversal methods for trees and graphs for local entrepreneurship.

Course Code	BMATCC(H)-402
Course Name	Real Analysis

COs	Description
CO1	Describe the basic differences between the rational and the real numbers for skill development.
CO2	Understand and perform simple proofs for skill development.
CO3	Answer question concerning uniform convergence of concrete numerical sequences and series for skill development.
CO4	Give the definition of concepts related to metric spaces, such as continuity, compactness, completeness and connectedness for entrepreneurship.
CO5	Give the essence of the proof of Stone-Weierstrass theorem, the contraction theorem as well as the existence of convergent subsequences using equicontinuity for national employability.

Course Code	BMATCC(H)-501
Course Name	Linear Algebra

COs	Description
CO1	Define basic terms and concepts of matrices, vectors and complex numbers for skill development.
CO2	Use of various forms of complex numbers to solve numerical problems forskill development.
CO3	Apply the matrix calculus in solving a system of linear algebraic equations for entrepreneurship.
CO4	Use matrix algebra and the related matrices to linear transformations

Sanjeev Gaur
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	global skill development and employability.
CO5	Calculate the area of planar shapes (triangle, parallelogram) and the volume of parallelepiped using vector algebra for global skill development.

Course Code	BMATCC(H)-502
Course Name	**Linear Programming**

COs	Description
CO1	Formulate real-world problems as a linear programming model and describe the theoretical workings of the graphical and simplex method to demonstrate the solution process for national entrepreneurship.
CO2	Explain the relationship between a linear program and its dual, including strong duality for global skill development.
CO3	Formulate specialized linear programming problems as transportation problems for entrepreneurship.
CO4	Formulate specialized linear programming problems as assignment problems for skill development and national employability.
CO5	Demonstrate solution methods including graphs and linear programming to analyze and solve the Two-person, zero-Sum Games for global skill development and employability.

Course Code	BMATCC(H)-503
Course Name	**Advanced Real Analysis**

COs	Description
CO1	Understand and prove fundamental results and solve algebraic problems using appropriate techniques for local entrepreneurship.
CO2	Understand the basic properties of real number system that will used later in development of real analysis theory for global skill development
CO3	Develop the logical thinking to proof the basic results of real analysis for skill development.
CO4	Solve the problems of convergence and divergence of sequences and series skill development and employability.
CO5	Develop an understanding of limits in abstract way and how they are used in sequences, series, differentiation and integration. skill development and employability.
CO6	Appreciate how abstract ideas in real analysis can be applied to practical problems for global skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BMATCC(H)-504
Course Name	Abstract Algebra I

COs	Description
CO1	Explore the properties of groups, sub-groups, including symmetric groups, permutation groups, cyclic groups, normal sub-groups and quotient groups for global skill development.
CO2	Understand the concepts of homomorphism and isomorphism between groups for skill development.
CO3	Apply class equation and Sylow theorems to solve different problems to develop global skill.
CO4	Explore the properties of rings, sub-rings, ideals including integral domain, principle ideal domain, Euclidean ring and Euclidean domain for skill development .and employability.
CO5	Understand the concepts of homomorphism and isomorphism between rings for skill development

Course Code	BMATCC(H)-505
Course Name	Theory of Probability

COs	Description
CO1	Demonstrate understanding of Basic probability axioms and rules and the moments of discrete and continuous random variables as well as be familiar with common named discrete and continuous random variables for global skill development.
CO2	Demonstrate understanding of Basic probability axioms and rules and the moments of discrete and continuous random variables as well as be familiar with common named discrete and continuous random variables for global skill development.
CO3	Calculate probabilities, and derive the marginal and conditional distributions of bivariate random variables for skill development and national employability.
CO4	Discrete time Markov chains and methods of finding the equilibrium probability distributions for skill development
CO5	Calculate probabilities of absorption and expected hitting times for discrete time Markov chains with absorbing states for global skill development.
CO6	Translate real-world problems into probability models for skill development.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BMATCC(H)-506
Course Name	Computer Fundamentals and Programming in "C"

COs	Description
CO1	Understanding the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming global skill development and employability.
CO2	Study computer memory, types of operating system for local entrepreneurship.
CO3	Understand types of networks for entrepreneurship.
CO4	Write, compile and debug programs in C language and use different data types for writing the programs for skill development and employability.
CO5	Learn Array notation and representation for global skill development and local employability.

Course Code	BMATCC(H)-507
Course Name	Mathematical Methods

COs	Description
CO1	Understand the basics of Laplace Transformation to solve initial and boundary value problems for skill development.
CO2	Learn Fourier transformation and Z transformation and their applications to relevant problems global skill development and national employability.
CO3	Understand Hankel's Transformation to solve boundary value problem skill development and national employability.
CO4	Find solutions of linear integral equations of first and second type (Volterra and Fredhlom) employability.
CO5	Understand theory of calculus of variations to solve initial and boundary value problems global skill development and employability.

Course Code	BMATCC(H)-508
Course Name	Multivariate Statistical Analysis

COs	Description
CO1	Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines skill development and employability.
CO2	Be familiar with a variety of examples where mathematics or statistics helps accurately explain abstract or physical phenomena global skill development and employability.
CO3	Recognize and appreciate the connections between theory and applications skill development and local entrepreneurship.
CO4	Be able to independently read mathematical and statistical literature of

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	various types, including survey articles, scholarly books, and online sources skill development and local entrepreneurship.
CO5	Be life-long learners who are able to independently expand their mathematical or statistical expertise when needed, or for interest's sake for entrepreneurship.

Course Code	BMATCC(H)-509
Course Name	Operator Algebras

COs	Description
CO1	Prove the continuity of concrete linear operators between topological vector spaces skill development and local entrepreneurship.
CO2	Given a linear operator, understand whether or not it is compact for global skill development.
CO3	Find the essential spectra of linear operators for skill development.
CO4	Find the maximal spectra of concrete commutative Banach algebras global skill development and entrepreneurship.
CO5	Describe the functional calculi and the spectral decompositions of concrete selfadjoint operators skill development and entrepreneurship.

Course Code	BMATCC(H)-510
Course Name	Theory of Real Functions

COs	Description
CO1	Students will have working knowledge on the concepts and theorems of the elementary calculus of functions of one real variable skill development and entrepreneurship.
CO2	They will work out problems involving derivatives of function and their applications global skill development and entrepreneurship.
CO3	They can use derivatives to analyze and sketch the graph of a function of one variable, can also obtain absolute value and relative extrema of functions for global skill development and local entrepreneurship.
CO4	This knowledge is basic and students can take all other analysis courses after learning this course for skill development.

Course Code	BMATCC(H)-511
Course Name	Numerical Methods and Scientific Computing

COs	Description
CO1	Students can handle physical problems to find an approximated solution for global skill development and employability.
CO2	After getting trained a student can opt for advance courses in Numerical analysis in higher mathematics skill development and national

Sanjeev Sharma
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability.
CO3	Use of good mathematical software will help in getting the accuracy one need from the computer and can assess the reliability of the numerical results, and determine the effect of round off error or loss of significance skill development and local entrepreneurship.

Course Code	BMATCC(H)-556
Course Name	Practical for Programming in C

COs	Description
CO1	Identify situations where computational methods and computers would be useful global skill development and national employability.
CO2	Given a computational problem, identify and abstract the programming task involved for skill development and employability.
CO3	Write the program on a computer, edit, compile, debug, correct, recompile and run it for skill development and employability.
CO4	Identify tasks in which the numerical techniques learned are applicable and apply them to write programs, and hence use computers effectively to solve the task for local entrepreneurship.
CO5	To gain knowledge of basic of programming language C for national entrepreneurship

Course Code	BMATCC(H)-601
Course Name	Complex Analysis

COs	Description
CO1	Becoming familiar with the concepts Complex numbers and their properties and operations with Complex number for global skill development and employability.
CO2	Finding domain and range of complex functions and sketching their graphs skill development and employability
CO3	Evaluating limits and checking the continuity of complex function for global skill development and employability.
CO4	Checking differentiability and Analyticity of functions for skill development
CO5	Evaluate Complex integrals and applying Cauchy integral for local entrepreneurship

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BMATCC(H)-602
Course Name	Difference Equations

COs	Description
CO1	Apply the theory to study the qualitative theory of solutions of difference equations and partial difference equations of higher order for global skill development.
CO2	Apply the theory to study the quantitative and qualitative study of solutions of different discrete models in Engineering for global skill development.
CO3	Difference between the qualitative and quantitative behavior of solutions of the difference equations and the corresponding differential equations for skill development and local entrepreneurship
CO4	Apply the theory to study the solution in discrete boundary value problems for global skill development and entrepreneurship
CO5	Apply difference equations to find solution of boundary value problems for Non linear equations for global skill development

Course Code	BMATCC(H)-609
Course Name	Finite Fields

COs	Description
CO1	Students taking this course will develop an appreciation of the basic concepts of the theory of finite fields for skill development and local entrepreneurship.
CO2	They will also get a glimpse of modern developments in the area and will get familiar with a diverse scope of applications skill development and local entrepreneurship.
CO3	These methods will be useful for further study in a range of other fields, e.g., Number Theory, Cryptography, Coding Theory and Theoretic Computer Science for global skill development.

Course Code	BMAT(H)-610
Course Name	Ergodic Theory

COs	Description
CO1	The student has a knowledge of concepts and methods from dynamical systems, as specified under course content for global skill development and entrepreneurship
CO2	Skills The students should be able to recognize problems, related to topics mentioned above and fulfill research related to ergodic theory, dynamical systems and their applications to various areas of mathematics as well as to applied disciplines for skill development and local entrepreneurship

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Competence The students should be able to participate in scientific discussions and conduct research on high international (global) level in dynamical systems and ergodic theory as well as collaborate in joint interdisciplinary researches for skill development and entrepreneurship.

Course Code	BMATCC(H)-603
Course Name	Multivariable Calculus

COs	Description
CO1	Effectively write mathematical solutions in a clear and concise manner for skill development.
CO2	Apply the theory to calculate the gradients, directional derivatives, arc length of curves, area of surfaces, and volume of solids for global skill development.
CO3	Solve problems involving maxima and minima, line integral and surface integral, and vector calculus for global skill development.
CO4	Demonstrate ability to think critically by recognizing patterns and determining and using appropriate techniques for solving a variety of integration and differentiation problems for global skill development.
CO5	Demonstrate an intuitive and computational understanding for calculus applications by solving a variety of problems from physics, engineering and mathematics for skill development
CO6	Demonstrate the ability to differentiate and integrate vector-valued functions for local entrepreneurship

Course Code	BMATCC(H)-604
Course Name	Abstract Algebra II

COs	Description
CO1	Understanding the basic concepts of rings for global skill development.
CO2	Analyze the concepts of Ideals for skill development
CO3	Mapping among rings and their properties for global skill development.
CO4	Provide information regarding Polynomial rings for skill development.
CO5	Effectively write abstract mathematical proofs in a clear and logical manner for global skill development.

Course Code	BMATCC(H)-605
Course Name	Introduction to Number Theory

COs	Description
CO1	Find quotients and remainders from integer division for skill development.
CO2	Apply Euclid's algorithm and backwards substitution for global skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the definitions of congruences, residue classes and least residues for local entrepreneurship.
CO4	Add and subtract integers, modulo n, multiply integers and calculate powers for skill development
CO5	Determine multiplicative inverses, modulo n and use to solve linear congruences for global skill development

Course Code	BMATCC(H)-606
Course Name	**Partial Differential Equation and Calculus of Variation**

COs	Description
CO1	Minimization problems for variational integrals, existence and regularity theory for minimizers and critical points, geometric measure theory for global skill development.
CO2	Variational methods for partial differential equations, optimal mass transportation, linear and nonlinear eigen value problems global skill development and employability
CO3	Variational problems in differential and complex geometry for skill development
CO4	Variational methods in global analysis and topology for local entrepreneurship.
CO5	Variational methods in mathematical physics, nonlinear elasticity, asymptotic for national entrepreneurship.
CO6	variational problems, homogenization, capillarity phenomena, free boundary problems and phase transitions for entrepreneurship

Course Code	BMATCC(H)-607
Course Name	**Metric Space**

COs	Description
CO1	Understand the Euclidean distance function on AB and appreciate its properties, and state and use the Triangle and Reverse Triangle Inequalities for the Euclidean distance function on AB. Explain the geometric meaning of each of the metric space properties (M1) – (M3) and be able to verify whether a given distance function is a metric for global skill development.
CO2	Distinguish between open and closed balls in a metric space and be able to determine them for given metric spaces for global skill development.
CO3	Explain the definition of continuity for functions from AB to AD and determine whether a given function from AB to AD is continuous. Also understand the concept of uniform continuity and convergence for sequences in a metric space skill development and national employability.
CO4	To analyze the concepts of connectedness for entrepreneurship.
CO5	To analyze the concepts of compactness for local entrepreneurship.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BMAT(H)-611
Course Name	Partial Differential Equations and System Of ODES

COs	Description
CO1	After completing this course, a student will be able to take more courses on wave equation, heat equation, diffusion equation, gas dynamics, non linear evolution equations etc for global skill development and entrepreneurship.
CO2	All these courses are important in engineering and industrial applications for solving boundary value problem skill development and local entrepreneurship.

Course Code	BMAT(H)-612
Course Name	Algorithm

COs	Description
CO1	Argue the correctness of algorithms using inductive proofs and invariants skill development and national employability.
CO2	Analyze worst-case running times of algorithms using asymptotic analysis skill development and employability.
CO3	Describe the divide-and-conquer paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize divide-and-conquer algorithms. Derive and solve recurrences describing the performance of divide-and-conquer algorithms skill development and local entrepreneurship.
CO4	Describe the dynamic-programming paradigm and explain when an algorithmic design situation calls for it. Recite algorithms that employ this paradigm. Synthesize dynamic-programming algorithms, and analyze them for global skill development and entrepreneurship.

Course Code	BMATCC (H) - 608
Course Name	Project & Viva Voce

COs	Description
CO1	Analyses hypotheses and conclusions of mathematical statements for global skill development and employability
CO2	Explain the concept and Classification of different courses for skill development and employability
CO3	Demonstrate knowledge and understanding of fundamental concepts of writing skills for global skill development and employability
CO4	Give the essence of the proof of the different theorems studied in the previous courses.
CO5	Work out to enhance the previous knowledge differentiation and

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	integration whenever and wherever routine methods are not applicable for skill development and national entrepreneurship.
CO6	Formulate real-world problems as a linear programming model and describe the theoretical workings of the graphical and simplex method, demonstrate the solution process by hand and solver for global skill development and employability.
CO7	Demonstrate solution methods including graphs and programming to analyze and solve the mathematical problems for skill development and national employability.

Course Code	**MATHCC-101**
Course Name	**Abstract Algebra**
COs	**Description**
CO1	Demonstrate insight into abstract algebra with focus on axiomatic theories for better skilling of local entrepreneurship.
CO2	Apply algebraic ways of thinking for global skill development.
CO3	Demonstrate knowledge and understanding of fundamental concepts including groups, subgroups, normal subgroups, homeomorphisms, and isomorphism for global skill development.
CO4	Demonstrate knowledge and understanding of rings, fields, and their properties to develop global skill.
CO5	Understand and prove fundamental results and solve algebraic problems using appropriate techniques for global skill development.
Course Code	**MATHCC-102**
Course Name	**Real Analysis**
COs	**Description**
CO1	Describe the basic differences between the rational and the real numbers for local entrepreneurship & skill development.
CO2	Understand and perform simple proofs for global skill development.
CO3	Answer question concerning uniform convergence of concrete numerical sequences and series for entrepreneurship & global skill development.
CO4	Give the definition of concepts related to metric spaces, such as continuity, compactness, completeness and connectedness for global skill development.
CO5	Give the essence of the proof of Stone-Weierstrass theorem, the contraction theorem as well as the existence of convergent subsequences using equi continuity for global skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MATHCC-103
Course Name	Number Theory

COs	Description
CO1	Analyses hypotheses and conclusions of mathematical statements for global skill development.
CO2	Apply different methods of proof to verify mathematical assertions, including proof by induction, by contra positive and by Contradiction to global skill development.
CO3	Solve systems of Diophantine equations using the Chinese Remainder Theorem & the Euclidean algorithm for local entrepreneurship.
CO4	Understand the basics of modular arithmetic for global skill development
CO5	State and prove Fermat's little Theorem & its generalization using Euler's function & use them to implement the RSA cipher & discrete log cipher for national entrepreneurship & global skill development.

Course Code	MATHCC-104
Course Name	Ordinary Differential Equations

COs	Description
CO1	Explain the concept of differential equation, Classifies the differential equations with respect to their order and linearity to develop better skill.
CO2	Solves exact differential equations. Converts separable and homogeneous equations to exact differential equations by integrating factors for global skill development.
CO3	Gain clear concept of Second order linear differential equations with variable coefficients for global skill development.
CO4	Get an idea of power series method to solve differential equations Familiar with Legendre equation and Legendre polynomial. Discuss various properties of the Bessel's function to develop better skill.
CO5	Expresses the existence-uniqueness theorem of differential equations. Solve first-order ordinary differential equations by using Picard's Method to knowledge for better skill development.

Course Code	MATHCC- 105
Course Name	Computer Fundamental and Programming in C

COs	Description
CO1	Bridge the fundamental concepts of computers with the present level of knowledge of the Students and also know about organization of computer, Input and output devices for national entrepreneurship & global skill development.
CO2	Develop the ability to understand about the computer memory and operating system to provide national employability & skills.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Develop ability to design and develop C Language programs, analyzes, and interprets the concept of array, declarations, initialization, operations on array and string for entrepreneurship & global skill development.
CO4	Understand the internet, World Wide Web, internet services and searching engines for entrepreneurship & skill development.
CO5	Develop interest in computer networking for professional work for entrepreneurship & global skill development.

Course Code	MATHCC-201
Course Name	Topology

COs	Description
CO1	Know what it means for a metric space to be complete, and you can characterize compact metric spaces to develop skill.
CO2	Know how the topology on a space is determined by the collection of open sets, by the collection of closed sets, or by a basis of neighbourhoods at each point, and you know what it means for a function to be continuous for global skill development.
CO3	Know the definition and basic properties of connected spaces, path connected spaces, compact spaces, and locally compact Spaces understanding for entrepreneurial skill.
CO4	Know the definition and basic properties of compact spaces for skill development
CO5	Construction of the fundamental group of a topological space and applications to covering spaces . Know about the Urysohn lemma and the Tietze extension theorem, and you can characterize metrizable spaces understanding for national entrepreneurial skill.

Course Code	MATHCC– 202
Course Name	Classical Mechanics

COs	Description
CO1	Define and understand basic mechanical concepts related to discrete and continuous mechanical systems for better skilling of entrepreneurship.
CO2	Describe and understand the various for global skill development to Moment of Inertia.
CO3	Describe and understand the vibrations of discrete and continuous mechanical systems for global skill development.
CO4	Describe and understand planar and spatial motion of a rigid body knowledge for better skill development.
CO5	Describe and understand the motion of a mechanical system using Lagrange-Hamilton formalism knowledge for better skill development.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MATHCC-203
Course Name	Discrete Mathematics

COs	Description
CO1	Write an argument using logical notation and determine if the argument is or is not valid to develop global skill.
CO2	Demonstrate the ability to write and evaluate a proof or outline the basic structure of and give examples of each proof technique described for better skill development.
CO3	Understand the basic principles of sets and operations in sets to develop skill.
CO4	Demonstrate an understanding of relations and functions and be able to determine their properties for better skill development.
CO5	Demonstrate different traversal methods for trees and graphs understanding for national entrepreneurial skill.

Course Code	MATHCC– 204
Course Name	Linear Algebra

COs	Description
CO1	Define basic terms and concepts of matrices, vectors and complex numbers to provide global skill development.
CO2	Use of various forms of complex numbers to solve numerical problems to develop skill.
CO3	Apply the matrix calculus in solving a system of linear algebraic equations to develop skill.
CO4	Calculate the area of planar shapes (triangle, parallelogram) and the volume of parallelepiped using vector algebra knowledge for better skill development.
CO5	Find the eigenvalues and eigenvectors of a square matrix using the characteristic polynomial and will know how to diagonalize a matrix for develop global skills.

Course Code	MATHCC-205
Course Name	Complex Analysis

COs	Description
CO1	Apply the concept and consequences of analyticity and the Cauchy-Riemann equations and of results on harmonic and entire functions including the fundamental theorem of algebra for skill development
CO2	Evaluate complex contour integrals directly and by the fundamental theorem, apply the Cauchy integral theorem in its various versions, and the Cauchy integral formula to provide skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Analyze sequences and series of analytic functions and types of convergence also represent functions as Taylor and Laurent series, classify singularities and poles for skill development.
CO4	Find residues and evaluate complex integrals using the residue theorem to provide skill development.
CO5	Concepts of bilinear transformation, Principle of symmetry, conformal mapping., also constructing Mobius transformation between regions plane for develop skill.

Course Code	MATHCC-301
Course Name	Fluid Dynamics
COs	**Description**
CO1	Apply knowledge of mathematics, science and engineering to arrive solutions for skill development.
CO2	Identify, formulate and analyze engineering problems through technical literature to develop global skills.
CO3	Design a component, a process and a system to meet desired needs considering economic, environmental, social, ethical, health and safety, manufacturability and sustainability understanding for national entrepreneurial skill.
CO4	Conduct experiment, analyze and interpret data to arrive valid conclusions.
CO5	Use the techniques, skills, and modern engineering tools for modeling and prediction of problems by understanding the limitations for local entrepreneurship & skill development

Course Code	MATHCC-302
Course Name	Numerical Analysis
COs	**Description**
CO1	Derive numerical methods for various mathematical operations and tasks such as interpolation, Differentiation, linear and nonlinear equations for local entrepreneurship & global skill development.
CO2	Derive numerical methods to find out solution of algebraic equations using different methods under different conditions, and numerical solution of system of algebraic equations to provide global skill development.
CO3	Apply various interpolation methods with finite difference concepts for global skill development.
CO4	Work out numerical differentiation and integration whenever and wherever routine methods are not applicable for skill development.
CO5	Derive numerical methods for solving ordinary differential equations with certain initial and boundary conditions for entrepreneurship & global skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MATHCC-303
Course Name	**Partial Differential Equations**

COs	Description
CO1	Classify partial differential equations and transform into canonical form to develop skill..
CO2	Solve linear partial differential equations of both first and second order for local entrepreneurship.
CO3	Apply partial derivative equation techniques to predict the behavior of certain phenomena to provide global skill development.
CO4	Apply partial derivative equation techniques to predict the behavior of certain phenomena to provide global skill development..
CO5	Extract information from partial derivative models in order to interpret reality to develop global skills.

Course Code	MATHDE-304(A)
Course Name	**Mathematical Methods**

COs	Description
CO1	To represent periodic functions using Fourier series for entrepreneurship.
CO2	Learn Fourier transformation and their applications to relevant problems for global skill development
CO3	Solve finite difference equations using Z-transforms to develop global skill.
CO4	Get an idea of power series method to solve differential equations Familiar with Legendre equation and Legendre polynomial for better skilling of national entrepreneurship.
CO5	Discuss various properties of the Bessel's function for global skill developments.

Course Code	MATHDE-304 (B)
Course Name	**Integral Equations and Integral Transforms**

COs	Description
CO1	Solve linear Volterra equations using appropriate methods to develop skills.
CO2	Solve linear Fredholm integral equations using appropriate methods to provide skill developments.
CO3	Understand the concept of non linear integral equation in case of Volterra and Fredholm integral equations **to global** skill developments.
CO4	Use Fourier transforms for solving a wide range of differential and integral equations. Formulate and solve initial and boundary value problems for global skill developments.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Understand the uses of Laplace transform and relationship between integral and differential equations and transform one type into another to develop global skills.

Course Code	MATHDE– 304 (C)
Course Name	Theory of Relativity
COs	**Description**
CO1	Explain true nature of Lorentz transformation and Doppler Effect for global skill development.
CO2	Recall the setup and significance of Michelson-Morley experiment for global skill development and entrepreneurship.
CO3	Explain relativistic momentum and Einstein field equations to develop skill.
CO4	Understand time – special relations at the local and global levels of standard model for better skill development.
CO5	Calculate time dilation corrections used in GPS satellites due to special and general relativity to develop global skills.

Course Code	MATHDE- 304 (D)
Course Name	Fuzzy Sets and their Applications
COs	**Description**
CO1	Understand basic knowledge of fuzzy sets and fuzzy logic for global skill development for entrepreneurship.
CO2	Apply basic fuzzy inference and approximate reasoning for entrepreneurship & skill development.
CO3	Understand principles of neural networks for global skill development
CO4	Apply basic fuzzy system modeling methods for skill development.
CO5	Use of fuzzy in decision making for global entrepreneurship & skill development.

Course Code	MATHCC-401
Course Name	Operations Research
COs	**Description**
CO1	Formulate real-world problems as a linear programming model and describe the theoretical workings of the graphical and simplex method, demonstrate the solution process by hand and solver for global skill development.
CO2	Explain the relationship between a linear program and its dual, including strong duality and complementary slackness for global skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the methods used by organizations to obtain the right quantities of stock or inventory also familiarize themselves with inventory management practices knowledge for better skill development.
CO4	To analyze a network of queues with Poisson external arrivals, exponential service requirements and independent routing to develop global skills.
CO5	Demonstrate solution methods including graphs and linear programming to analyze and solve the Two-person, zero-sum Games for global skill development.

Course Code	MATHCC- 402
Course Name	Mathematical Statistics
COs	**Description**
CO1	Recognize the importance and value of mathematical and statistical thinking, training, and approach to problem solving, on a diverse variety of disciplines for global skill development..
CO2	Be familiar with a variety of examples where mathematics or statistics helps accurately explain abstract or physical Phenomena for global skill development.
CO3	Recognize and appreciate the connections between theory and applications to provide skill development.
CO4	Be able to independently read mathematical and statistical literature of various types, including survey articles, scholarly books, and online sources for national entrepreneurship.
CO5	Be life-long learners who are able to independently expand their mathematical or statistical expertise when needed, or for interest's sake to provide global skill development.

Course Code	MATHDE-403 (A)
Course Name	Ring Theory
COs	**Description**
CO1	To implement the applications of rings and its properties to provide global skill development.
CO2	Understand the concepts of homomorphism and isomorphism to global skill development.
CO3	Applications of Modular Arithmetic to develop global skills.
CO4	Applications of Baer's Theorem to global skill development.
CO5	Apply the conditions of semi simple modules and semi simple rings to develop skill.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MATHDE – 403 (B)
Course Name	Difference Equations
COs	**Description**
CO1	Apply the theory to study the qualitative theory of solutions of difference equations and partial difference equations of higher order knowledge for better skill development.
CO2	Apply the theory to study the quantitative and qualitative study of solutions of different discrete models in Engineering to develop global skills.
CO3	Difference between the qualitative and quantitative behavior of solutions of the difference equations and the corresponding differential equations for local entrepreneurship.
CO4	Apply the theory to study the solution in discrete boundary value problems to provide skill development.
CO5	Apply difference equations to find solution of Boundary Value Problems for Nonlinear equations for global skill development.

Course Code	MATHDE- 403 (D)
Course Name	Theory of Probability
COs	**Description**
CO1	Demonstrate understanding of Basic probability axioms and rules and the moments of discrete and continuous random variables as well as be familiar with common named discrete and continuous random variables to develop global skills.
CO2	Derive the probability density function of transformations of random variables and use these techniques to generate data from various distributions for global skill development.
CO3	Calculate probabilities and derive the marginal and conditional distributions of bivariate random variables to develop skill.
CO4	Discrete time Markov chains and methods of finding the equilibrium probability distributions to global skill development.
CO5	Calculate probabilities of absorption and expected hitting times for discrete time Markov chains with absorbing *states* for global skill development.

Course Code	MATHDE- 403 (E)
Course Name	Vector Calculus and Vector Analysis
COs	**Description**
CO1	Study in the relevant technological disciplines and more advanced mathematics courses for global skill development.
CO2	Apply their knowledge of Vector Analysis to solve problems in engineering and the natural sciences national interdisciplinary.
CO3	Apply their knowledge of vector scalars to solve problem in engineering and natural sciences knowledge for better skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Apply their knowledge of relation vector and tensor operation to solve in engineering and natural sciences interdisciplinary

Course Code	MATHDE- 403 (F)
Course Name	Coding Theory
COs	**Description**
CO1	Get an insight in to matrix representation of a code as well as encoding and decoding to local entrepreneurship.
CO2	Understand cyclic codes for global skill development.
CO3	Understanding encoding and algebraic structure for interdisciplinary.
CO4	Use the concept of network coding, butterfly networks, graphs to national entrepreneurship.

Course Code	MATHOE – 401
Course Name	Research Methodology
COs	**Description**
CO1	Demonstrate knowledge of research processes (reading, evaluating, and developing) to develop global research skills.
CO2	Perform literature reviews using print and online databases to develop computer skills.
CO3	Employ American Psychological Association (APA) formats for citations of print and electronic materials for interdisciplinary global skills.
CO4	Identify, explain, compare, and prepare the key elements of a research proposal/report for global skill development.
CO5	Compare and contrast quantitative and qualitative research for skill development.

Course Code	MATHOE – 402
Course Name	Object Oriented Programming With C++
COs	**Description**
CO1	Understand basic concepts and applications of OOP's for better skilling of local entrepreneurship.
CO2	Develop the ability to understand the control structures, Date Types and Operators entrepreneurship.
CO3	Familiar with the functions, classes and objectsfor interdisciplinary global skills.
CO4	Develop the ability to understand the special functions like constructors and destructors for research oriented global skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MATHP-405
Course Name	Project & Viva- Voce
COs	**Description**
CO1	Demonstrate knowledge and understanding of fundamental concepts of Research ability and writing skills and develop interdisciplinary global skills.
CO2	Give the essence of the proof of the different theorems studied in the previous courses knowledge for better computer skill development.
CO3	Work out to enhance the previous knowledge differentiation and integration whenever and wherever routine methods are not Applicable to develop good writing skills.
CO4	Formulate real-world problems as a linear programming model and describe the theoretical workings of the graphical and simplex method, demonstrate the solution process by hand and solver to provide global research oriented skill development.
CO5	Demonstrate solution methods including graphs and programming to analyze and solve the mathematical problems understanding for better problems solving skill.

PROGRAMME NAME – Masters of Science (Zoology)

Course Code	MZOCC-101
Course Name	Genetics and Cytogenetics
COs	**Description**
CO1	Understand how DNA encodes genetic information and the function of mRNA and tRNA for skill development
CO2	Apply the principles of Mendelian inheritance for better skill development.
CO3	Understand the cause and effect of alterations in chromosome number and structure for skill development at national level.
CO4	To development skill Relate the conventional and molecular methods for gene manipulation in other biological systems.
CO5	Discuss and analyse the epigenetic modifications and imprinting and its role in diseases for skill development.

Course Code	MZOCC-102
Course Name	Principles of Gene Manipulation
COs	**Description**
CO1	Gain knowledge and skill in the fundamentals of biotechnology, interactions and interdependence of physiological and biochemical processes.
CO2	Get exposed to various processes used in industries to development skill.
CO3	Develop an understanding of the fundamental molecular tools and their

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	applications of DNA
CO4	Modification and cloning for better skilling of entrepreneurship
CO5	Develop future course of their career development in higher education and research with a sound base for better skilling of entrepreneurship at global level.

Course Code	MZOCC-103
Course Name	Mammalian Physiology & Metabolism

COs	Description
CO1	Understand the physiology at cellular and system levels, the mechanism and regulation of breathing, oxygen consumption and determination of respiratory quotient for skill development.
CO2	Understand how mammalian body gets nutrition from different bio-molecules and the process of digestion and excretion for better skilling of entrepreneurship.
CO3	Understand the organization of nervous system and process of nerve conduction and the process of vision and hearing to develop skill at local level.
CO4	Understand the process of muscle contraction for skill development.
CO5	Learn the determination of haemoglobin content, blood groups and blood pressure to inculcate skill, provide employability & entrepreneurial skills.

Course Code	MZOCC-104
Course Name	Structure & Function of Invertebrates

COs	Description
CO1	Learn about the importance of systematics and taxonomy for better skilling at national level.
CO2	Gain the knowledge of structural organization of animals to develop skill.
CO3	Appreciate the diversity of non-chordates living in varied habit and habitats skill development and employability.
CO4	Understand the classification of different phylum to develop skill.
CO5	Understand evolutionary history and relationships of different non-chordates through functional and structural affinities for skill development.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MZOCC-151
Course Name	Lab 1 based on MZOCC-101 & MZOCC-102

COs	Description
CO1	Understand the purpose of the technique, its proper use and possible modifications/ improvement skill development and employability.
CO2	Learn the theoretical basis of technique, its principle of working and its correct application for skill development.
CO3	Learn the construction repair and adjustment of any equipment required for a technique for entrepreneurship & employability at local level.
CO4	Learn the accuracy of technique for better skilling of entrepreneurship.
CO5	Learn the maintenance laboratory equipment/ tools, safety hazards and precautions for better skill.
CO6	Understand the technique of cell and tissue culture for better skilling of entrepreneurship.
CO7	Learn the preparation of solution of given percentage and molarity for better skilling of entrepreneurship.
CO8	Understand the process of preparation of buffer. Learn the techniques of separation of amino acids, proteins and nucleic acids to develop skill.

Course Code	MZOCC-152
Course Name	Lab 2 based on MZOCC-103 & MZOCC-104

COs	Description
CO1	Understand the physiology at cellular and system levels for entrepreneurship & employability.
CO2	Understand evolutionary history and relationships of different non-chordates through functional and structural affinities for better skilling of entrepreneurship at local level.

Course Code	MZOCC-201
Course Name	Developmental Biology

COs	Description
CO1	Develop critical understanding how a single-celled fertilized egg becomes an embryo and then a fully formed adult by going through three important processes of cell division, cell differentiation and morphogenesis skill development and employability.
CO2	Understand how developmental processes and gene functions within a particular tissue or organism can provide insight into functions of other

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	tissues and organisms for entrepreneurship & employability at national level.
CO3	Realize that very similar mechanisms are used in very diverse organisms; and development is controlled through molecular changes resulting in variation in the expression and function of gene networks for entrepreneurship & employability.
CO4	Understand how the field of developmental biology has changed since the beginning of the 19th century with different phases of developmental research predominating at different times to develop skill.
CO5	Examine the evolutionary history of the taxa based on developmental affinities and understand the relevance of developmental biology in medicine or its role in development of diseases for skill development.

Course Code	MZOCC-202
Course Name	**Systematics, Biodiversity and Evolution**

COs	Description
CO1	Understand the complexities of character coding to develop skill.
CO2	Understand the similarities and differences of different types of data skill development and employability.
CO3	Understand the uses and limitations of phylogenetic trees for skill development.
CO4	Appreciate the complexities and difficulties of various species concepts skill development and employability at national level.
CO5	Gain a basic grasp on the rules and philosophy of nomenclature and Know about the steps required to do systematic for skill development.

Course Code	MZOCC-203
Course Name	**Immunology**

COs	Description
CO1	Describe the basic mechanisms, distinctions and functional interplay of innate and adaptive immunity to develop skill.
CO2	Relate to errors occurring during development leading to congenital disorders and human diseases for skill development.
CO3	The students will be able to identify the cellular and molecular basis of immune responsiveness to develop skill.
CO4	Gain the knowledge i.e. how the innate and adaptive immune responses coordinate to fight invading Pathogens for better skill.
CO5	Learn about the cell signaling pathways and their mechanisms knowledge for better employability in industry at global level.

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MZOCC-204
Course Name	**Animal Behavior and Chronobiology**

COs	Description
CO1	Learn a wide range of theoretical and practical techniques used to study animal behaviour to inculcate skill, provide employability & entrepreneurial skills.
CO2	Develop skills, concepts and experience to understand all aspects of animal behavior.
CO3	Objectively understand and evaluate information about animal behavior and ecology encountered in our daily lives to develop skill at local level.
CO4	Understand and be able to objectively evaluate the role of Behavior in the protection and conservation of animals in the wild for skill development.
CO5	Consider and evaluate behavior of all animals, including humans, in the complex ecological world, including the urban environment for skill development.

Course Code	MZOCC-251
Course Name	**Lab 1 based on MZOCC-201 and MZOCC-202**

COs	Description
CO1	Understand the developmental process effectively for better skilling of entrepreneurship.
CO2	Know about construction of phylogenetic tree to understand the evolutionary process skill development and employability at local level.

Course Code	MZOCC-252
Course Name	**Lab 2 based on MZOCC-203 and 204**

COs	Description
CO1	Apply practical skills in science courses with the understanding of general laboratory practices
CO2	Use various micro techniques used in Zoology for better skilling of entrepreneurship.
CO3	Apply various techniques to study animal tissues for employability at national level.
CO4	Explore various research issues and their solutions skilling of entrepreneurship.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MZOCC-301
Course Name	Principles of Ecology

COs	Description
CO1	Know the evolutionary and functional basis of animal ecology for better skilling.
CO2	Understand what makes the scientific study of animal ecology a crucial and exciting knowledge for better employability in industry.
CO3	Engage in field-based research activities to understand well the theoretical aspects taught besides learning techniques for gathering data in the field to develop skill at local level.
CO4	Analyse a biological problem, derive testable hypotheses and then design experiments and put the tests into practice skill development and employability.
CO5	Solve the environmental problems involving interaction of humans and natural systems at local or global level for skill development.

Course Code	MZOCC-302
Course Name	Computational Biology, Biostatistics and Bioinformatics

COs	Description
CO1	To gain the basic knowledge of computer for data interpretation and presentation to develop skill.
CO2	Describe statistical methods and probability distributions relevant for molecular biology data.
CO3	Know basic concepts of probability and statistics for skill development.
CO4	Know the theory behind fundamental bioinformatics analysis methods. Be familiar with widely used bioinformatics databases. Know the applications and limitations of different bioinformatics and statistical methods. Perform and interpret bioinformatics and statistical analyses with real molecular biology data. Acquire knowledge of various databases of proteins, nucleic acids. Primary, secondary and composite databases. BLAST, FASTA, DOT PLOT understanding for entrepreneurial skill at global level.
CO5	Make phylogenetic predictions or prediction of structure of proteins and nucleic acids. Develop understanding in Primer designing. Understand data mining tool and its practical application in a case study. Apply the knowledge in future course of their career development in higher

Sanjeev Dorand
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	education and research skill development.

Course Code	MZOCC-304
Course Name	General Endocrinology

COs	Description
CO1	Understand neuro-hormones and neuro-secretions for skill development.
CO2	Learn about hypothalamo and hypophysial axis for better skilling.
CO3	Understand about different endocrine glands and their disorders to develop skill at national level.
CO4	Understand the mechanism of hormone action for employability
CO5	Gain the knowledge of evolution of renin-angiotensin system and thyroid gland skill development and employability.

Course Code	MZOCC-305
Course Name	Gamete Biology

COs	Description
CO1	Understand the structure and function of gametes like eggs and sperms skilling of entrepreneurship.
CO2	Learn to maintain the reproductive health in human and animals in good condition for skill development at local level.
CO3	Gain the knowledge about the methods of contraception better understanding of skill
CO4	This course will make them suitably knowledgeable to undertake the jobs in the assisted reproductive technology clinics in the hospitals in addition to the teaching institutions for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MZOCC-306
Course Name	Environment, Epigenetics and Hormone action

COs	Description
CO1	Students understand the importance of hormones in the maintenance of reproductive health in human and animals for entrepreneurship and employability.
CO2	Understand the mechanism of hormone action for skill development.
CO3	Gain the knowledge of epigenetic changes for skill development and employability at global level.
CO4	This course will make them suitably knowledgeable to undertake the therapeutic research jobs in various pharmaceutical companies as well as in hospitals in addition to the IVF centers to provide employability and skills.

Course Code	MZOCC-351
Course Name	Lab 1 based on MZOCC-301 & MZOCC-302

COs	Description
CO1	Know basic concepts of probability and statistics for skill development.
CO2	Describe statistical methods and probability distributions relevant for molecular biology data for better skilling at global level.
CO3	Know the applications and limitations of different bioinformatics and statistical methods for better skilling of entrepreneurship.
CO4	Apply the basic operations of spreadsheet applications skill development
CO5	Operate various software resources with advanced functions and its open office substitutes knowledge for better employability in industry.

Course Code	MZOCC-352
Course Name	Lab 1 based on MZOCC-303 & MZOCC-304

COs	Description
CO1	Classify the animal species based on the morphological and anatomical features for skill development
CO2	Compare the functional morphology of vertebrates and invertebrates to develop skill at local level.
CO3	Learn about hypothalamo and hypapophysial axis for better skill.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MZOCC-401
Course Name	**Evolution and Functional Anatomy of Fish**

COs	Description
CO1	To obtain a thorough understanding of the production process of fish by products and future research for skill development.
CO2	Understand the origin and evolution of fish to develop skill at local level.
CO3	Learn the fish culture techniques to inculcate skill, provide employability & entrepreneurial skills.
CO4	Understand the anatomy and structure of fishes skill development.
CO5	Learn about the endocrine and immune system of fish for better skill.

Course Code	MZOCC-402
Course Name	**Aquatic Resources and Their Conservation**

COs	Description
CO1	To appreciate the economics of Fishery Biology to develop skill.
CO2	To gain thorough understanding of culture fisheries skill development.
CO3	Lean the technologies for localizing catches- remote sensing, sonar, radar; crafts and gears to inculcate skill, provide employability & entrepreneurial skills at global level.
CO4	Understand the methods of fish conservation for skill development.
CO5	Lean about the impact of aquatic pollution on fish health knowledge for better employability in industry.

Course Code	MZOCC-403
Course Name	**Aquaculture**

COs	Description
CO1	To acquire knowledge on fish farming and breeding techniques knowledge for better employability in industry.
CO2	Gain more knowledge about fish by products and value added products for entrepreneurship & employability.
CO3	Disease diagnosis and treatment techniques entrepreneurship at national level.
CO4	Understand the importance of genetics in aquaculture skill development and employability.
CO5	Learn about the fish vaccines strategies for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MZOCC-404
Course Name	Fish Physiology

COs	Description
CO1	The knowledge of physiology equips the young generation for the propagation of fish better understanding of skill.
CO2	Understand the process of gaseous exchange in fish skilling of entrepreneurship.
CO3	Understand the molecular mechanisms of oogenesis and spermatogenesis for understanding of entrepreneurial skill.
CO4	Gain the knowledge of Endocrine glands and neuroendocrine coordination provide employability and skills at national level.
CO5	Learn about the endocrine and immune system of fish better understanding of skill.
CO6	Understand the Host-parasite interaction, immune-evasion mechanisms of fish pathogens for skill development and employability
CO7	Learn about the digestive physiology and nutrient digestibility in fishes for skill development.

Course Code	MZOCC-405
Course Name	Diversity and Behavior of Fishes

COs	Description
CO1	Students will learn the identification of fishes using classical morphological method skill development.
CO2	Learn about the advanced molecular tools (viz. barcoding) to provide employability and skills at global level.
CO3	Gain the knowledge of origin and evolution of fishes skilling of entrepreneurship.
CO4	Understand the Impact of exotic fish species and GMOs on aquatic biodiversity this gives knowledge for better employability in industry.

Course Code	MZOCC-451
Course Name	Fish Biology Lab

COs	Description
CO1	Learn the fish culture techniques for better skilling of entrepreneurship.
CO2	To acquire knowledge on fish farming and breeding techniques knowledge for better employability in industry at local level.
CO3	Gain more knowledge about fish byproducts and value added product for entrepreneurship & employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Disease diagnosis and treatment techniques for better skill.

Course Code	MZOCC-401 A
Course Name	Extra Nuclear Cytology

COs	Description
CO1	To understand the structures and purposes of basic components of prokaryotic and eukaryotic cells, especialy macromolecules, membranes and organelles to develop skill.
CO2	Understand how mitochondria synthesize ATP skill development.
CO3	Gain the knowledge of formation of cytoskeleton and its functions for skill development.
CO4	Learn about the various pathways of cell signalling for better skilling of entrepreneurship at global level.
CO5	To understand how these cellular components are used to generate and utilize energy in cell skill development and employability.

Course Code	MZOCC-402 A
Course Name	Nuclear Cytology and Cytogenetics

COs	Description
CO1	Understand the fundamental structure and functions of biomolecules to develop skill.
CO2	Understand the functioning of nucleus and extra nuclear organelles and understand the intricate cellular mechanisms involved for better skilling of entrepreneurship.
CO3	Gain the knowledge of cell division and cell cycle for skill development.
CO4	Acquire the detailed knowledge of different pathways related to cell signaling and apoptosis thus enabling them to understand the anomalies in cancer skill development at global level.
CO5	To acquire knowledge on the principles and practices of instrumental techniques skill development and employability.

Course Code	MZOCC-403 A
Course Name	Cytogenetical Techniques

COs	Description
CO1	To acquire knowledge on the principles and practices of instrumental techniques to inculcate skill, provide employability & entrepreneurial skills.
CO2	Learn the construction repair and adjustment of any equipment required for a technique knowledge for better employability in industry.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Learn the accuracy of technique skill development and employability.
CO4	Understand the technique for the detection of molecules using ELISA, RIA, western blot, Immune-precipitation, fluocytometry and immunofluorescence microscopy for better skilling of entrepreneurship at global level.
CO5	Learn the maintenance laboratory equipments/ tools, safety hazards and precautions understanding for entrepreneurial skill.

Course Code	MZOCC-451
Course Name	A Cytogenetics Lab

COs	Description
CO1	Understand the process of preparation of buffer. Learn the techniques of separation of amino acids, proteins and nucleic acids knowledge for better employability in industry.
CO2	Understand the purpose of the technique, its proper use and possible modifications/ improvement understanding for entrepreneurial skill at national level.
CO3	Learn the theoretical basis of technique, its principle of working and its correct application for better skilling of entrepreneurship.

PROGRAMME NAME – Bachelor of Science (Zoology)

Course Code	B050101T
Course Name	Cytology, Genetics and Immunology

COs	Description
CO1	Understand the structure and function of all the cell organelles skilling of entrepreneurship.
CO2	Know about the chromatin structure and its location for better understanding of skill.
CO3	To be familiar with the basic principle of life, how a cell divides leading to the grow of an organism and also reproduces to form new organisms and how one cell communicates with its neighboring cells for entrepreneurship.
CO4	Understand the basic principles of genetics and how genes (earlier called factors) are inherited from one generation to another for understanding of entrepreneurial skill.
CO5	Understand the Mendel's laws and the deviations from conventional patterns of inheritance for skill development.
CO6	Comprehend how environment plays an important role by interacting with genetic factors for employability.
CO7	How to detect chromosomal aberrations in humans and study the pattern of inheritance by pedigree analysis in families for employability at global level.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO8	To have an in depth understanding about Immune System & its mechanisms for understanding of entrepreneurial skill.

Course Code	B050102P
Course Name	Cell Biology & Cytogenetics Lab

COs	Description
CO1	To use simple and compound microscopes, to prepare slides and stain them to see the cell organelles skilling of entrepreneurship.
CO2	To be familiar with the basic principle of life, how a cell divides leading to the growth of an organism and also reproduces to form new organisms better understanding of skill.
CO3	The chromosomal aberrations by preparing karyotypes and know how chromosomal aberrations are inherited in humans by pedigree analysis in families for skill development and employability at national level.
CO4	The antigen-antibody reaction for employability.

Course Code	B050201T
Course Name	Biochemistry and Physiology

COs	Description
CO1	To develop a deep understanding of structure of biomolecules like proteins, lipids and carbohydrates provide employability and skills.
CO2	How simple molecules together form complex macromolecules better understanding of skill.
CO3	To understand the thermodynamics of enzyme catalyzed reactions for understanding of entrepreneurial skill at local level.
CO4	Mechanisms of energy production at cellular and molecular levels entrepreneurship and employability.
CO5	To understand systems biology and various functional components of an organism skilling of entrepreneurship.
CO6	To acquire the knowledge hormonal disorders for employability.
CO7	To explore the complex network of these functional components for skill development.
CO8	To comprehend the regulatory mechanisms for maintenance of function in the body better understanding of skill.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B050202P/R
Course Name	Physiological, Biochemical & Hematology Lab

COs	Description
CO1	Understand the structure of biomolecules like proteins, lipids and carbohydrates for understanding of entrepreneurial skill.
CO2	Perform basic hematological laboratory testing for employability.
CO3	Distinguish normal and abnormal hematological laboratory findings to predict the diagnosis of hematological disorders and diseases for skill development and employability at national level.

Course Code	B050301T
Course Name	Molecular Biology, Bioinstrumentation & Bio-techniques

COs	Description
CO1	A detailed and conceptual understanding of molecular processes viz. DNA to trait better understanding of skill.
CO2	A clear understanding of the processes of central dogma viz. transcription, translation etc. underlying survival and propagation of life at molecular level for skill development and employability.
CO3	Understanding of how genes are ultimately expressed as proteins which are responsible for the structure and function of all organisms to provide employability and skills.
CO4	Learn how four sequences (3 letter codons) generate the transcripts of life and determine the phenotypes of organisms for skill development at global level.
CO5	How genes are regulated differently at different time and place in prokaryotes and eukaryotes for entrepreneurship.
CO6	To understand the basic principle of different types of Microscopes skilling of entrepreneurship.
CO7	To gain the knowledge of chromatography, spectrophotometry and Biochemical Techniques for employability.
CO8	To acquire the awareness about the different molecular techniques for understanding of entrepreneurial skill.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B050302P
Course Name	Bioinstrumentation & Molecular Biology Lab

COs	Description
CO1	Understand the basic principles of microscopy, working of different types of microscopes for understanding of entrepreneurial skill.
CO2	Understand the basic techniques of centrifugation and chromatography for studying cells and separation of biomolecules for skill development and employability at national level.
CO3	Understand the principle of measuring the concentrations of macromolecules in solutions by colorimeter and spectrophotometer and use them in Biochemistry employability in industry.

Course Code	B050401T
Course Name	Gene Technology and Human Welfare

COs	Description
CO1	Understand the principles of genetic engineering, how genes can be cloned in bacteria and the various technologies involved in it employability in different industrial sectors.
CO2	Know the applications of biotechnology in various fields like agriculture, industry and human health employability in bioreactor industries.
CO3	Know the basics of industrial biotechnology for skill development and employability.
CO4	Get introduced to DNA testing and utility of genetic engineering in forensic sciences employability in forensic labs at global level.
CO5	Get introduced to computers and use of bioinformatics tools employability as data scientist.
CO6	Enable students to get employment in pathology/Hospital.
CO7	Take up research in biological sciences employability in research labs.
CO8	To understand the various terminologies of Biostatistics for understanding of entrepreneurial skill.

Course Code	B050402P/R
Course Name	Genetic Engineering Lab, Genetic Counselling & Telemedicine

COs	Description
CO1	Understand the principles of genetic engineering with hands-on experiments in mutation detection, testing of infectious diseases like Covid 19. To get introduced to DNA testing and utility of genetic engineering in forensic sciences employment in hospitals, research labs at global level.

Sanjeev Kumar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Apply knowledge and awareness of the basic principles and concepts of biology, computer science and mathematics existing software effectively to extract information from large databases and to use this information in computer modeling. Bioinformatics tools is use to find out evolutionary/phylogenetic relationship of organisms using gene sequences employment as data scientist.
CO3	Get employment in Hospitals/Diagnostic and forensic labs/Counsel families with genetic disorders. Enable students to take up research in biological sciences.

Course Code	B050501T
Course Name	Diversity of Non-Chordates, Parasitology and Economic Zoology

COs	Description
CO1	Demonstrate comprehensive identification abilities of non-chordate diversity for understanding of entrepreneurial skill.
CO2	Explain structural and functional diversity of non-chordate for entrepreneurial skill.
CO3	Explain evolutionary relationship amongst non-chordate groups for skill development.
CO4	Get employment in different applied sectors.
CO5	Students can start their own business i.e. self employments at local level.
CO6	Enable students to take up research in Biological Science employment in research labs.
CO7	Students can understand the characteristic feature of different phylum skill development.
CO8	Explain the life cycle and pathogenicity of parasites for employability.

Course Code	B050502T
Course Name	Diversity of Chordates, and Comparative Anatomy

COs	Description
CO1	Demonstrate comprehensive identification abilities of chordate diversity entrepreneurial skill.
CO2	Explain structural and functional diversity of chordates better understanding of skill.
CO3	Explain evolutionary relationship amongst chordates for understanding of entrepreneurial skill.
CO4	To understand the various body systems, their structures and functions. For skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	To identify the general and characteristic feature of vertebrates entrepreneurial skill.
CO6	To understand the habitat, morphology, anatomy, physiology and development in chordates employability in Zoological Survey of India.
CO7	To gain the knowledge of poisonous and non poisonous snakes and their biting mechanism for skill development and employability at national level.
CO8	Take up research in biological sciences. Employability in research sectors.

Course Code	**B050503P**
Course Name	**Lab on Virtual Dissection, Anatomy, Economic Zoology and Parasitology**

COs	**Description**
CO1	Demonstrate comprehensive identification abilities of chordate and non-chordates diversity better understanding of skill.
CO2	Explain structural, functional diversity and evolutionary relationship amongst chordates and non-Chordates for understanding of entrepreneurial skill at national level.
CO3	To Generate self employment and enable students to take up research in biological sciences.

Course Code	**B050601T**
Course Name	**Evolutionary and Developmental Biology**

COs	**Description**
CO1	Understand that by biological evolution we mean that many of the organisms that inhabit the earth today are different from those that inhabited it in the past for skill development.
CO2	Understand that natural selection is one of several processes that can bring about evolution, although it can also promote stability rather than change for understanding of entrepreneurial skill at national level.
CO3	To understand the concept of various theories of evolution for better understanding of skill.
CO4	Understand how the single cell formed at fertilization forms an embryo and then a full adult organism for skill development and employability.
CO5	Integrate genetics, molecular biology, biochemistry, cell biology, anatomy and physiology during embryonic development for understanding of entrepreneurial skill.
CO6	Understand a variety of interacting processes, which generate an organism's

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	heterogeneous life shapes, size, and structural features to provide employability and skill.
CO7	To understand the early and late developmental processes in Vertebrate for entrepreneurial skill.
CO8	Understand how a cell behaves in response to an autonomous determinant or an external signal, and the scientific reasoning exhibited in experimental life science for employability.

Course Code	B050602T
Course Name	**Ecology, Ethology, Environmental Science and Wildlife**

COs	Description
CO1	Complexities and interconnectedness of various environmental levels and their functioning for skill development.
CO2	Global environmental issues, their causes, consequences and amelioration employability in Meteorological field.
CO3	To understand and identify behaviours in a variety of taxa for understanding of entrepreneurial.
CO4	The proximate and ultimate causes of various behaviours skilling of entrepreneurship.
CO5	About the molecules, cells, and systems of biological timing systems to provide employability and skills.
CO6	Conceptualizing how species profitably inhabit in the temporal environment and space out their activities at different times of the day and seasons for employability.
CO7	To interpret the cause and effect of lifestyle disorders contributing to public understanding of biological timing employability in medical sectors at national level.
CO8	To understand the importance of wildlife conservation provide employability.

Course Code	B050603P
Course Name	**Lab on Ecology, Environmental Science, Behavioral Ecology & Wildlife**

COs	Description
CO1	To understand the basic .concepts, importance, status and interaction between organisms and environment skilling of entrepreneurship.
CO2	Get employment in forest services, sanctuaries, conservatories etc for skill

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development at national level.
CO3	Enable students to take up research in wildlife for employability.

PROGRAMME NAME – Bachelor of Science (Hons.) Zoology

Course Code	BZOCC (H)-101
Course Name	Lower Non-Chordata (Protozoa to Helminths)

COs	Description
CO1	To Develop skill by understanding the diversity of life with regard to lower non-chordates.
CO2	Study about diversity in animals making students understand about their distinguishing features for skill development.
CO3	Appreciate similarities and differences in life functions among various groups of animals in □Lower Non-Chordates for skill development and employability.
CO4	Group animals on the basis of their morphological characteristics/ structures to development skill.
CO5	Understand about the causative agents and pathogenesis for important diseases like malaria, Leishmaniasis, Trypanosomiasis, Schistosomiasis, Filariasis etc. for skill development and employability at global level.

Course Code	BZOCC (H)-102
Course Name	Higher Non-Chordata (Annelida to Echinodermata)

COs	Description
CO1	Develop understanding on the diversity of life with regard to higher non- chordates for better skilling of entrepreneurship.
CO2	Study about diversity in animals making students understand about their distinguishing features to development skill.
CO3	Group animals on the basis of their morphological characteristics/ structures for better skilling of entrepreneurship.
CO4	Learn about the importance of systematics, taxonomy and structural organization of animals for skill development and employability at national level.
CO5	Understand evolutionary history and relationships of different non-chordates through functional and structural affinities for better skilling of entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BZOCC (H) 151
Course Name	Zoology Lab-1

COs	Description
CO1	Study of animals which will improve their observation skills, data collection skills, critical thinking and analytical skills of students skilling of entrepreneurship.
CO2	Furthermore, museology will give them a comprehensive idea of structural features of non- chordates and the basis of classification employability in museums at national level.
CO3	Gain knowledge on fixation, dehydration, hand sectioning, microtome sectioning for better skilling of entrepreneurship.
CO4	Understand the dissection of pila and prawn for better skilling development.

Course Code	BZOCC (H)-201
Course Name	Cell Biology & Molecular Biology

COs	Description
CO1	Understand fundamental principles of cell biology for skill development.
CO2	Gain knowledge about the structure of bacteria and virus skilling of entrepreneurship.
CO3	Understand the structure, function and types of DNA & RNA for employability.
CO4	Explain structure and functions of cell organelles involved in diverse cellular processes for entrepreneurship and employability at local level.
CO5	Understand the functioning of nucleus and extra nuclear organelles and understand the intricate cellular mechanisms involved provide employability and skills.

Course Code	BZOCC(H)-202
Course Name	Genetics

COs	Description
CO1	Understand how DNA encodes genetic information and the function of mRNA and tRNA for entrepreneurship and employability.
CO2	Gain knowledge of the basic principles of inheritance it helps in skill

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development.
CO3	Apply the principles of Mendelian inheritance for skill development.
CO4	Understand the cause and effect of alterations in chromosome number and structure for entrepreneurship and employability at national level.
CO5	Students can understand the process of protein synthesis for better understanding of skill.

Course Code	BZOCC(H)-251
Course Name	Zoology Lab-2 Course
COs	**Description**
CO1	Understand fundamental principles of cell biology for skill development.
CO2	Explain structure and functions of cell organelles involved in diverse cellular processes for entrepreneurial skill.
CO3	Understand the stages of mitosis and meiosis better understanding of skill.
CO4	Study of animals which will improve their observation skills, data collection skills, critical thinking and analytical skills of students.
CO5	Learn the process of DNA isolation for employability and skill development at local level.
CO6	Gain knowledge on fixation, dehydration for the permanent preparation of slide for employability in pathology labs.

Course Code	BZOCC (H) -351
Course Name	Zoology Lab-3
COs	**Description**
CO1	Understand different classes of chordates, level of organization and evolutionary relationship between different subphyla and classes, within and outside the phylum for understanding of entrepreneurial skill at local level.
CO2	Study about diversity in animals making students understand about their distinguishing features to provide employability and skills.
CO3	Understand about the evolutionary development of various animals for entrepreneurship and employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BZOCC(H)-301
Course Name	Chordata

COs	Description
CO1	Understand different classes of chordates, level of organization and evolutionary relationship between different subphyla and classes, within and outside the phylum better understanding of skill.
CO2	Study about diversity in animals making students understand about their distinguishing features for skill development at local level.
CO3	Gain knowledge about the fishes and lung fishes for entrepreneurship and employability.
CO4	Understand the dentition in mammals skilling of entrepreneurship.
CO5	Appreciate similarities and differences in life functions among various groups of animals in Phylum Chordata for understanding entrepreneurial skill.

Course Code	BZOCC (H)-302
Course Name	Developmental Biology

COs	Description
CO1	Understand the events that lead to formation of a multicellular organism from a single fertilized egg, the zygote for better understanding of skill.
CO2	Acquire basic knowledge of the cellular processes of development and the molecular mechanisms underlying these to provide employability and skills.
CO3	Describe the general patterns and sequential developmental stages during embryogenesis for skill development at local level.
CO4	Understand how the developmental processes lead to establishment of body plan of multicellular organisms for understanding entrepreneurial skill.
CO5	To gain knowledge about placentation for understanding of entrepreneurial skill.

Course Code	BZOCC(H)-401
Course Name	Physiology & Biochemistry

COs	Description
CO1	Understand the physiology at cellular and system levels, the mechanism and regulation of breathing, oxygen consumption & determination of respiratory quotient to provide employability and skills

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand how mammalian body gets nutrition from different biomolecules it build up skill at national level.
CO3	Understand the process of digestion and excretion for skill development.
CO4	Understand the organization of nervous system and process of nerve conduction and the process of vision and hearing to provide employability.
CO5	Understand the process of muscle contraction for better understanding of skill.

Course Code	BZOCC (H)-402
Course Name	**Animal Distribution & Evolution**

COs	Description
CO1	Realize that very similar mechanisms are used in very diverse organisms; and development is controlled through molecular changes resulting in variation in the expression and function of gene networks for employability.
CO2	Understand the different theories of evolution for skill development.
CO3	Examine the evolutionary history of the taxa based on developmental affinities for skill development and employability.
CO4	Understand the process of classification and Binomial nomenclature skilling of entrepreneurship at global level.
CO5	How the animals are distributed according to the geological regime for understanding of entrepreneurial skill.

Course Code	BZOCC-451
Course Name	**Zoology Lab- 4**

COs	Description
CO1	Demonstrate foundation knowledge in biochemistry; synthesis of proteins, lipids, nucleic acids, and carbohydrates; and their role in metabolic pathways along with their regulation for skill development and employability.
CO2	Know about classical laboratory techniques, use modern instrumentation, design and conduct scientific experiments, and analyze the resulting data. This gives knowledge for better employability in industry at national level.
CO3	Be knowledgeable in proper procedures and regulations in handling and disposal of chemicals skilling of entrepreneurship.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BZOCC (H)-501
Course Name	Ecology &Toxicology

COs	Description
CO1	Know the evolutionary and functional basis of animal ecology for skill development.
CO2	Demonstrate an understanding of key concepts in ecology with emphasis on historical perspective, role of physical factors and concept of limiting factors for understanding of entrepreneurial skill.
CO3	Comprehend the population characteristics, dynamics, growth models and interactions for better understanding of skill at national level.
CO4	Understand the community characteristics, ecosystem development and climax theories to build up skills.
CO5	Gain knowledge about the toxicants, and heavy metal toxicity it provide employability and skills.

Course Code	BZOCC (H)-502
Course Name	Animal Behavior & Biostatistics

COs	Description
CO1	Learn a wide range of theoretical and practical techniques used to study animal behavior for employability.
CO2	Develop skills, concepts and experience to understand all aspects of animal behavior for understanding of entrepreneurial skill.
CO3	Understand and evaluate information about animal behavior and ecology encountered in our daily lives for skill development at national level.
CO4	Gain the basic knowledge of Biostatistics for skill development and employability.
CO5	Understand and be able to objectively evaluate the role of behavior in the protection and conservation of animals in the wild this gives knowledge for better employability in Research field.

Course Code	BZOCC (H) 503
Course Name	Endocrinology

COs	Description
CO1	Understand neurohormones and neurosecretions for skill development.
CO2	Learn about hypothalamo and hypapophysial axis to provide employability and skills.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand about different endocrine glands and their disorders this gives knowledge for better employability at global level.
CO4	Understand the mechanism of hormone action for understanding of entrepreneurial skill.

Course Code	BZOCC (H) 504
Course Name	Aquatic Biology

COs	Description
CO1	Understand the aquaculture systems employability in fishery sector.
CO2	Understand conditioning factors and how they can be manipulated for employability.
CO3	Describe water depuration mechanisms for skill development.
CO4	Understand the environmental impacts of aquaculture for skill development and employability at local level.

Course Code	BZOCC (H) 505
Course Name	Biology of Insecta

COs	Description
CO1	Gain the knowledge of insect taxonomy employability in research sector.
CO2	Understand the various morphological features of insects skilling of entrepreneurship.
CO3	Understand the physiology of insects for skill development.
CO4	Insects characterization and distribution can also be understand skills at national level.
CO5	Understand the Social organization and social behavior in insects employability in sericulture sector.
CO6	Learn about insects as plant pests employability in industry.

Course Code	BZOCC (H) 506
Course Name	Wild Life conservation and Management

COs	Description
CO1	To understand the importance of conservation of wild life skill development.
CO2	In this the basic knowledge of remote sensing and GIS has gained provide

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability at global level.
CO3	Study about diversity in animals, their protected areas for skill development and employability.
CO4	Understand about population characteristics for skill development.
CO5	Understand about distinguishing features of wild life to provide employability and skills.

Course Code	BZO(H)-506A
Course Name	Cell Biology and Histology

COs	Description
CO1	Understand the functioning of nucleus and extra nuclear organelles and understand the intricate cellular mechanisms involved to develop skill.
CO2	Acquire the detailed knowledge of different pathways related to cell signaling and apoptosis thus enabling them to understand the anomalies in cancer skill development and employability.
CO3	Develop an understanding how cells work in healthy and diseased states and to give a 'health forecast' by analyzing the genetic database and cell information skill development and employability.
CO4	Get new avenues of joining research in areas such as genetic engineering of cells, cloning, vaccines development, human fertility programme, organ transplant, etc skill development at global level.
CO5	Understand how tissues are produced from cells in a normal course and about any malfunctioning which may lead to benign or malignant tumor skill development.

Course Code	BZO(H)-506B
Course Name	Biotechniques

COs	Description
CO1	Understand the purpose of the technique, its proper use and possible modifications/ improvement to develop skill.
CO2	Learn the theoretical basis of technique, its principle of working and its correctapplication knowledge for better employability.
CO3	Learn the construction repair and adjustment of any equipment required for atechnique for skill development at local level.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Learn the accuracy of technique for skill development.
CO5	Learn the maintenance laboratory equipments/ tools, safety hazards andprecautions for better skilling of entrepreneurship.

Course Code	BZOCC(H)-551
Course Name	Zoology Lab-5A

COs	Description
CO1	Know about classical laboratory techniques, use modern instrumentation, design and conduct scientific experiments, and analyze the resulting data to provide employability and skills.
CO2	Be knowledgeable in proper procedures and regulations gaining insight and depth for understanding of entrepreneurial skill.
CO3	Develop skills and realize significance of identifications of flora and fauna for understanding of entrepreneurial skill at global level.
CO4	Solve the environmental problems involving interaction of humans and natural systems at local orglobal level skilling of entrepreneurship.
CO5	Inculcate scientific quantitative skills, evaluate experimental design and read graphs for entrepreneurship and employability.

Course Code	BZOCC(H)-551
Course Name	Zoology Lab –5 B

COs	Description
CO1	Know about the types of ecosystems, food chains, food webs, energy models, and ecological efficiencies skilling of entrepreneurship.
CO2	Engage in field-based research activities to understand well the theoretical aspects taught besides learning techniques for gathering data and the need for understanding of entrepreneurial skill.
CO3	Analyse a biological problem, derive testable hypotheses and then design experiments and put the tests into practice to provide employability and skills.
CO4	Solve the environmental problems involving interaction of humans and natural systems at local orglobal level skilling of entrepreneurship.
CO5	Inculcate scientific quantitative skills, evaluate experimental design and read graphs for entrepreneurship and employability.

Course Code	BZOCC(H)-601
Course Name	Biotechnology, Immunology, Biological Tools and Techniques

COs	Description
CO1	Describe the basic mechanisms, distinctions and functional interplay of innate and adaptive immunity skilling of entrepreneurship.
CO2	Relate to errors occurring during development leading to congenital disorders and human diseases for skill development and employability at national level.
CO3	Understand the purpose of the technique, its proper use and possible modifications employability in pathology.
CO4	Learn the accuracy of technique of Microscopy for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Learn the use of different laboratory instruments for understanding of entrepreneurial skill.

Course Code	BZOCC (H)-602
Course Name	Applied and Economic Zoology

COs	Description
CO1	Understand the culture techniques of prawn, pearl and fish employability in fishery sectors.
CO2	Understand silkworms rearing and their products employability in silk rearing industries.
CO3	Understand the Bee keeping equipments and apiary management employability in Beekeeping sectors.
CO4	Understand dairy animal's management, the breeds and diseases of goats employability in Animal husbandry at national level.
CO5	Learn the testing of egg and milk quality for understanding of entrepreneurial skill.

Course Code	BZOCC (H) 603
Course Name	Fish and Fisheries

COs	Description
CO1	Understand the aquaculture systems for employability.
CO2	Understand the morphology and physiology of fishes for skill development.
CO3	Gain the knowledge of GIS in fisheries to provide employability and skills at global level.
CO4	Understand conditioning factors and how they can be manipulated for fisheries for better understanding of skill.
CO5	Understand the environmental impacts of aquaculture for understanding of entrepreneurial skill.

Course Code	BZOCC(H) 604
Course Name	Insect Vectors and Diseases

COs	Description
CO1	Describe the mechanisms for transmission, virulence and pathogenicity

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	in pathogenic micro-Organisms for understanding of entrepreneurial skill
CO2	Understand the general features of insects skilling of entrepreneurship.
CO3	Diagnose the causative agents, describe pathogenesis and treatment for important diseases like Malaria, Leishmaniasis, Dengue, Filariasis etc. for entrepreneurship and employability at global level.
CO4	Understand how to control a disease at vector level to provide employability and skills.
CO5	Develop skills and realize significance of diagnosis of parasitic attack.
CO6	Learn to treatment of patient or host for skill development.

Course Code	BZOCC(H) 605
Course Name	Research Methodology

COs	Description
CO1	Understand the concept of research and different types of research in the context of biology and acquire the basic awareness of data analysis-and hypothesis testing procedures employability in editorial jobs.
CO2	Develop laboratory experiment related skills and gain basic knowledge on qualitative research techniques this gives knowledge for better employability in Research field.
CO3	Develop competence on data collection and process of scientific documentation for skill development at national level.
CO4	Analyze the ethical aspects of research and evaluate the different methods of scientific writing and reporting for skill development and employability.

Course Code	BZO(H)-605A
Course Name	Nanobiology

COs	Description
CO1	Understand examples of Nano-science and Nano-biology in real life situations for better skilling of entrepreneurship.
CO2	Apply their knowledge in their career development in higher education, research anddevelopment for skill development.
CO3	To foundational knowledge of the Nanoscience and related fields for better skilling of entrepreneurship at global level.
CO4	To make the students acquire an understanding the Nanoscience and

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Applications knowledge for better employability in industry.

Course Code	BZOCC(H)-651
Course Name	Zoology Lab-6 Course

COs	Description
CO1	Study of animals which will improve their observation skills, data collection skills, critical thinking and analytical skills of students for skill development, entrepreneurship and employability at national level.
CO2	Describe the basic mechanisms, distinctions and functional interplay of innate and Adaptive immunity for skill development and employability.

PROGRAMME NAME – M.Sc. (Botany)

Course Code	MBOCC-101
Course Name	Viruses, Bacteria and Fungi

COs	Description
CO1	Understand the diversity of micro-organisms such as viruses, bacteria, fungi lichens, their classification, structure and growth for skill development at national level.
CO2	Increase the understanding the economic values of bacteria, fungi, mycorrhizae, lichens and develop theoretical & technical skills about them for skill development.
CO3	Develop conceptual skill about identifying microbes, pathogens, biofertilizers & lichens at national level.

Course Code	BZO(H)-605B
Course Name	Global Climate change

COs	Description
CO1	Develop understanding on the concept and issues of global environmental change to develop skill.
CO2	Analyse the causes and effects of depletion of stratospheric ozone layer for better skilling of entrepreneurship at global level.
CO3	Examine the climate change and its effect on living beings skill development and employability.
CO4	Understand the physical basis of natural green gashouse effect on man and materials for entrepreneurship & employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Learn host –pathogen relationship and disease management for skill development.
CO5	Understand the structure and reproduction of certain selected local bacteria algae, fungi and lichens for skill development.

Course Code	MBOCC-102
Course Name	Algae and Bryophytes
COs	**Description**
CO1	Understand the characters of algae, and their classification, algal pigmentation, type of reserved food material and flagellation for skill development.
CO2	Understand the range of thallus in algae, mode of reproduction and life cycle patterns and their economic importance at globally based for skill development.
CO3	It will help to understand the comparison between different classes of globally found algae on the basis of thallus structure, reproduction and variations life cycle for skill development.
CO4	Understand the general characters, classification and diversity of bryophytes and their structure and reproduction of various genus of bryophytes for skill development
CO5	Have the global knowledge of evolution of bryophytes, economic and ecological significance of bryophytes for skill development.

Course Code	MBOCC-103
Course Name	Cytology and Genetics
COs	**Description**
CO1	Understand the various types of microscopy like SEM, TEM, Light microscopy and their uses for skill development.
CO2	Learn different fixation and staining techniques at local level for electron microscope for skill development.
CO3	Describe the chromosome types, structure, chromatin material, and packaging of DNA for skill development.
CO4	Understand the mutation, causes of mutations and their impacts on globally grown agriculture crops for skill development.
CO5	Course will also help to enhance the knowledge of students about Mendelian inheritance, gene interaction, crossing over, linkage and extra chromosomal inheritance for skill development at local level.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBOCC-104
Course Name	Cell and Molecular Biology

COs	Description
CO1	Understand the detailed account of the plant cell and biological membrane to enhance the global skill.
CO2	Describe cytological, biochemical, physiological and genetic aspects of the cell, including cellular processes common to all cells, to all eukaryotic cells as well as processes in certain specialized cells for skill development.
CO3	Explain cellular processes and mechanisms that lead to physiological functions as well as examples of pathological state for skill development on local level.
CO4	Describe the intricate relationship between various cellular structures and their corresponding functions for skill development.
CO5	Explain the process of DNA replication prokaryotes and eukaryotes, DNA damage and its repairing, and protein synthesis for global skill development.

Course Code	MBOCC-151
Course Name	Botany Lab-I A

COs	Description
CO1	Culture the different bacterial strains and isolate them from local environmental conditions for skill development.
CO2	Have the global knowledge of Gram staining technique for skill development.
CO3	Gain knowledge on fixation, dehydration, hand sectioning, microtome sectioning for skill development.
CO4	Observe and identify the locally found microbes, algae and fungi for skill development.

Course Code	MBOCC-152
Course Name	Botany Lab-I B

COs	Description
CO1	Prepare permanent slides and identify various stages of cell division in somatic cell and germ cell with the help of onion root tip/ flower buds at local level for skill development.
CO2	Isolate and separate plant DNA material of locally found plants for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Learn about karyotype analysis and solve the problems related to Mendelian experiments for skill development

Course Code	MBOCC-201
Course Name	Pteridophytes, Gymnosperms and Palaeobotany

COs	Description
CO1	Describe the morphology and anatomy of the national vascular cryptogams and gymnosperms for skill development.
CO2	Have global understanding on evolution and affinities of Pteridophytes for skill development.
CO3	Have global understanding on evolution and affinities of Gymnosperms for skill development.
CO4	Enhance their knowledge about the economic and ecological importance of these global plants for skill development.
CO5	Study about the fossils, geological time scale etc for skill development at global level.

Course Code	MBOCC-202
Course Name	Pteridophytes, Gymnosperms and Palaeobotany

COs	Description
CO1	What is the role of ICBN in plant taxonomy? What are different data sources in systematics? It will enhance global skill.
CO2	What are different methods of naming plants? What are different principles of nomenclature? Why name changes? for skill development.
CO3	What are artificial, natural and phylogenetic systems of classification for skill development at global level?
CO4	What are different methods of collecting and preserving plants? What is the importance of maintaining plants in botanic gardens for skill development at national level?
CO5	Comparison among different flowering plants groups for skill development.

Course Code	MBOCC-203
Course Name	Plant Physiology

COs	Description
CO1	This course will provide the better understanding of various physiological

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	processes like absorption of water and minerals, photosynthesis, respiration, transpiration, seed germination and seed dormancy for skill development.
CO2	This course will provide an understanding of nitrogen metabolism in plants for skill development.
CO3	This course will help to understand the Phytohormones and their role in the development of plants for skill development.
CO4	The students will be learning Abiotic stress signaling, stress tolerance/adaptive physiological and biochemical changes focusing on mechanisms. They should be in a position to extrapolate this knowledge for creating stress tolerance crops for skill development at global level.
CO5	The students will also learn about various types of stress and defense mechanisms in locally found plants for skill development.

Course Code	**MBOCC-204**
Course Name	**Plant Biochemistry**
COs	**Description**
CO1	Understand the structure of atoms, chemical bonding of molecules for skill development at global level.
CO2	Explain the structure and functions of biomolecules for skill development.
CO3	Learn bioenergetics processes in plants for skill development.
CO4	Understand the principles of enzymes, enzyme kinetics, enzyme regulation and mechanism of enzyme action for global skill development
CO5	Students will also learn metabolism of biomolecules for skill development.

Course Code	**MBOCC-251**
Course Name	**Botany Lab-II A**
COs	**Description**
CO1	Gain knowledge on fixation, dehydration, hand sectioning, microtome sectioning for skill development.
CO2	Observe and identify the local as well as globally found Pteridophytes, Gymnosperms and Flowering Plants for skill development.
CO3	Develop the skill of collection and preservation of local plant specimens for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBOCC-252
Course Name	Botany Lab-II B

COs	Description
CO1	How do the plants absorb the water and minerals from the soil? for skill development
CO2	Analyse the photosynthetic rate under various conditions, Transpiration rate and R.Q. of different respiratory substrates for enhancement of global knowledge.
CO3	Estimation of starch, protein and reducing sugars for enhancement of global knowledge.
CO4	Quantitative and qualitative test of chlorophyll for skill development.
CO5	The effects of salt stress on germination, a seedling growth and amino acids in germinating seeds of any locally found crops for skill development.

Course Code	MBOCC-301
Course Name	Embryology and Anatomy of Angiosperms

COs	Description
CO1	Understand the structure of male and female reproductive bodies in flowering plants for global skill development.
CO2	Familiarize to pollination processes, double fertilization, and development of dicot and monocot embryos and understand apomixes, polyembryony and parthenocarpy for enhancement of global knowledge.
CO3	Understand the meristems and role in plant development; primary structure of root, stem and leaf for skill development.
CO4	Compare normal secondary growth and abnormal secondary growth for enhancement of global knowledge.
CO5	Understand the concept of abscission and healing of wound, nodal anatomy for enhancement of global knowledge.

Course Code	MBOCC-302
Course Name	Plant Pathology

COs	Description
CO1	Have the knowledge of diseases, their causal organism, symptoms of the diseases, and their control measures for enhancement of global knowledge..

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	The students will also learn how the pathogens affect the physiology of plants, host defense mechanism for skill development.
CO3	Know the effects of environment on disease development, host plant nutrition and disease forecasting for skill development.
CO4	Learn host – pathogen relationship and disease management for enhancement of global knowledge.
CO5	The students will be taught about different methods of disease control enhancement of global knowledge.

Course Code	MBODE-303 A
Course Name	**Plant Breeding and Biostatistics**

COs	Description
CO1	Explain the Mendelian inheritance, post mendelian inheritance and chromosomal aberration enhancement of global knowledge.
CO2	Understand the science of plant breeding skill development
CO3	Get the detail knowledge about modern strategies applied in Plant Breeding for crop improvement i.e. Mass selection, Pureline Selection and Clonal selection skill development at national level.
CO4	Know about exploitation of heterosis, hybrid and variety development and their release through artificial hybridization for enhancement of global knowledge..
CO5	Understand various statistical methods of analysis for employbilty and skill development.

Course Code	MBODE-303 B
Course Name	**Analytical Techniques in Plant Sciences**

COs	Description
CO1	Learn the microscopy and its application; the different types of microscopes and what are uses of them in research for enhancement of global knowledge.?
CO2	Understand cell fractionation by centrifugation for better entrepreneurship and skill development.
CO3	Learn what the radioisotopes are and why they are used in research for skill development?
CO4	Understand isolation techniques like Electrophoresis: AGE, PAGE, SDS-PAGE for analysis of DNA, RNA and proteins for employability and skill development at global level.

Sanjeev Dhawan
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Know where mean deviation, variation, standard deviation; Chi-square test are used for employability and skill development at global level.

Course Code	MBODE-303 C
Course Name	Recombinant DNA Technology

COs	Description
CO1	Outline the fundamental steps in a genetic engineering procedure for enhancement of global knowledge.
CO2	Describe the mechanism of action and the use of restriction enzymes in biotechnology research and recombinant protein production for enhancement of global knowledge.
CO3	Explain the usefulness of plasmid preparations, how they are performed, and how the concentration and purity of plasmid samples can be determined for skill development.
CO4	Discuss cloning strategies and techniques used to probe DNA for specific genes of interest for enhancement of global knowledge..

Course Code	MBODE-304 A
Course Name	Plant Resources and Utilization

COs	Description
CO1	Know origin of Agriculture, world centers of domesticated plants for enhancement of global knowledge.
CO2	Understand the green revolution in India and what is the role of Norman E. Borlaug, M. S. Swaminathan for skill development at national level?
CO3	Have the knowledge of plants as food, sugar yielding plants for skill development
CO4	Have the knowledge of medicinal values of the plants, spices and condiments for skill development.
CO5	Have the knowledge of non-wood forest products and non-alcoholic beverages for enhancement of global knowledge.

Course Code	MBODE-304 A
Course Name	Ethnobotany

COs	Description
CO1	Conceptualize Ethnobotany as an interdisciplinary science for skill development
CO2	Restate the established methodology of Ethnobotany studies for

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability and skill development
CO3	Categories various indigenous ethnic groups and their environmental practices for employability and skill development at national level.
CO4	Understand the legalities associated with Ethnobotany for enhancement of global knowledge.
CO5	Have the knowledge of Biopiracy for enhancement of global knowledge.

Course Code	MBODE-304 C
Course Name	Diversity and Cultivation of Mushrooms

COs	Description
CO1	Know about nutritional and medicinal value of edible mushrooms & Poisonous mushrooms for entrepreneurship and skill development at national level.
CO2	Learn about the Cultivation techniques of *Agaricus, Calocybe, Flammulina, Ganoderma, Hericium, Lentinus, Pleurotus* for skill development.
CO3	Have the knowledge of Tissue Culture for enhancement of global knowledge.
CO4	Gain knowledge on the present status of mushroom industry in India for skill development.
CO5	Know the ecological role of mushrooms for enhancement of global knowledge.

Course Code	MBOCC-351
Course Name	Botany Lab-III A

COs	Description
CO1	Dissect out the pollinia from *Calotropis procera* flower and explain the structure at local level.
CO2	Explain the T.S. of anther of Datura at local level for skill development.
CO3	Understand the types of placentation in different flower bud practically and physically for skill development.
CO4	Explain monocot embryo in germinating seeds of wheat, maize and barley for skill development.
CO5	Describe dicot embryo in germinating seeds of Brassica, pea and gram etc for skill development
CO6	Gain global knowledge on fixation, dehydration, hand sectioning, microtome sectioning of dicot and monocot stem for skill development.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MBOCC-352
Course Name	Botany Lab-III B

COs	Description
CO1	Solve the genetic problems related to Mendelian inheritance, and gene interactions for enhancement of global knowledge.
CO2	Understand the statistical problems related to science of plant breeding for enhancement of global knowledge.
CO3	Perform the cross pollination and emasculation in bisexual flowers for skill development.
CO4	Analyze the data using different method of biostatistics for enhancement of global knowledge.
CO5	Gain knowledge of food crops with special reference to carbohydrates, protein and fats on the basis of their local name, botanical name, family and their uses for skill development at national level.
CO6	Identify and explain some medicinal plants, Fiber yielding plants for skill development.
CO7	Identify the woods in local area with special reference to their local name, botanical name and families to which they belong for skill development.

Course Code	MBOCC-401
Course Name	Biodiversity Conservation and Environmental Management

COs	Description
CO1	Enunciate why society strives to conserve biodiversity for enhancement of global knowledge.
CO2	Identify key threats to biodiversity for enhancement of global knowledge.
CO3	Evaluate which management options are likely to be effective for conserving biodiversity in different settings for skill development.
CO4	Develop appropriate policy options for conserving biodiversity in different settings for enhancement of global knowledge.
CO5	Communicate informed critique or analysis of biodiversity conservation policy and practice across a range of mediums for enhancement of global knowledge.

Course Code	MBOCC-402
Course Name	Plant Ecology

COs	Description

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO1	Understand the environment and its factors for enhancement of global knowledge.
CO2	Know the structure and function of ecosystem for enhancement of global knowledge.
CO3	Gain the knowledge of energy flow and biogeo-chemical cycle in ecosystem for skill development
CO4	Understand the characteristics of population and concept of metapopulation for enhancement of global knowledge.
CO5	Develop the understanding of student about the successive development of plant community and structure and function of some Indian ecosystems for skill development

Course Code	MBOCC-403
Course Name	**Plant Biotechnology**

COs	Description
CO1	The introduction of genetic engineering and recombinant DNA technology for enhancement of global knowledge.
CO2	What steps and tools would be used for cloning? for skill development
CO3	Students will also be taught what is tissue culture, totipotency, different culture media, and practical applications of plant tissue culture for the welfare of human beings for enhancement of global knowledge.
CO4	Utility of generating mutants with respect to forward and reverse genetics and how these mutants can be used for studying genome wide changes in gene expression for skill development.
CO5	Understand methods/procedures and different tools and techniques applied for proteome analysis for enhancement of global knowledge.

Course Code	MBOCC-451
Course Name	**Botany Lab-IV**

COs	Description
CO1	Find out Density, abundance, Frequency and Relative Frequency of plant species in given area by quadrat method for skill development at local level.
CO2	Know what effects of polluted water and saline water are on seed germination and seedling growth in locally found plants for skill development.
CO3	Find out water holding capacity and qualitative presence of some mineral ions for enhancement of global knowledge.

Sanjeev Rawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Identify the local hydrophytes, xerophytes and halophytes on the basis of their morphological and anatomical features for skill development.
CO5	Measure pH and electrical conductivity of different soil samples for skill development and entrepreneurship.
CO6	Learn qualitatively estimation of CO_3^{--}, SO_4^{--} and Cl^- in the given soil samples for skill development and entrepreneurship.

Course Code	MBOCC-452
Course Name	Dissertation

COs	Description
CO1	Training in experimental design and execution for enhancement of global knowledge.
CO2	Knowledge on techniques and tools of research for skill development and entrepreneurship.
CO3	Quantitative and qualitative data analysis for global skill development and entrepreneurship.
CO4	Analysis and interpretation of data in the perspective of existing knowledge for global skill development and entrepreneurship.

PROGRAMME NAME – B.Sc. (Botany) As Per NEP 2020

Course Code	B040101T
Course Name	Microbiology & Plant Pathology

Cos	Description
CO1	Develop understanding about the classification and diversity of different microbes including viruses, Algae, Fungi & Lichens & their economic importance for enhancement of global knowledge.
CO2	Develop conceptual skill about identifying microbes, pathogens, biofertilizers &lichens for skill development.
CO3	Gain knowledge about developing commercial enterprise of microbial products for global skill development.
CO4	Learn host–pathogen relationship and disease management for skill development and entrepreneurship.
CO5	Learn Presentation skills (oral & writing) in life sciences by usage of computer of computer & multimedia for global skill development and entrepreneurship.
CO6	Gain knowledge about uses of microbes in various fields for skill development.
CO7	Understand the structure and reproduction of certain selected bacteria algae, fungi and lichens for enhancement of global knowledge.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO8	Gain knowledge about the economic values of this lower group of plant community for skill development at local level.

Course Code	**B040102P**
Course Name	**Techniques in Microbiology & Plant Pathology**

Cos	Description
CO1	Understand the instruments, technique, lab etiquettes and good lab practices for working in a microbiology laboratory for enhancement of global knowledge and entrepreneurship.
CO2	Develop skills for identifying microbes and using them for local Industrial, Agriculture and Environment purposes.
CO3	Practical skills in the field and laboratory experiments in Microbiology & Pathology to provide employability at national level.
CO4	Learn to identify Algae, Lichens and plant pathogens along with their Symbiotic and Parasitic associations for skill development.
CO5	Have the knowledge of Gram staining technique for skill development.
CO6	Gain knowledge on fixation, dehydration, hand sectioning, microtome sectioning for enhancement of global knowledge.
CO7	Observe and identify the microbes, algae and fungi for skill development.
CO8	Can initiate his own Plant & Seed Diagnostic Clinic Can start own enterprise on microbial products for skill development and entrepreneurship at local level.

Course Code	**B040201T**
Course Name	**Archegoniates and Plant Architecture**

Cos	Description
CO1	Develop critical understanding on morphology, anatomy and reproduction of Bryophytes for enhancement of global knowledge.
CO2	Develop critical understanding on morphology, anatomy and reproduction of Pteridophytes for skill development.
CO3	Develop critical understanding on morphology, anatomy and reproduction of Gymnosperms for enhancement of global knowledge.
CO4	Understanding of plant evolution and their transition to land habitat for skill development.
CO5	Understand morphology, anatomy, reproduction and developmental changes therein through typological study and create a knowledge base in understanding the basis of plant diversity, economic values & taxonomy of plants for skill development at local level.
CO6	Understand the meristems and role in plant development; primary structure

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	of root, stem and leaf for skill development.
CO7	Compare normal secondary growth and abnormal secondary growth for skill development.
CO8	Understand the details of external and internal structures of flowering plants for skill development at local level.

Course Code	B040202P
Course Name	Land Plants Architecture

Cos	Description
CO1	The students will be made aware of the group of plants that have given rise to land habit and the flowering plants. Through local field study they will be able to see these plants grow in nature and become familiar with the biodiversity for skill development.
CO2	Students would learn to create their small digital reports where they can capture the zoomed in and zoomed out pictures as well as videos in case they are able to find some rare structure or phenomenon related to these plants for skill development at local level.
CO3	Develop an understanding by observation and table study of representative members of phylogenetically important groups to learn the process of evolution in a broad sense for enhancement of global knowledge.
CO4	Understand morphology, anatomy, reproduction and developmental changes therein through typological study and create a knowledge base in understanding plant diversity, economic values & taxonomy of lower group of plants for skill development at local level.
CO5	Understand the composition, modifications, internal structure &architecture of flowering plants for becoming a Botanist for skill development.
CO6	Describe the morphology and anatomy of the vascular cryptogams and gymnosperms found at national level for skill development.
CO7	Have understanding on evolution and affinities of Pteridophytes
CO8	Have understanding on evolution and affinities of Gymnosperms for enhancement of global knowledge.

Course Code	B040301T
Course Name	Flowering Plants Identification & Aesthetic Characteristics

Cos	Description
CO1	To gain an understanding of the history and concepts underlying various approaches to plant taxonomy and classification for enhancement of global knowledge.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	To learn the major patterns of diversity among plants, and the characters and types of data used to classify plants for enhancement of global knowledge.
CO3	To compare the different approaches to classification with regard to the analysis of data for skill development.
CO4	To become familiar with major taxa and their identifying characteristics, and to develop in depth knowledge of the current taxonomy of a major plant family for enhancement of global knowledge.
CO5	What are different methods of collecting and preserving plants? What is the importance of maintaining plants in botanic gardens for skill development?
CO6	Comparison among different flowering plants groups for skill development at local level.
CO7	To discover and use diverse taxonomic resources, reference materials, herbarium collections, publications for enhancement of global knowledge.
CO8	For the entrepreneur career in plants, one can establish a nursery, Start a landscaping business, Setup a farm Or Run a plantation consultancy firm at local level for skill development.

Course Code	**B040302P**
Course Name	**Plant Identification Technology**

Cos	Description
CO1	To learn how plant specimens are collected, documented, and curated for a permanent record at local level for employability and skill development.
CO2	To observe, record, and employ plant morphological variation and the accompanying descriptive terminology for employability and enhancement of global knowledge.
CO3	To gain experience with the various tools and means available to identify plants for employability and skill development.
CO4	To develop observational skills and field experience for employability and skill development.
CO5	To identify a taxonomically diverse array of native plants for enhancement of global knowledge.
CO6	To recognize common and major plant families for employability and skill development.
CO7	To understand aesthetic characters of flowering plants by making-landscapes, gardens, bonsai, miniatures for employability and skill development.
CO8	Comprehend the concepts of plant taxonomy and classification of Angiosperms for enhancement of global knowledge..

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B040401T
Course Name	Economic Botany, Ethnomedicine and Phytochemistry

Cos	Description
CO1	Understand about the uses of plants–will know one plant-one employment for skill development
CO2	Know origin of Agriculture, world centers of domesticated plants for enhancement of global knowledge.
CO3	Understand the green revolution in India for skill development and what is the role of Norman E. Borlaug, M. S. Swaminathan at national level?
CO4	Have the knowledge of plants as food, sugar yielding plants for skill development and employability.
CO5	Have the knowledge of medicinal values of the plants, spices and condiments found at national level, for skill development and employability.
CO6	Have the knowledge of non-wood forest products and non-alcoholic beverages for skill development and employability.
CO7	Understand phyto-chemical analysis related to local medicinally important plants and economic products produced by the plants for skill development and employability.
CO8	Know about the importance of local Medicinal plants and its useful parts, economically important plants in our daily life and also about the traditional medicines and herbs, and its relevance in modern times for skill development and employability.

Course Code	B040402P
Course Name	Commercial Botany & Phytochemical Analysis

Cos	Description
CO1	Know about the commercial products produced from plants for skill development, entrepreneurship and employability.
CO2	Gain the knowledge about cultivation practices of some economic crops for enhancement of global knowledge.
CO3	Understand about the Ethnobotanical details of plants for skill development, and employability
CO4	Learn about the chemistry of plants & herbal preparations for enhancement of global knowledge.
CO5	Can become a protected cultivator, aromatic oil producer, Pharmacologist or quality analyst in drug Company for enhancement of global knowledge.
CO6	Gain knowledge of food crops with special reference to carbohydrates, protein and fats on the basis of their local name, botanical name, family and their uses for skill development, entrepreneurship and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO7	Identify and explain some local medicinal plants, Fibre yielding plants for skill development.
CO8	Identify the woods in local area with special reference to their local name, botanical name and families to which they belong for skill development

Course Code	**B040501T**
Course Name	**Plant Physiology, Metabolism & Biochemistry**

COs	Description
CO1	Understand the role of Physiological and metabolic processes for plant growth and development to enhance of global knowledge.
CO2	This course will provide an understanding of nitrogen metabolism in plants development for enhancement of global knowledge.
CO3	Learn the symptoms of Mineral Deficiency in crops and their management development for skill development.
CO4	Assimilate Knowledge about Biochemical constitution of plant diversity development for enhancement of global knowledge.
CO5	Explain the structure and functions of bimolecules development for skill development.
CO6	Learn bioenergetics processes in plants development for enhancement of global knowledge.
CO7	Understand the principles of enzymes, enzyme kinetics, enzyme regulation and mechanism of enzyme action development for skill development.
CO8	Know the role of plants in development of natural products, neutraceuticals, dietary supplements, antioxidants development for enhancement of global knowledge.

Course Code	**B040502T**
Course Name	**Molecular Biology & Bioinformatics**

Cos	Description
CO1	Understand the detailed account of the plant cell and biological membrane development for enhancement of global knowledge.
CO2	Describe cytological, biochemical, physiological and genetic aspects of the cell, including cellular processes common to all cells, to all eukaryotic cells as well as processes in certain specialized cells development for enhancement of global knowledge.
CO3	Explain cellular processes and mechanisms that lead to physiological functions as well as examples of pathological state development for enhancement of global knowledge.
CO4	Describe the intricate relationship between various cellular structures and

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	their corresponding functions development for skill development.
CO5	Explain the process of DNA replication prokaryotes and eukaryotes, DNA damage and its repairing, and protein synthesis development for skill development.
CO6	Understand nucleic acids, organization of DNA in prokaryotes and Eukaryotes, DNA replication mechanism, genetic code and transcription process development for skill development at global level.
CO7	Know about Processing and modification of RNA and translation process, function and regulation of expression development for skill development at global level.
CO8	Gain working knowledge of the practical and theoretical concepts of bioinformatics development for enhancement of global knowledge.

Course Code	**B040503P**
Course Name	**Experiments in physiology, Biochemistry & molecular biology**
COs	**Description**
CO1	Know and authentic the physiological processes undergoing in plants along with their metabolism for skill development at global level.
CO2	Identify Mineral deficiencies based on visual symptoms at local level for skill development.
CO3	Understand and develop skill for conducting molecular experiments for genetic engineering for enhancement of global knowledge.
CO4	Isolate and separate plant DNA material at local level for skill development
CO5	Estimation of starch, protein and reducing sugars for skill development.
CO6	Quantitative and qualitative test of chlorophyll for skill development.
CO7	The effects of salt stress on germination, a seedling growth and amino acids in germinating seeds of any local crops for skill development.
CO8	Analyses the photosynthetic rate under various conditions, Transpiration rate and R.Q. of different respiratory substrates for enhancement of global knowledge.

Course Code	**B040504R**
Course Name	**Project in Botany for Pre-graduation**
COs	**Description**
CO1	Project work will supplement field experimental learning and deviations from classroom and laboratory transactions for skill development at global level.
CO2	Project work will enhance the capability to apply gained knowledge and understanding for selecting, solving and decision-making processes for

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	enhancement of global knowledge.
CO3	It will promote creativity and the spirit of enquiry in learners for skill development.
CO4	They will learn to consult Scientists, libraries, laboratories and herbariums and learn importance of discussions, Botanical & field trips, print and electronic media, internet etc. along with data documentation, compilation, analysis & representation in form of dissertation writing for skill development.
CO5	It will globally enhance their abilities, enthusiasm, and interest for skill development.

Course Code	**B040601T**
Course Name	**Cytogenetics, Plant Breeding & Nanotechnology**
COs	**Description**
CO1	Acquire knowledge on ultra structure of cell for enhancement of global knowledge.
CO2	Understand the structure and chemical composition of chromatin and concept of cell division.
CO3	Interpret the Mendel's principles, acquire knowledge on cytoplasmic inheritance and sex linked inheritance for enhancement of global knowledge..
CO4	Understand the science of plant breeding at local level for skill development.
CO5	Study the techniques of production of new superior crop verities for skill development and employability.
CO6	Get the detail knowledge about modern strategies applied in Plant Breeding for crop improvement i.e. Mass selection, Pureline Selection and Clonal selection for skill development and employability at national level.
CO7	Understand the concept of 'one gene one enzyme hypotheses along with molecular mechanism of mutation for skill development.
CO8	Interpret the concept of Lemarkism, Neo Lamarkism, Darwinism and also understand the concept of natural selection for enhancement of global knowledge.

Course Code	**B040602T**
Course Name	**Ecology & Environment**
COs	**Description**
CO1	Acquaint the students with complex interrelationship between organisms and environment for enhancement of global knowledge.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the environment and its factors for enhancement of global knowledge.
CO3	Know the structure and function of ecosystem for enhancement of global knowledge.
CO4	Gain the knowledge of energy flow and biogeo-chemical cycle in ecosystem for skill development
CO5	Understand the characteristics of population and concept of meta population for skill development.
CO6	Develop the understanding of student about the successive development of national plant community and structure and function of some Indian ecosystems for skill development.
CO7	Make them understand methods for studying vegetation, community patterns and processes, ecosystem functions, and principles of phytogeography for enhancement of global knowledge.
CO8	This knowledge is critical in evolving strategies for sustainable natural resource management and biodiversity conservation for skill development.

Course Code	**B040603P**
Course Name	**Lab on Cytogenetics, Conservation & Environment Management**

COs	Description
CO1	To perform all experiments related to the semester-i.e. Plant tissue cultured plants, conducting breeding on field, conserving and depolluting the environment for enhancement of global knowledge..
CO2	Can be employed in environment impact assessment companies & start his own venture for skill development at national level.
CO3	Find out Density, abundance, Frequency and Relative Frequency of local plant species in given area by quadrat method for skill development.
CO4	Know what effects of polluted water and saline water are on seed germination and seedling growth for skill development at local level.
CO5	Find out water holding capacity and qualitative presence of some mineral ions at local level for skill development.
CO6	Identify the hydrophytes, xerophytes and halophytes on the basis of their morphological and anatomical features for skill development.
CO7	Measure pH and electrical conductivity of different soil samples for skill development and employability at local level.
CO8	Learn qualitatively estimation of CO_3^{--}, SO_4^{--} and Cl^- in the given soil samples for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B040604R
Course Name	Project in Botany for Graduation

COs	Description
CO1	Project work will supplement field experimental learning and deviations from classroom and laboratory transactions for enhancement of global knowledge.
CO2	Project work will enhance the capability to apply gained knowledge and understanding for selecting, solving and decision-making processes at local level for skill development.
CO3	It will promote creativity and the spirit of enquiry in global learners for skill development, employability and entrepreneurship.
CO4	They will learn to consult Scientists, libraries, laboratories and herbariums and learn importance of discussions, Botanical & field trips, print and electronic media, internet etc. along with data documentation, compilation, analysis & representation in form of dissertation writing for skill development, employability and entrepreneurship for enhancement of global knowledge.
CO5	It will enhance their abilities, enthusiasm, and interest for skill development.

Skill Development Courses Offered by the Department Of Botany

Course Code	B04-I
Course Name	Mushroom Cultivation

COs	Description
CO1	To understand the instruments, techniques, lab etiquettes and good lab practices for working in a microbiology laboratory at local level for skill development
CO2	Develop skills for cultivating and identifying mushrooms, using them for commercial purposes for global skill development and entrepreneurship.
CO3	Will understand the pathology associated with mushrooms and their pre-harvest & post- harvest management for enhancement of global knowledge.
CO4	Can start own enterprise on mushrooms for skill development and entrepreneurship at local level.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B04-II
Course Name	Organic Farming

COs	Description
CO1	Understand the instruments, techniques, lab etiquettes and good lab practices for fieldwork to provide skills of employability, entrepreneurship at local level.
CO2	Develop skills for identifying organic supplements and preparing them from raw materials for safe to provide skills of employability, entrepreneurship agriculture/horticulture at local level.
CO3	Will understand the pathology associated with crops and their pre-harvest & post- harvest management to provide skills of employability, entrepreneurship at national level.
CO4	Can start own enterprise at national level on organic farming to provide skills of employability, entrepreneurship

Course Code	B04-III
Course Name	Pharmacognosy and Herbal Preparations

COs	Description
CO1	Understand the instruments, techniques, lab etiquettes and good lab practices field work for enhancement of global knowledge..
CO2	Develop skills for identifying organic supplements and preparing them from raw materials for herbal medicines at national level.
CO3	Will understand the Pharmacognosy for employability and entrepreneurship at national level.
CO4	Can start own enterprise at local level on herbal preparation to provide skills of employability, entrepreneurship

Course Code	B04-IV
Course Name	Soil Health Assessment

COs	Description
CO1	To help farmers in suggesting the remedies for soil health to provide skills of employability and entrepreneurship at local level.
CO2	Suggesting the type of crop which can grow under existing soil condition to provide skills of employability and entrepreneurship at local level..
CO3	Understand the instruments, techniques and good lab practices for fieldwork to provide skills of employability and entrepreneurship for enhancement of global knowledge

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Develop skills for identifying soil health issues and their management for safe agriculture/horticulture to provide skills of employability and entrepreneurship.
CO5	Will understand to prepare soil health card for agricultural utility during pre-harvest & post- harvest management to provide skills of employability and entrepreneurship for enhancement of global knowledge.

PROGRAMME NAME: B.Sc. (Hons.) Botany

Course Code	BBOCC (H)-101
Course Name	Diversity of Microbes

COs	Description
CO1	Understand the diversity of micro-organisms such as viruses, bacteria, fungi lichens, their classification, structure and growth for enhancement of global knowledge
CO2	Increase the understanding the economic values of bacteria, fungi, mycorrhizae, lichens and develop theoretical & technical skills about them for enhancement of global knowledge
CO3	Develop conceptual skill about identifying microbes, pathogens, biofertilizers &lichens for skill development.
CO4	Learn host –pathogen relationship and disease management for skill development at local level.
CO5	Understand the structure and reproduction of certain selected bacteria algae, fungi and lichens for skill development at national level.

Course Code	BBOCC (H)-102
Course Name	Algae and Bryophytes

COs	Description
CO1	Learn about the structure, pigmentation, food reserves and methods of reproduction of Algae for enhancement of global knowledge.
CO2	Understand the diversity of algae, and evolution of bryophytes for skill development.
CO3	Have the knowledge of economic and ecological significance of both plant groups for enhancement of global knowledge.
CO4	It will help to understand the comparison between algae and bryophytes for skill development.
CO5	Have the knowledge of evolution of bryophytes, economic and ecological significance of bryophytes for enhancement of global knowledge.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BBOCC (H) -151
Course Name	Botany Lab-1

COs	Description
CO1	Culture the different bacterial strains and isolate them from environmental conditions for enhancement of global knowledge and enterpreurship.
CO2	Have the knowledge of Gram staining technique for enhancement of global knowledge and enterpreurship.
CO3	Gain knowledge on fixation, dehydration, hand sectioning, microtome sectioning for skill development and enterpreurship
CO4	Observe and identify the algae and fungi for enhancement of global knowledge and enterpreurship.

Course Code	BBOCC (H)-201
Course Name	Pteridophytes, Gymnosperm and Palaeobotany

COs	Description
CO1	Describe the morphology and anatomy of the local vascular cryptogams and gymnosperms for skill development.
CO2	Have understanding on evolution and affinities of Pteridophytes
CO3	Have understanding on evolution and affinities of Gymnosperms for skill development at global level.
CO4	Enhance global knowledge about the economic and ecological importance of these plants for skill development.
CO5	Study about the fossils, geological time scale etc for enhancement of global knowledge.

Course Code	BBOCC (H)-202
Course Name	Systematics of Flowering Plants and Economic Botany

COs	Description
CO1	What is the role of ICBN in plant taxonomy? What are different data sources in systematics? It provides skill development at global level.
CO2	What are different methods of naming plants? What are different principles of nomenclature? Why name changes? It provides skill development.
CO3	What are artificial, natural and phylogenetic systems of classification? It provides skill development for at global level.
CO4	What are different methods of collecting and preserving plants? What is the importance of maintaining plants in botanic gardens? It provides skill

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development
CO5	Learn the importance of plant of different plants. It provides skill development at national level.

Course Code	BBOCC (H)-251
Course Name	Botany Lab-2

COs	Description
CO1	Gain knowledge on fixation, dehydration, hand sectioning, microtome sectioning for skill development at global level..
CO2	Observe and identify the Pteridophytes, Gymnosperms and Flowering Plants for skill development.
CO3	Develop the skill of collection and preservation of plant specimens at local level for skill development.
CO4	Study the different food crops, plants fibers, medicinal plants and timber yielding plants at local level for skill development.

Course Code	BBOCC (H)-301
Course Name	Sexual Reproduction in Flowering Plants

COs	Description
CO1	Understand the structure of male and female reproductive bodies in flowering plants for enhancement of global knowledge.
CO2	Familiarize to pollination processes for skill development at local level.
CO3	Learn about double fertilization and their significance for skill development.
CO4	Know about the structure and development of dicot and monocot embryos.
CO5	Understand apomixes, polyembryony and parthenocarpy for skill development.

Course Code	BBOCC (H)-302
Course Name	Plant Anatomy

COs	Description
CO1	Understand the meristems and role in plant development for skill development at local level.
CO2	Draw and ex-plain the structures of various tissues in plants and their functions for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the meristems and role in plant development; primary structure of root, stem and leaf for skill development at local level.
CO4	Know how the secondary growth takes place in some dicot stem for skill development at local level.
CO5	Understand the process of abscission and healing of wounds for skill development.

Course Code	BBOCC (H)-351
Course Name	BOTANY LAB-3

COs	Description
CO1	Dissect out the pollinia from *Calotropis procera* flower and explain the structure for enhancement of global knowledge.
CO2	Explain the T.S. of anther of Datura for skill development.
CO3	Understand the types of placentation in different flower bud practically and physically for enhancement of global knowledge
CO4	Gain knowledge on fixation, dehydration, hand sectioning, microtome sectioning of dicot and monocot stem for skill development at global level.

Course Code	BBOCC (H)-401
Course Name	Cell and Molecular Biology

COs	Description
CO1	Difference between prokaryotic eukaryotic cell and ultra structure of plant cell for enhancement of global knowledge.
CO2	Structure and functions of cell organelles for global skill development.
CO3	The eukaryotic cell cycle and mitotic and meiotic cell division for skill development.
CO4	Structure and chemistry of chromosomes, types of chromosomes for skill development.
CO5	Nucleic acid as genetic material, types of DNA, DNA replication and enzymes involved in DNA replication for enhancement of global knowledge.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BBOCC (H)-402
Course Name	Genetics, Plant Breeding and Biostatistics

COs	Description
CO1	Explain the Mendelian inheritance, post mendelian inheritance and chromosomal aberration for enhancement of global knowledge.
CO2	Understand the science of plant breeding for skill development.
CO3	Study the techniques of production of new superior crop verities at national level for skill development.
CO4	Get the detail knowledge about modern strategies applied in Plant Breeding for crop improvement i.e. Mass selection, Pureline Selection and Clonal selection for skill development.
CO5	Know about exploitation of heterosis, hybrid and variety development and their release through artificial hybridization for enhancement of global knowledge.

Course Code	BBOCC (H)-451
Course Name	Botany Lab-4

COs	Description
CO1	Understand the various stages occurred in mitotic and meiotic cell divisions for enhancement of global knowledge.
CO2	Apply quantitative problem-solving skills to genetics problems and issues for skill development.
CO3	Select and apply experimental procedures to solve genetic problems at local level for skill development.
CO4	Perform the emasculation technique in various local crop plants for skill development.
CO5	Isolate and identify the plant DNA, chloroplast, mitochondria and nucleus for skill development.

Course Code	BBOCC (H)-501
Course Name	Plant Physiology

COs	Description
CO1	Understand the plants and plant cells in relation to water, the movement of sap and absorption of water in plant body for enhancement of global knowledge.
CO2	Know micro and macronutrients and their role in plant developments at

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	national level for skill development.
CO3	Understand the process of photosynthesis in higher plants with particular emphasis on light and dark reactions, C3 and C4 pathways for enhancement of global knowledge.
CO4	Understand the respiration in higher plants with particular emphasis on aerobic and anaerobic respiration for skill development.
CO5	Understand the plant movements, physiology of flowering, seed dormancy and germination for enhancement of global knowledge.

Course Code	BBOCC (H)-502
Course Name	Plant Biochemistry

COs	Description
CO1	Uniderstand the structure of atoms, chemical bonding of molecules for enhancement of global knowledge.
CO2	Explain the structure and functions of biomolecules for enhancement of global knowledge.
CO3	Learn bioenergetics processes in plants for skill development.
CO4	Understand the principles of enzymes, enzyme kinetics, enzyme regulation and mechanism of enzyme action for skill development.
CO5	Students will also learn metabolism of biomolecules for enhancement of global knowledge.

Course Code	BBOCC (H)-503
Course Name	Stress Biology

COs	Description
CO1	On completing this course, the students will be able to understand for skill development
CO2	How does the stress the effect the physiology, morphology and anatomy of plants life for skill development?
CO3	Resistant mechanism in plants for enhancement of global knowledge.
CO4	The role of stressed hormones in plants for enhancement of global knowledge.
CO5	What is Reactive Oxygen Species (ROS) and what is the role of it in defense mechanism. For skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BBOCC (H)-504
Course Name	Analytical Techniques in Plant Sciences

COs	Description
CO1	Learn the microscopy and its application; the different types of microscopes and what are uses of them in research for entrepreneurship and for enhancement of global knowledge?
CO2	Learn what are the radioisotopes? Why they are used in research for entrepreneurship and skill development?
CO3	Understand isolation techniques like Electrophoresis: AGE, PAGE, SDS-PAGE for analysis of DNA, RNA and proteins for entrepreneurship and for enhancement of global knowledge.
CO4	Learn data analysis by mean mode median, graphic representation of the data for entrepreneurship and skill development.
CO5	Know where mean deviation, variation, standard deviation; Chi-square test are used for entrepreneurship and for enhancement of global knowledge

Course Code	BBOCC (H)-505
Course Name	Plant Diversity and Human Welfare

COs	Description
CO1	Understand the concept and scope plant diversity for enhancement of global knowledge
CO2	Learn about the causes and implication of loss of biodiversity for skill development at global level.
CO3	Utilizes many strategies for the conservation of biodiversity for skill development and employability.
CO4	Understand the role of plants in human welfare for enhancement of global knowledge.

Course Code	BBOCC (H)-506
Course Name	Nursery and Gardening

COs	Description
CO1	Understand the process of sowing seeds in nursery for skill development.
CO2	Document the various resources required for the development of nursery at local level for entrepreneurship.
CO3	Distinguish among the different forms of sowing and growing plants for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Appreciate the diversity of plants and selection of gardening for skill development.
CO5	Examine the cultivation of different vegetables and growth of plants in nursery and gardening at local level for skill development.

Course Code	BBOCC (H) -507
Course Name	Biostatistics

COs	Description
CO1	Understand principles, methods of statistics and their uses for enhancement of global knowledge
CO2	Develop skills of tabulation and presentation of data as well as how to collect the data to employability?
CO3	Have the knowledge of measures of central tendency like mean, mode and median for skill development.
CO4	Understand the types and methods of correlation and regression and their role in research for enhancement of global knowledge.
CO5	Know about student 't' test - chi square test for skill development at global level.

Course Code	BBOCC (H) -508
Course Name	Microbial Techniques

COs	Description
CO1	Learn the isolation techniques of microorganisms and their preservations at local level for skill development.
CO2	Gain knowledge of measurement of microbial growth for enhancement of global knowledge
CO3	Understand of principles and function of various types of microscopy for skill development and employability.
CO4	Understand of principles and function of various types of spectrophotometry and spectroscopy for skill development and employability at global level.
CO5	Understand of principles and function of various types of Chromatography for skill development and employability

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BBOCC (H) -509
Course Name	Agriculture Ecology: Principles and Application

COs	Description
CO1	Understand about chemical processores, physical and edaphic factors affecting crops for enhancement of global knowledge, employability, entrepreneurship development.
CO2	Gain the knowledge about the role of nitrogen in agroecosystem, weed ecology and weed management at local level for skill development.
CO3	Learn about agricultural pests and their management for skill development.
CO4	Understand about plant diseases and conservation genetic recourses to develop skills of employability
CO5	Understand about cropping systems and agro ecosystems in the landscape at local level for skill development.

Course Code	BBOCC (H)-510
Course Name	Plant Health Diagnostics

COs	Description
CO1	Understand the concepts and types of plant disease symptoms, causes and classification of diseases for enhancement of global knowledge.
CO2	Understand the techniques in analysis of plant diseases for skill development.
CO3	Learn about dissemination factors affecting the development of epidemics for skill development and employability
CO4	Gain knowledge of various fungal causal organisms, disease cycles and their control measures for enhancement of global knowledge and employability.
CO5	Gain knowledge of various bacterial and viral disease cycles, their causal organisms and control measures for enhancement of global knowledge and employability.

Course Code	BBOCC (H)-551
Course Name	Botany Lab -5 A

COs	Description
CO1	Understand how water is absorbed by the plants through the osmosis and what is Plasmolysis and imbibitions for enhancement of global knowledge?
CO2	Find out the transpiration rate, respiration quotient of different respiratory substrates, photosynthesis rate under different conditions for skill

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development.
CO3	Know how do light and temperature effect the germination of seeds for skill development at global level?
CO4	Observe the carbohydrates, protein and lipids in plant products for enhancement of global knowledge.
CO5	Identify and explain the type of chlorophyll and amino acid present for skill development.

Course Code	BBOCC(H)-552
Course Name	Botany Lab-5 B

COs	Description
CO1	Understand the blotting techniques, DNA fingerprinting and DNA sequencing for skill development at global level.
CO2	Estimate nitrogen bases, sugars by chromatography for skill development.
CO3	Isolate the chlorophyll pigments at local level for skill development.
CO4	Estimate the protein by Lowry's method for enhancement of global knowledge.
CO5	Analyze the different enzyme activity under stressed condition for skill development.

Course Code	BBOCC (H)-601
Course Name	Fundamentals of Biotechnology

COs	Description
CO1	Describe bio-catalysis, pathway engineering, bioprocess control and downstream processing for enhancement of global knowledge.
CO2	Demonstrate their ability to reason both inductively and deductively with experimental information and data for skill development.
CO3	Explain the theory and practice of recombinant DNA technology for enhancement of global knowledge.
CO4	Select and apply experimental procedures to the spectrum of fields making use of biotechnology for skill development.
CO5	Understand methods/procedures and different tools and techniques applied for proteome analysis for enhancement of global knowledge.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BBOCC (H)-602
Course Name	Plant Ecology

COs	Description
CO1	Explain the ecological interconnectedness of life on earth by tracing energy and nutrient flow through the environment for skill development at global level.
CO2	Understand the effects of the physical features of the environment on the structure of populations, communities, and ecosystems for enhancement of global knowledge
CO3	Describe the plant succession and plant adaptations for skill development.
CO4	Understand the environmental pollution and its effects for skill development.
CO5	Develop the understanding of student about the successive development of plant community and structure and function of some Indian ecosystems for skill development at national level.

Course Code	BBOCC (H)-603
Course Name	Natural Resources Management

COs	Description
CO1	Understand the concept of different natural resources and their utilization at local level for skill development
CO2	Critically analyze the sustainable utilization land, water, forest and energy resources at national level for skill development.
CO3	Evaluate the management strategies of different natural resources for skill development.
CO4	Renewable and non-renewable sources of energy at national level for skill development.
CO5	Reflect upon the different national and international efforts in resource management and their conservation for skill development.

Course Code	BBOCC (H)-604
Course Name	Research Methodology

COs	Description
CO1	Understand the concept of research and different types of research in the context of plant science for enhancement of global knowledge.
CO2	Enhance laboratory experiment related skills.
CO3	Develop competence on data collection and process of scientific

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	documentation for skill development.
CO4	Analysis of ethical aspects of research for enhancement of global knowledge
CO5	Evaluate the different methods of scientific writing and reporting at global level for skill development.

Course Code	BBOCC (H)-605
Course Name	Ethnobotany
COs	**Description**
CO1	Conceptualize Ethnobotany as an interdisciplinary science for skill development
CO2	Restate the established methodology of Ethnobotany studies at local level for skill development
CO3	Categories various indigenous ethnic groups and their environmental practices at national level for skill development.
CO4	Role of Ethnobotany in modern medicine for enhancement of global knowledge.
CO5	Understand the legalities associated with Ethnobotany for skill development

Course Code	BBOCC(H)-606
Course Name	Plant Metabolism
COs	**Description**
CO1	Understand the concept of metabolism, regulation and regulatory enzymes for enhancement of global knowledge.
CO2	Gain knowledge about carbon assimilation in plants for skill development.
CO3	Understand carbohydrate metabolism for enhancement of global knowledge.
CO4	Learn about synthesis and breakdown of triglycerides and mobilization of lipids in seed germination for skill development.

Course Code	BBOCC-607
Course Name	Biological Instrumentation and Methodology
COs	**Description**
CO1	Understand the role of microscopy in plant biology for for enhancement of global knowledge employability and entrepreneurship.

Sanjeev Gaur
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Learn about principles, types of centrifuges for skill development
CO3	Understand the spectrophotometry techniques in plant biology for enhancement of global knowledge, employability and entrepreneurship.
CO4	Understand the Chromatographic techniques in plant biology for for enhancement of global knowledge, employability and entrepreneurship.
CO5	Understand the details on the label of reagent bottles; Molarity and normality of common acids and bases for skill development.

Course Code	**BBOCC (H)-608**
Course Name	**Bioinformatics**

COs	Description
CO1	Understand aims, scope and research areas of Bioinformatics for enhancement of global knowledge
CO2	Learn about biological sequence databases for skill development and employability.
CO3	Understand the sequence analysis tools for enhancement of global knowledge and employability.
CO4	Understand the concept of alignment for skill development and employability
CO5	Understand the methods of phylogeny and software for phylogenetic analyses for enhancement of global knowledge.

Course Code	**BBOCC (H)-609**
Course Name	**Plant Transgenic**

COs	Description
CO1	Describe bio-catalysis, pathway engineering, bioprocess control and downstream processing for skill development
CO2	Demonstrate their ability to reason both inductively and deductively with experimental information and data for enhancement of global knowledge and employability.
CO3	Explain insect resistance, herbiside resistance transgenesis for skill development.
CO4	Gain knowledge about virus resistance transgenesis and Stress resistance transgenesis for enhancement of global knowledge and employability.
CO5	Understand ethical, and social concerns of transgenic plants for enhancement of global knowledge and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BBOCC (H)-651
Course Name	Botany Lab-6

COs	Description
CO1	Isolate plasmid DNA for skill development
CO2	Know the practical aspects of Agrose gel electrophoresis for skill development
CO3	Find out Density, abundance, Frequency and Relative Frequency of plant species in given local area by quadrat method for skill development.
CO4	Know what effects of polluted water and saline water are on seed germination and seedling growth at local level for skill development.
CO5	Find out water holding capacity and qualitative presence of some mineral ions for skill development and entrepreneurship.
CO6	Identify the hydrophytes, xerophytes and halophytes on the basis of their morphological and anatomical features for enhancement of global knowledge.

Course Code	BBOCC (H) -652
Course Name	Project/Dissertation &Viva-Voce

COs	Description
CO1	Training in experimental design and execution for skill development.
CO2	Knowledge on techniques and tools of research for enhancement of global knowledge.
CO3	Quantitative and qualitative data analysis for skill development.
CO4	Analysis and interpretation of data in the perspective of existing knowledge for enhancement of global knowledge.

Course Code	AECC
Course Name	Environmental Studies

COs	Description
CO1	To learn about the components of environment: atmosphere, hydrosphere, lithosphere and biosphere for enhancement of global knowledge.
CO2	Study Natural Resources and types of resources, Renewable and Non-renewable Resources for enhancement of global knowledge.
CO3	Biodiversity patterns, Energy resources for skill development.
CO4	Environmental pollution: types, causes, effects and controls for skill development at national level.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Demonstrate a general understanding of the breadth and interdisciplinary nature of environmental issues for skill development.

Course Code	UDM
Course Name	Disaster Management

COs	Description
CO1	Disaster: types of Disasters, Causes Global trends in disasters for enhancement of global knowledge.
CO2	Disaster life cycle, Global trends in disasters for skill development.
CO3	Factors affecting Vulnerabilities, impact of Development projects for enhancement of global knowledge
CO4	Disaster Risk Management in India for skill development at national level.

PROGRAMME NAME – M.Sc. (Home Science)

Course Code	MHSCFN-101T
Course Name	Human Physiology

COs	Description
CO1	Understand the current state of knowledge about the functional organization of the human body for global skill development.
CO2	Develop insight of normal functioning of all the organ systems of the body and their interactions for skill development.
CO3	Comprehend the path physiology of commonly occurring diseases for skill development.
CO4	Correlate physiology with various disorders and their pathogenesis for global skill development.

Course Code	MHSCFN-151P
Course Name	Human Physiology (Practical)

COs	Description
CO1	Understand the current state of knowledge about the functional organization of the human body for global skill development.
CO2	Develop insight of normal functioning of all the organ systems of the body and their interactions for skill development.
CO3	Comprehend the pathophysiology of commonly occurring diseases for global skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Correlate physiology with various disorders and their pathogenesis for global skill development.

Course Code	MHSCFN-102T
Course Name	Advanced Food Science – I

COs	Description
CO1	Apply and incorporate the principles of Food Science in practical, real-world situations and problems for skill development.
CO2	Explain the basic principles of sensory analysis and other analytical techniques associated with food to provide national employability & Skills.
CO3	Awareness on the concept of 'new food product development' and current topics of importance to the Food industry to provide employability &global Skills.
CO4	Apply the various techniques in the quality evaluation of foods and demonstrate practical proficiency in food analysis laboratory knowledge for better nationalemployability in industry.

Course Code	MHSCFN-152P
Course Name	Advanced Food Science – I (Practical)

COs	Description
CO1	Apply and incorporate the principles of Food Science in practical, real-world situations and problems for skill development.
CO2	Explain the basic principles of sensory analysis and other analytical techniques associated with food to provide employability & global Skills.
CO3	Impart awareness on the concept of 'new food product development' and current topics of importance to the Food industry to provide employability & global Skills.
CO4	Apply the various techniques in the quality evaluation of foods and demonstrate practical proficiency in food analysis laboratory knowledge for better national employability in industry.

Course Code	MHSCFN-103T
Course Name	Institutional Food Management - I

COs	Description
CO1	Describe the food service management in different setting for better skilling of local entrepreneurship.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Estimate the various types of food service in different situation to provide employability & global Skills.
CO3	Estimate the cost of any meal for skill development.
CO4	Plan and develop different types of menu for food service establishment for global skill development.

Course Code	MHSCFN-104T
Course Name	Research Methods and Statistics – I

COs	Description
CO1	Explain research problems from the formulation of research hypothesis for global skill development.
CO2	Understand the role of review of literature as a primary tool of research to provide national employability & Skills.
CO3	Apply statistical concepts of distribution of data in framing a research problem for global skill development.
CO4	Analyze the significance of the correlation and regression method to provide employability & Skills.

Course Code	MHSCFN-201T
Course Name	Food Microbiology

COs	Description
CO1	Identify the important pathogens and spoilage microorganisms in foods and the conditions under which they grow for skill development.
CO2	Utilize laboratory techniques to identify microorganisms in food to provide national employability & skills.
CO3	Describe role and significance of microbial inactivation, adaptation and environmental factors on growth and response of microorganisms in various environments for global skill development.
CO4	Identify the conditions under which the important pathogens and spoilage microorganisms are commonly inactivated, killed or made harmless in foods for global skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MHSCFN-251P
Course Name	Food Microbiology (Practical)

COs	Description
CO1	Understand the morphology and structural features of various micro-organisms for skill development.
CO2	Comprehend various techniques used for isolation, purification, identification and controlling the growth of micro-organisms for global skill development.
CO3	Assess the microbial safety of personal hygiene, water, milk and other food products to provide national employability & skills.

Course Code	MHSCFN-202T
Course Name	Advanced Food Science-II

COs	Description
CO1	Apply and incorporate the principles of Food Science in practical, real-world situations and problems for global skill development.
CO2	Explain the basic principles of sensory analysis and other analytical techniques associated with food to provide employability & global Skills.
CO3	Impart awareness on the concept of 'new food product development' and current topics of importance to the Food industry to provide employability & global Skills.
CO4	Apply the various techniques in the quality evaluation of foods and demonstrate practical proficiency in food analysis laboratory knowledge for better employability in industry.

Course Code	MHSCFN-252P
Course Name	Advanced Food Science-II (Practical)

COs	Description
CO1	Apply and incorporate the principles of Food Science in practical, real-world situations and problems for skill development.
CO2	Explain the basic principles of sensory analysis and other analytical techniques associated with food to provide employability & Skills.
CO3	Impart awareness on the concept of 'new food product development' and current topics of importance to the Food industry to provide employability & Skills.
CO4	Apply the various techniques in the quality evaluation of foods and demonstrate practical proficiency in a food analysis laboratory knowledge

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	for better national employability in industry.

Course Code	**MHSCFN-203T**
Course Name	**Institutional Food Management-II**

COs	Description
CO1	Describe the food service management in different setting for better skilling of local entrepreneurship.
CO2	Estimate the various types of food service in different situation to provide employability & skills.
CO3	Estimate the cost of any meal for global skill development.
CO4	Plan and develop different types of menu for food service establishment for global skill development.

Course Code	**MHSCFN-204T**
Course Name	**Research Methods and Statistics II**

COs	Description
CO1	Explain research problems from the formulation of research hypothesis for global skill development.
CO2	Explain the significance of research methodology to provide national employability & skills.
CO3	Distinguish between different types of tools and methods of research for global skill development.
CO4	Analyze a research problem and design research proposals and prepare research report to provide employability & global skills.

Course Code	**MHSCFN-301**
Course Name	**Advanced Human Nutrition**

COs	Description
CO1	Critically evaluate and derive requirements for specific macronutrients for skill development and employability.
CO2	Understand critical periods in growth and development and impact of malnutrition for global skill development.
CO3	Assess the nutritional status of children and adults for skill development and employability.
CO4	Appreciate implications of poor dietary and lifestyle practices for skill development and national employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MHSCFN-302
Course Name	**Improving Health and Nutrition**

COs	Description
CO1	Develop understanding about the concept of communication systems for global skill development
CO2	Develop understanding about the theories of communication for skill development and employability
CO3	Understand the concept of the media involved in communication for skill development and national employability.
CO4	Develop understanding regarding diffusion and its core elements for global skill development

Course Code	MHSCFN-303
Course Name	**Food Product – Development safety and Quality Control**

COs	Description
CO1	Understand the nature of microorganisms involved in food spoilage, food infections and intoxications for skill development and national employability.
CO2	Comprehend principles of various preservation and control techniques for skill development and employability
CO3	Understand microbial safety in various foods operations for global skill development and employability
CO4	Familiarize about the food laws and regulations for skill development and employability

Course Code	MHSCFN -304
Course Name	**Nutritional Biochemistry**

COs	Description
CO1	Explain the metabolism carbohydrates, amino acid and lipid: the macronutrient present in the food along with the role played by vitamins and minerals: micronutrients and relationship between human nutrition and metabolism for global skill development
CO2	Develop insight into structure and functioning of carbohydrates, amino acid and lipids for skill development and national employability
CO3	Learn basics of metabolic pathways in the body for global skill

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development
CO4	Understand about the physical properties of water, structure of water molecule and role and types of water in Food for skill development and national employability

Course Code	MHSCFN-305 B
Course Name	**Problems in Human Nutrition**

COs	Description
CO1	Differentiate the nutritional deficiency diseases on the basis of clinical symptoms for global skill development.
CO2	Field survey on biochemical and clinical manifestations, preventive and therapeutic measures of the problems in human nutrition for global skill development.
CO3	Compose various diets with the help of functional foods and nutraceuticals for management of diseases for skill development
CO4	Review prevalence of various diseases in Indian scenario for global skill development.

Course Code	MHSCFN-306 B
Course Name	**Statistical Methods in Food Science and Nutrition**

COs	Description
CO1	Discuss the significance of statistics in the discipline of food science and Nutrition for global skill development
CO2	Describe basic concepts of statistical inferences for skill development
CO3	Describe test of significance for global skill development
CO4	Apply the appropriate statistical technique for analysis and interpretation of data for global skill development

Course Code	MHSCFN-351
Course Name	**Food Product – Development safety and Quality Control**

COs	Description
CO1	Apply the knowledge of quality assurance in food industry for skill development and employability.
CO2	Explore the sensory and nutritional attributes of new products for skill development and national employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Describe the various aspects of food products development for skill development and national employability.
CO4	Plan sensory experiment by designing questionnaire and score card for skill development and employability.

Course Code	MHSCFN- 401
Course Name	**Food Processing and Preservation**
COs	**Description**
CO1	Understand various aspects of processing and quality of food products for skill development and employability
CO2	Ingrain the understanding of post-harvest management of fruits and vegetables for skill development and national employability
CO3	Gain in depth knowledge about processing and preservation techniques and quality aspects of fruits and vegetable for skill development and employability
CO4	To familiarize with food processing equipment's for skill development and global employability

Course Code	MHSCFN402
Course Name	**Institutional Food Management**
COs	**Description**
CO1	Gain expertise to function as a food service manager for global skill development and national employability
CO2	Develop knowledge in managing various food service system for skill development and employability
CO3	Understand and manage resources in a food service institution for skill development and employability
CO4	Provide practical experience in managing food material for food service management Steer expertise to function as a food service manager for skill development and national employability

Course Code	MHSCFN-403
Course Name	**Human Physiology**
COs	**Description**
CO1	Understand the current state of knowledge about the functional organization of the human body for skill development and national

Sanjeev Bhatnagar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability.
CO2	Develop insight of normal functioning of all the organ systems of the body and their interactions for skill development and employability
CO3	Comprehend the pathophysiology of commonly occurring diseases for skill development and national employability
CO4	Correlate physiology with various disorders and their pathogenesis for skill development and national employability

Course Code	MHSCFN-404
Course Name	**Maternal and Child Nutrition**
COs	**Description**
CO1	Physiological changes during pregnancy and lactation periods for global skill development.
CO2	Nutritional needs during pregnancy and lactation periods for global skill development.
CO3	Nutritional managements of common pregnancy complications for skill development.
CO4	Basic concepts of growth and development for global skill development.

Course Code	MHSCFN-405B
Course Name	**Metabolism and Diagnostic Biochemistry**
COs	**Description**
CO1	Explain the metabolism of carbohydrate, lipid and protein for global skill development.
CO2	Explain the macronutrients present in food along with the role played by vitamins and minerals for global skill development.
CO3	Understand the micronutrients and relationship between human nutrition and metabolism for global skill development.
CO4	Carry assessment of nutritional status of individuals through biochemical indices in quantitative terms for global skill development.

Course Code	MHSCFN-406B
Course Name	**Techniques and Instrumentation in nutrition Research**
COs	**Description**
CO1	Familiarized with instruments for global skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Used techniques in food science and nutrition research for skill development.
CO3	Skilled to analyze macro and micro nutrients of food stuffs with precision and accuracy for global skill development.
CO4	Understand about animal experimentation for global skill development.

Course Code	MHSCFN-451
Course Name	Dissertation

COs	Description
CO1	Know the practical aspects of, collecting data/ project workfor skill developmentEvaluate, select and use appropriate strategies for reduction, analysis and presentation of data collected during research process/ project work
CO2	Suitably illustrate data/ insights using various graphical and other methodsfor skill development and national employability.
CO3	Prepare a dissertation document/ project report based on research process/ project work done for skill development and employability.
CO4	Students will be given an option of doing either Dissertation or Project work in a chosen area congruent to their discipline/ field of study for skill development and national employability.

PROGRAMME NAME – B.Sc. (Home Science)

Course Code	BHSC-101T
Course Name	Communication and Extension

COs	Description
CO1	Develop understanding of scope and concepts of human communication for global skill development.
CO2	Comprehend the elements and process of effective communication for global skill development.
CO3	Grasp understanding about various communication methods and materials for skill development.
CO4	Learn the concept of extension, its philosophy, principles and scope for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BHSC-151P
Course Name	Communication and Extension (Practical)

COs	Description
CO1	Develop skills in planning and conducting group communication for global skill development.
CO2	Grasp understanding about various media for skill development and employability.
CO3	Learn the design and use of graphic media for skill development and national employability.

Course Code	BHSC-102T
Course Name	Resource management

COs	Description
CO1	Understand basic concept, universality and scope of resource management for global skill development.
CO2	Familiarize the students with the available resources, their uses and conservation for skill development and employability.
CO3	Understand the processes of management in a scientific manner in the use of resources for better skilling of local entrepreneurship.
CO4	Enriched knowledge on Application of management for skill development and employability.

Course Code	BHSC-152P
Course Name	Resource management (Practical)

COs	Description
CO1	Understand basic concept, universality and scope of resource management for global skill development.
CO2	Familiarize the students with the available resources, their uses and conservation for skill development and employability.
CO3	Understand the processes of management in a scientific manner in the use of resources for better skilling of entrepreneurship.
CO4	Enriched knowledge on Application of management for skill development and national employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BHSC-103T
Course Name	Fashion Studies

COs	Description
CO1	Identify the role and functions of clothing and recognize the factors affecting selection and evaluation of clothing for global skill development.
CO2	Explain the concept of fashion, its terminology, sources and factors affecting it for skill development.
CO3	Describe the global fashion industry and its leading designers for skill development and employability.
CO4	Classify and illustrate various components of garment for better skilling of entrepreneurship.
CO5	Apply the knowledge of elements and principles in design interpretation for skill development and national employability.

Course Code	BHSC-153P
Course Name	Fashion Studies (Practical)

COs	Description
CO1	Identify the role and functions of clothing and recognize the factors affecting selection and evaluation of clothing for global skill development.
CO2	Explain the concept of fashion, its terminology, sources and factors affecting it for skill development.
CO3	Describe the global fashion industry and its leading designers for skill development and employability.
CO4	Classify and illustrate various components of garment for better skilling of local entrepreneurship.
CO5	Apply the knowledge of elements and principles in design interpretation for skill development and national employability.

Course Code	BHSC-104T
Course Name	English language & Communication

COs	Description
CO1	Learners of our course can easily acquire wide knowledge and allow them to be effective in their interpretations for global skill development.
CO2	Skills of LSRW in English make the students to enrich themselves in all aspects and make them to explore and demonstrate an ability to cope up

Sanjeev Dawar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	the life with stylistic clarity for skill development.
CO3	To main outcome of studying English will widely help to express and improve the ability to read works of literary, rhetorical and cultural criticism for global skill development.
CO4	It further makes them to develop and acquire great opportunities that is needed in their future career makes oneself to get good job and soon for skill development and national employability.
CO5	It helps the reader to be fluent in English and makes them to be bold enough wherever they go as they are good in English for skill development and employability.

Course Code	BHSC-201T
Course Name	**Fundamentals of Nutrition and Food Science**

COs	Description
CO1	Comprehend relationship between food, nutrition and health for global skill development.
CO2	Understand functions of various nutrients and their sources & gaining knowledge about clinical manifestations of excess / deficiency of nutrients for skill development.
CO3	Understand the selection, nutritional contribution and changes during cooking of the commonly consumed foods for global skill development.
CO4	Understand the concept of nutrient losses during pre-preparation and preparation of food for skill development and national employability.

Course Code	BHSC-251P
Course Name	**Fundamentals of Nutrition and Food Science (Practical)**

COs	Description
CO1	Gain knowledge about weight and measures for global skill development and national employability.
CO2	Understand the basic preparation and principles for food planning for skill development and national employability.
CO3	Understand the selection, nutritional contribution, recipes and changes during cooking of the commonly consumed foods for better skilling of local entrepreneurship.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BHSC-202T
Course Name	Life Span Development I

COs	Description
CO1	Develop an understanding about the nature of development, Lifespan Development and influence of pregnancy for global skill development.
CO2	Acquire a detailed understanding of developmental milestones and domains from conception to early childhood for skill development.
CO3	Acquire a detailed understanding of developmental milestones and domains from conception to middle childhood for skill development.

Course Code	BHSC-252P
Course Name	Life Span Development I (Practical)

COs	Description
CO1	Develop an understanding about the discipline of Lifespan Development for global skill development.
CO2	Acquire a detailed understanding of developmental milestones and domains from conception to middle childhood for global skill development
CO3	Understand salient features of child development by using primary and secondary methods of data collection for skill development.
CO4	Gain insight about the depiction of children through the use of secondary sources for global skill development.

Course Code	BHSC-203T
Course Name	Fundamentals of Textiles

COs	Description
CO1	Describe textile fibres in terms of their production and properties for better skilling of local entrepreneurship.
CO2	Understand various production techniques and properties of yarns for skill development and national employability
CO3	Develop understanding about fabrics, production techniques, properties and uses for skill development and national employability.
CO4	Understand the basic dyeing, printing and finishing techniques for better skilling of local entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BHSC-253P
Course Name	Fundamentals of Textiles (Practical)

COs	Description
CO1	Describe textile fibres in terms of their production and properties for better skilling of entrepreneurship.
CO2	Understand various production techniques and properties of yarns for skill development and employability.
CO3	Develop understanding about fabrics, production techniques, properties and uses for skill development and national employability.
CO4	Understand the basic dyeing, printing and finishing techniques for better skilling of local entrepreneurship.

Course Code	BHSC-204T
Course Name	Environmental Studies

COs	Description
CO1	Critically examine all sides of environmental issues and apply understanding from disciplines such as history, economics, psychology, law, literature, politics, sociology, philosophy, and religion to create informed opinions about how to interact with the environment on both a personal and a social level for global skill development.
CO2	Understand about the renewable and non renewable resources for skill development.
CO3	Understand about the factors affect the energy and land resources for skill development.
CO4	Gain knowledge about the eco system, biodiversity and causes and effect of environmental pollution for skill development.
CO5	Gain knowledge about the environmental issues and environmental protection act for global skill development.

Course Code	BHSC-301
Course Name	Applied Life Science

COs	Description
CO1	Differentiate between Manure and Fertilizers to provide employability & skills.
CO2	Select best soil for kitchen garden to provide employability & skills.
CO3	Create awareness about how plant parts are useful for human welfare to provide employability & global skills.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	To plan layout of kitchen garden to provide national employability & skills.
CO5	Aware about application of manures and fertilizers for skill development.

Course Code	BHSC-302
Course Name	Consumer Economics

COs	Description
CO1	Having an opportunity to learn about the practical aspects of money management. The knowledge of this aspect would be useful to them in planning their future status as family leaders in dealing with these vital issues for global skill development.
CO2	About the importance of money savings and investment etc so that they can enlighten their elders in managing the family income scientifically for skill development.
CO3	Practical aspects of the market and the way in which they can use their knowledge in developing appropriate buying strategies and in learning how to face the problem of consumer grievances etc to provide employability & global skills.
CO4	The learning of the various aspects specified in the course contents will help the students in developing them as good managers of family income and also as wise customers in the market to provide employability & global skills.
CO5	The tools of redressal of consumer grievances and the legal steps involved in consumer protection have very useful sources of information in facing the problems as consumers and in fighting against unfair trade practices of the traders and manufacturers to provide employability & global skills.

Course Code	BHSC-303
Course Name	Family Dynamics and Child Development

COs	Description
CO1	Understand different concepts related to marriage for skill development.
CO2	Know the different forms of marriage for global skill development.
CO3	Aware of marriage systems among different religions for skill development.
CO4	Know the areas, obstacles and techniques of marital adjustments for global skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Understand the changing trends in gender roles to provide employability & skills.

Course Code	BHSC-304
Course Name	Fabrics and Laundry science

COs	Description
CO1	Understand the methods of application of finishes, laundry equipment for skill development.
CO2	Blueson different textile substrates for global skill development.
CO3	Describe the Stain removal techniques to provide employability & skills.
CO4	Explain about soap and detergents to provide employability & global skills.
CO5	Understand the chemistry and mechanism of action of application of various finishes to provide employability & global skills.

Course Code	BHSC-305
Course Name	Nutritional Biochemistry

COs	Description
CO1	Explain the digestion, absorption and transports in blood circulation of nutrients to provide employability & skills.
CO2	list the organs in the digestive system and steps of the digestion for global skill development.
CO3	Summarize the roles of hormones in digestion for skill development.
CO4	Define the roles of carbohydrates, protein and lipids for skill development.
CO5	Explain the definition and classifications of lipids, protein and carbohydrates for global skill development.

Course Code	BHSC-306
Course Name	Programmes for Rural and Urban Development

COs	Description
CO1	Become familiar with the various approaches for skill development.
CO2	Strategies for improving nutritional and health status to provide employability & skills.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Get exposure to various Government policies for skill development.
CO4	Programmes aimed at improving the nutritional and health status of the population to provide employability & skills.
CO5	Acquire knowledge about the process of planning public health nutrition programmes for global skill development.

Course Code	BHSC-351
Course Name	**Fabric and Laundry Science (Practical)**

COs	Description
CO1	Understand the methods of application of finishes, laundry equipment and blues on different textile substrates to provide employability & global skills.
CO2	Describe the Stain removal techniques to provide employability & skills.
CO3	Explain about Bleach, starching, soap and detergents for global skill development.

Course Code	BHSC-352
Course Name	**Life science (Practical)**

COs	Description
CO1	Differentiate between functions of tools used in gardening to provide employability & global skills.
CO2	Select best soil for kitchen garden for skill development.
CO3	Create awareness about how plant parts are useful for human welfare for skill development.
CO4	To plan layout of kitchen garden for skill development.
CO5	Aware about application of manures and fertilizers for global skill development.

Course Code	BHSC-401
Course Name	**Human Development - I**

COs	Description
CO1	Describe human development for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand three domains: physical, cognitive, and psychosocial development for skill development.
CO3	Explain key human development issues about the nature of change: continuous/discontinuous, one course/multiple courses, and nature/nurture for skill development.
CO4	Describe the basic periods of human development for global skill development.
CO5	Psychological changes during late adulthood for global skill development.

Course Code	BHSC-402
Course Name	Food Microbiology
COs	**Description**
CO1	Understand the morphology and structural features of various micro-organisms for skill development.
CO2	Comprehend various techniques used for isolation, purification and controlling the growth of micro-organisms for global skill development.
CO3	Assess the microbial safety of personal hygiene, water, milk and other food products to provide national employability & skills.
CO4	Explain about food preservation techniques to provide employability & skills.
CO5	Differentiate between food borne infections and intoxication for global skill development.

Course Code	BHSC-403
Course Name	Household Appliances
COs	**Description**
CO1	Understand basics of electricity, modern physics and electronics and the principle and working of different household equipment as well as scientific and clinical instruments to provide employability & global skills.
CO2	Recognize & comply safe working practices, environment regulation and housekeeping for skill development.
CO3	Understand harmful effects of electromagnetic radiations and subsequently make decision while working with different gadgets for global skill development.
CO4	Identify parts/components, front panel controls, install, service,

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	troubleshoot and repair of domestic electronics appliances viz. washing machine, microwave oven, electric kettle, steam iron, rice cooker and mixer- grinder with due care and safety to provide national employability & global skills.
CO5	Explain time management, entrepreneurship and manage/organize related task in day to day work for personal & societal growth to provide employability & global skills.

Course Code	BHSC-404
Course Name	**Introduction of clothing Construction**
COs	**Description**
CO1	Understand about parts and functions of Sewing Machine for global skill development.
CO2	Understand about basic terminology used in clothing construction to provide national employability & skills.
CO3	Explain about pattern making to provide employability & skills.
CO4	Describe about the importance and principles for global skill development
CO5	Understand functions of clothing for global skill development.

Course Code	BHSC-405
Course Name	**Community Development**
COs	
CO1	What is under nutrition and malnutrition – causes, prevalence and its consequences for global skill development.
CO2	Methods of nutritional assessment of individual and group both directly and indirectly to provide national employability & skills.
CO3	The major nutritional problems existing in India- causes, effects, prevention and control measures for skill development.
CO4	Various national nutritional programmes existing in India to combat malnutrition for skill development.
CO5	Role of national and international agencies in improving the nutritional status of population for global skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BHSC-406
Course Name	Family Resource Management
COs	
CO1	Explain scope and significance of management for skill development.
CO2	Importance of Values, goals and standards in the management of Family resources for global skill development.
CO3	The decision making process in resource management and the importance of communication for global skill development
CO4	Application of Management process to resources- particularly time, money and energy to provide national employability & skills.
CO5	Work simplification techniques in family activity management to provide employability & global skills.

Course Code	UDM
Course Name	Disaster Management
COs	
CO1	To assist students develop ability to respond to their environment with potential response to disaster for skill development.
CO2	Learners will be able to understand the basic concept of disaster(s) and disaster management, their significance and types for global skill development.
CO3	Learners will develop the analytical skills to study relationship between vulnerability, disasters, disaster prevention and risk reduction to provide employability & skills.
CO4	Learners will gain a preliminary understanding of approaches to Disaster Risk Reduction (DRR) to provide employability & skills.
CO5	Learners will be empowered with the awareness of institutional processes in the country for Disaster Management for global skill development.

Course Code	BHSC-451
Course Name	Food Microbiology
COs	
CO1	Understand the principles of microorganisms during various food-processing and preservation steps for global skill development.
CO2	Recognize specific types of microbial spoilage during various food shelf life stages for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Describe the situations where improper food handling and storage may lead to the spoilage or contamination of food for skill development.
CO4	Discuss the rationale for the use of standard methods and procedures for the microbiological analysis of food for global skill development.

Course Code	BHSC-452
Course Name	Household Equipments
COs	
CO1	Understand basics of electricity, modern physics and electronics and the principle and working of different household equipment as well as scientific and clinical instruments to provide employability & global skills.
CO2	Recognize & comply safe working practices, environment regulation and housekeeping to provide national employability & skills.
CO3	Understand harmful effects of electromagnetic radiations and subsequently make decision while working with different gadgets to provide employability & global skills
CO4	Identify parts/components, front panel controls, install, service, troubleshoot and repair of domestic electronics appliances viz. washing machine, microwave oven, electric kettle, steam iron, rice cooker and mixer- grinder with due care and safety for global skill development.

Course Code	BHSC-501
Course Name	Nutrition Therapy
COs	
CO1	To acquire basic knowledge of nutrient requirements, recommended dietary allowances, and dietary modification under different physiological conditions to provide employability & global skills.
CO2	To acquire basic knowledge of food groups, food exchange system and their nutritional significance, and application of knowledge acquired for healthy eating to provide national employability & skills.
CO3	To develop practical skills in planning and management of diets for the different age groups under normal/ physiological conditions keeping in mind the dietary guidelines to provide employability & global skills.
CO4	To gain knowledge on the nature and scope of therapeutic nutrition; and understand the principles of dietary modification and apply in planning for global skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	To understand nutrition-related diseases of the: gut, liver, gallbladder, pancreas, and heart for global skill development.

Course Code	BHSC-502
Course Name	Community Development
COs	
CO1	Describe how the resources and services available in your community enhance physical and cultural development to provide national employability & global skills.
CO2	Apply the knowledge of environmental factors that affect community development for skill development.
CO3	Learn about concept and scope of extension in national development for global skill development.
CO4	Understand the principles and process of program design and management to provide employability & global skills.
CO5	Comprehend about the concept of extension teaching process and innovation decision process for global skill development.

Course Code	BHSC-503
Course Name	Family Housing
COs	
CO1	Prepare house plan for better skilling of entrepreneurship.
CO2	Explain about construction and building material for better skilling of entrepreneurship.
CO3	Understand about government housing scheme for global skill development.
CO4	Explain about family for global skill development.

Course Code	BHSC-504
Course Name	Advanced clothing construction
COs	
CO1	Understand the components of a textile fabric to provide employability & g skills.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Identify the various commercially available fabrics to provide employabili skills
CO3	Appropriately select fabrics based on their properties, cost and recommend uses to provide employability & global skills.
CO4	Explain about the importance and principles clothing to provide employabili global skills.
CO5	Differentiate between Traditional Textiles of India to provide employabilit global skills.

Course Code	BHSC 505
Course Name	Management of Meals
COs	
CO1	Understand nutrition considerations during special conditions for children, adults, old age people and specially for pregnant and lactating mother for skill development.
CO2	Modify the normal diet for therapeutic purposes to provide national employability & skills.
CO3	Understand the etiology, clinical features and dietary management in some common disorders / diseases to provide employability & global skills.
CO4	Understand significance of dietary counselin for skill development.
CO5	Be aware of the various aspects of nutrition education and promotion for skill development.

Course Code	BHSC-506
Course Name	The Child with Special Need
COs	
CO1	Understand different concepts of developmental challenges in children for skill development.
CO2	Know the need and importance of special education for children with developmental challenges for global skill development.
CO3	Describe the symptoms of major physical disabilities for global skill development.
CO4	Explain ways to provide appropriate care for children with various physical disabilities for skill development.
CO5	Identify and describe symptoms that signal possible problems associated

Sanjeev Dhawan
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	with various physical impairments and share these observations with parents for global skill development.

Course Code	BHSC-507B
Course Name	**Research Methods in Human Development**
COs	
CO1	Explain the significance of research methodology in human development for skill development.
CO2	Distinguish between different types of tools and methods of research for global skill development.
CO3	Analyze a research problem for global skill development.
CO4	Design research proposals and prepare research report for global skill development.

Course Code	BHSC 508B
Course Name	**Techniques of Studying Human Development and Scientific Writing**
COs	
CO1	Appraise various methods and techniques of studying and researching in human development for global skill development.
CO2	Prepare, implement and evaluate tools appropriate in context of the human development discipline for global skill development.
CO3	Write correct in text citations and complete references in approved style (s) for skill development.
CO4	Communicate effectively with a range of audiences for global skill development.

Course Code	BHSC-551
Course Name	**Nutrition Therapy**
COs	
CO1	To acquire basic knowledge of nutrient requirements, recommended dietary allowances, and dietary modification under different physiological conditions to provide employability & global skills.
CO2	To acquire basic knowledge of food groups, food exchange system and their nutritional significance, and application of knowledge acquired for

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	healthy eating to provide national employability & global skills.
CO3	To develop practical skills in planning and management of diets for the different age groups under normal/ physiological conditions keeping in mind the dietary guidelines to provide employability & global skills.
CO4	To gain knowledge of different types of therapeutic diet for skill development.
CO5	To know the etiology, incidence, nature, clinical symptoms, diagnosis, and medical and dietary management of disease for global skill development.

Course Code	BHSC-552
Course Name	Managements of Meals
COs	
CO1	Understand nutrition considerations during special conditions for children, adults, old age people and specially for pregnant and lactating mother for global skill development.
CO2	Modify the normal diet for therapeutic purposes for skill development.
CO3	Understand the etiology, clinical features and dietary management in some common disorders / diseases for global skill development.
CO4	Understand significance of dietary counselling for global skill development.

Course Code	BHSC-601
Course Name	Food Preservation & protection
COs	
CO1	Apply major food preservation techniques and explain underlying principles to provide employability & global skills.
CO2	Analyze and evaluate novel food processing methods including non-thermal food processing techniques using pressure, light, sound and microwave to provide employability & global skills.
CO3	Outline the purpose and principles of food packaging and examine the operations involved in packaging material manufacture to provide national employability & global skills.
CO4	Critique environmental issues, regulations and quality control associated with food packaging for global skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Identify and evaluate the suitability of processing and packaging techniques for various foods for global skill development.

Course Code	BHSC-602
Course Name	Art Principles and Interior Decoration
COs	
CO1	Apply theory, psychology and methodology of color to designs of the interior environment to provide employability & global skills.
CO2	Explain elements of art and principles of design to provide employability & skills.
CO3	Application of principles of art and design in rural and urban homes to provide employability & skills.
CO4	Understand about color - its importance in interior decoration to provide employability & global skills.
CO5	Understand about color - characteristics and application in interior decoration for global skill development.

Course Code	BHSC-603
Course Name	Textile Design
COs	
CO1	Understand the concept of color and its measurement techniques to provide employability & global skills.
CO2	Describe the process of dyeing of various fibers with different dyes to provide employability & global skills.
CO3	Describe the methods and styles of printing to provide employability & global skills
CO4	Explain about different Embroideries to provide employability & skills.
CO5	Understand about elements and principles of design in relation to textiles to provide employability & global skills.

Course Code	BHSC-604
Course Name	Extension Training & Management
COs	
CO1	Comprehend the relationship between home science educations with extension system for global skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Familiarize with the structural of rural society for global skill development
CO3	Understand functional concepts of rural society for global skill development.
CO4	Acquire Knowledge regarding various existing extension for skill development.
CO5	Acquire Knowledge regarding rural development programmes for global skill development.

Course Code	BHSC-605
Course Name	**Furniture, Furnishings and Fittings**
COs	
CO1	Understand the principles related to furniture design for global skill development.
CO2	Gain an understanding on the basic principles of designing furniture for a house and also the arrangement to provide employability & global skills.
CO3	Get familiarized with the different styles of furniture used to provide employability & global skills.
CO4	Get familiarized with the materials used in furniture to provide employability & global skills.
CO5	Acquire practical knowledge in designing space saving furniture's for different family needs for skill development.

Course Code	BHSC-606
Course Name	**Entrepreneurship Management**
COs	
CO1	To build on personal as well as external resources with a view to successfully launch and subsequently manage their enterprises to provide employability & global skills.
CO2	To assess their strengths and weaknesses as entrepreneurs and identify how to strengthen their skills for better skilling of local entrepreneurship.
CO3	To select appropriate form of business and arrange required start-up capital for better skilling of entrepreneurship.
CO4	Make sales, cost and cash flow plans for better skilling of local entrepreneurship.
CO5	To know the legal responsibilities and advantages of insuring their business for better skilling of local entrepreneurship.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BHSC 607B
Course Name	Child in the Family
COs	
CO1	Understand Family as component of social cultural milieu and context for better skilling.
CO2	Deal the sensitive issues and crisis situations of family for better global global skilling.
CO3	Understand human rights and duties for better skilling.
CO4	Play significant and appropriate role in family and social context for better global skilling.

Course Code	BHSC 608B
Course Name	Adulthood and Ageing
COs	
CO1	Understand developmental changes during adulthood and old age for better global skilling.
CO2	Demonstrate different aspects of development and adjustments with reference to adulthood and old age for better skilling.
CO3	Examine the principles and influencing factors of development with specific focus on adulthood and old age for better global skilling.
CO4	Evaluate the status of adults and elderly in contemporary society for better skilling.

Course Code	BHSC-651
Course Name	Textile design
COs	
CO1	Describe the process of dyeing of various fibers with different dyes for global skill development.
CO2	Understand the mechanism of dyeing with different dyes for global skill development.
CO3	Describe the methods and styles of printing to provide employability & global skills.
CO4	Explain about different Embroideries to provide employability & global skills.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BHSC-652
Course Name	Entrepreneurship Management
COs	
CO1	To build on personal as well as external resources with a view to successfully launch and subsequently manage their enterprises to provide employability & global skills.
CO2	To assess their strengths and weaknesses as entrepreneurs and identify how to strengthen their skills to provide employability & global skills.
CO3	To select appropriate form of business and arrange required start-up capital for global skill development.
CO4	Make sales, cost and cash flow plans for better skilling of local entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

FACULTY OF PHARMACY

PROGRAMME NAME – B. PHARM. (Bachelor of Pharmacy)

Course Code	BP101T
Course Name	Human Anatomy and Physiology-I (Theory)

COs	Description
CO1	Understand the various level of structural organization (cellular and tissue level) of human body for skill development and employability.
CO2	Acquire knowledge about integumentary system and skeletal system for skill development and employability at local and global platform.
CO3	Depict the composition of blood, body fluids and structure and functions of lymphatic system for skill development and employability.
CO4	Understand the structure and functions of peripheral nervous system including special senses for skill development and employability.
CO5	Acquire knowledge of cardiovascular system with special reference to heart and its working for skill development and employability.

Course Code	BP102T
Course Name	Pharmaceutical Analysis (Theory)

COs	Description
CO1	Develop the ideas with the fundamental of analytical chemistry, errors and preparation and standardization of various strength solutions for skill development, entrepreneurship and employability.
CO2	Peculates the basic knowledge in the principles of acid base titration and non-aqueous titration for skill development, entrepreneurship and employability.
CO3	Depict the concept of precipitation, complexometric, gravimetry and diazotisation titration for skill development, entrepreneurship and employability at national and international level.
CO4	Understand the concepts of oxidation and reduction with various types of redox titrations for skill development, entrepreneurship and employability at local, regional and global platform.
CO5	Peculates the basic knowledge in the principles of electrochemical analytical techniques for skill development, entrepreneurship and employability.

Sanjeev Bhardwaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BP103T
Course Name	Pharmaceutics- I (Theory)

COs	Description
CO1	Know the history of profession of pharmacy, basics of different dosage forms, and handling the prescription for skill development and employability at local, regional and global platform.
CO2	Peculates the basic knowledge in the pharmaceutical calculations, powders as dosage form and liquid dosage form for skill development and employability at national and international level.
CO3	Depict the concept of monophasic liquid and biphasic liquid dosage form for skill development, entrepreneurship and employability.
CO4	Understand the definition, types and other details of suppositories and basics of pharmaceutical incompatibilities for skill development, entrepreneurship and employability.
CO5	Peculates the basic knowledge of semisolid dosage forms for skill development, entrepreneurship and employability.

Course Code	BP104T
Course Name	Pharmaceutical Inorganic Chemistry (Theory)

COs	Description
CO1	Acquire knowledge about the sources and types of impurities in inorganic drugs, pharmaceuticals and principles of limit tests for skill development and employability.
CO2	Get familiar with inorganic pharmaceuticals belonging to the class of acid, bases, buffers, electrolytes and dental products with their preparation and analysis for skill development and employability.
CO3	Understand the medicinal and pharmaceutical importance of inorganic compounds belonging to the class gastrointestinal agents with their preparation and analysis for skill development and employability.
CO4	Know the medicinal and pharmaceutical importance of inorganic compounds belonging to expectorant, emetics, haematinics, astringent, poison and its antidote for skill development and employability.
CO5	Peculates the basic knowledge of radiopharmaceuticals for skill development and employability at local, regional and global platform.

Sanjeev Bhawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BP105T
Course Name	Communication Skills (Theory)

COs	Description
CO1	Understand the basics of communication skills including barriers and perspectives in communications for skill development and employability at local, regional and global platform.
CO2	Get familiar with the elements of communication and communication styles which will help to communicate effectively (verbal and non-verbal) for skill development and employability.
CO3	Understand the basics of written communications and listening skills for skill development and employability at national and international level.
CO4	Develop interview skills and presentation skills for skill development and employability at national and international level.
CO5	Know about group discussion and develop communication skills in group discussion for skill development and employability.

Course Code	BP 106RBT
Course Name	Remedial Biology (Theory)

COs	Description
CO1	Understand the basics of living world including definition, diversity, nomenclature and five kingdoms of life and morphology of flowering plants for skill development and employability.
CO2	Know the basic components of anatomy and physiology of digestion, respiration and gain knowledge of body fluids for skill development and employability.
CO3	Understand the basics of anatomy and physiology of excretory, nervous, endocrine and reproductive system for skill development and employability at local, regional and global platform.
CO4	Get familiar with the plants and mineral nutrition with special reference to photosynthesis for skill development and employability.
CO5	Know about the plant growth and its respiration. Also, gain knowledge of concept of cell and various tissue systems for skill development and employability.

Sanjeev Bansal
REGISTRAR.
IFTM UNIVERSITY
MORADABAD

Course Code	BP 106RMT
Course Name	Remedial Mathematics (Theory)

COs	Description
CO1	Understand the concept of partial fraction, logarithms, functions and limits of continuity for skill development and employability.
CO2	Know and apply the concept of matrices and determinants in pharmacy for skill development and employability.
CO3	Understand the concept of calculus for skill development and employability at local, regional and global platform.
CO4	Get familiar with the analytical geometry including straight line and integration for skill development and employability.
CO5	Know the concept of differential equations and Laplace transformation and application of these two in solving pharmacokinetic equations for skill development and employability.

Course Code	BP 201T
Course Name	Human Anatomy and Physiology-Ii (Theory)

COs	Description
CO1	To understand the nervous system, neurons, basic electrophysiology, neurotransmitters etc. along with brain structure, meninges, function as well as spinal cord for skill development and employability.
CO2	To understand the basic anatomy and physiology of digestive system along with energetic and concept of BMR for skill development and employability at local and global platform.
CO3	To understand the anatomy and functioning of respiratory system and urinary system and its disorders.
CO4	To understand the concept regarding the endocrine and exocrine glands and hormonal functions for skill development and employability at national and international level.
CO5	To understand the concept of genes, inheritance and male and female reproductive system for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BP202T
Course Name	Pharmaceutical Organic Chemistry –I (Theory)

COs	Description
CO1	To understand the structure, nomenclature and the type of isomerism of the organic compound for skill development and employability.
CO2	To understand the hybridization, elimination reactions and stability of alkanes, alkenes and conjugated dienes for skill development and employability at national and international level.
CO3	To understand the Rearrangement of carbocations, Substitution nucleophillic reactions of Alkyl halides and related compounds for skill development and employability.
CO4	To understand the carbonyl compounds specially aldehydes, ketones and named reactions for skill development and employability.
CO5	To understand the acidity of carboxylic acids & related compounds, basicity of aliphatic amines and related compounds for skill development and employability.

Course Code	BP203 T
Course Name	Biochemistry (Theory)

COs	Description
CO1	To know the metabolic process of biomolecules and bioenergetics to understand the various physicochemical reactions inside the human body for skill development, entrepreneurship and employability.
CO2	To understand the concept of carbohydrate metabolism and biological oxidation for skill development, entrepreneurship and employability.
CO3	Describe the metabolism of lipid and amino acid in physiological and pathological conditions for skill development, entrepreneurship and employability at local, regional and global platform.
CO4	Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins for skill development, entrepreneurship and employability.
CO5	To know the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes for skill development, entrepreneurship and employability at national and international level.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BP 204T
Course Name	Pathophysiology (Theory)

COs	Description
CO1	To understand the basic concept of homeostasis, pathogenesis, cell injury, inflammation process as well as wound healing mechanism for skill development, entrepreneurship and employability.
CO2	To understand the impaired physiological processes of cardiovascular, renal as well as renal system for skill development, entrepreneurship and employability.
CO3	To understand the impaired disorders of haematological, endocrine, nervous and gastro- intestinal systems for skill development, entrepreneurship and employability.
CO4	To understand the etiology and pathogenesis of bones and joints, liver and cancer disorders for skill development, entrepreneurship and employability at local, regional and global platform.
CO5	To understand regarding the infectious (typhoid, tuberculosis etc) urinary tract and sexually transmitted diseases as well as its management for skill development, entrepreneurship and employability.

Course Code	BP205 T.
Course Name	Computer Applications in Pharmacy (Theory)

COs	Description
CO1	To understand the number system and concept of information systems & software for skill development, entrepreneurship and employability.
CO2	To understand various web technologies and databases for skill development, entrepreneurship and employability.
CO3	To understand various applications of computer in Pharmacy for skill development, entrepreneurship and employability.
CO4	To understand the basic concept of bioinformatics, its databases and impact of bioinformatics in vaccine discovery for skill development, entrepreneurship and employability at national and international level.
CO5	To understand the concept of chromatographic dada analysis (CDS), Laboratory Information management System (LIMS) and Text Information Management System (TIMS) for skill development, entrepreneurship and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BP 206 T.
Course Name	Environmental Sciences (Theory)

COs	Description
CO1	To understand the multidisciplinary nature of environment, renewable and non-renewable resources and associated problems for skill development and employability.
CO2	To understand concept of ecosystem and its conservation for skill development and employability.
CO3	To understand the concept of pollution, causes and preventive measures for skill development and employability.

Course Code	BP301T
Course Name	Pharmaceutical Organic Chemistry –Ii (Theory)

COs	Description
CO1	Gain knowledge about benzene and its derivatives with special emphasis on its structure, reactions and substitution for skill development and employability.
CO2	Acquire the knowledge on preparation and reactions of phenols, aromatic amines and aromatic acids for skill development and employability at national and international level.
CO3	Understand the basic chemistry of fats and oils including its reactions and analytical constants for skill development and employability.
CO4	Get familiar with the synthesis, reactions, structure and medicinal use of polynuclear hydrocarbons for skill development and employability.
CO5	Acquire the knowledge on preparation and reactions of cycloalkanes for skill development and employability.

Course Code	BP302T
Course Name	Physical Pharmaceutics-I (Theory)

COs	Description
CO1	Acquire knowledge regarding solubility of drugs for skill development and employability.
CO2	Understand states of matter and properties of matter. Also gain knowledge on various physicochemical properties of drug molecules in the designing

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	the dosage forms for skill development and employability at local, regional and global platform.
CO3	Explain the surface and interfacial phenomenon including HLB scale and role of surfactants for skill development and employability.
CO4	Describe the concept of complexation and protein binding for skill development and employability.
CO5	Acquire the knowledge regarding physical properties of buffers, isotonicity and pH for skill development and employability.

Course Code	BP 303 T
Course Name	**Pharmaceutical Microbiology (Theory)**
COs	**Description**
CO1	Understand history and scope of microbiology. Also gain knowledge on methods of classification, cultivation and preservation of various microorganisms for skill development, entrepreneurship and employability at national and international level.
CO2	Understand various staining techniques, importance and implementation of sterilization in pharmaceutical processing and industry for skill development, entrepreneurship and employability.
CO3	Explain the basics of fungi and viruses. Also, gain knowledge regarding antiseptic, disinfection and sterility testing for skill development, entrepreneurship and employability.
CO4	Acquire the concept of aseptic area, principles and methods of microbiological assays for skill development, entrepreneurship and employability.
CO5	Know about spoilage of pharmaceutical products and its preservation. Also, understand the basics of cell culture for skill development, entrepreneurship and employability.

Course Code	BP 304 T
Course Name	**Pharmaceutical Engineering (Theory)**
COs	**Description**
CO1	Understand the concept of fluid flow, size reduction and size separation for skill development and employability.
CO2	Acquire knowledge on heat transfer, evaporation and distillation for skill development and employability.
CO3	Explain the basics and equipments used for drying and mixing for skill

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development and employability.
CO4	Know the principles of filtration and centrifugation and equipments used to carry out these operations for skill development and employability at local, regional and global platform.
CO5	Appreciate and comprehend significance of plant lay out design for optimum use of resources and know the various preventive methods used for corrosion control in pharmaceutical industries for skill development and employability.

Course Code	BP401T
Course Name	Pharmaceutical Organic Chemistry –Iii (Theory)
COs	**Description**
CO1	To understand the Optical isomerism and reactions of chiral molecules for skill development and employability.
CO2	To understand the geometrical isomerism, Conformational isomerism, stereo isomerism and stereospecific and stereoselective reactions for skill development and employability.
CO3	To understand the nomenclature and classification Heterocyclic compounds and synthesis, reactions & medicinal uses of five membered heterocyclic rings for skill development and employability.
CO4	To understand the synthesis, reactions & medicinal uses of five membered heterocyclic rings containing more than 2 hetero atom and six membered rings specially nitrogen as hetero atom for skill development and employability at local, regional and global platform.
CO5	To understand Metal hydride reduction, Clemmensen reduction, Birch reduction, Wolff Kishner reduction, Oppenauer-oxidation and Dakin reaction, Beckmanns & Schmidt rearrangement and Claisen-Schmidt condensation for skill development and employability.

Course Code	BP402T
Course Name	Medicinal Chemistry – I (Theory)
COs	**Description**
CO1	To understand the concept of physicochemical properties in relation to biological action and drug metabolism studies for skill development and employability.
CO2	To understand the drugs acting on Autonomic Nervous System especially Adrenergic Neurotransmitter, Sympathomimetic agents and Adrenergic

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Antagonists for skill development and employability.
CO3	To understand Cholinergic neurotransmitters especially para sympathomimetic agents both direct and indirect, cholinesterase reactivator, cholinergic blocking agents, solanaceous alkaloids and analogues and synthetic cholinergic blocking agents for skill development and employability.
CO4	To understand drugs acting on central nervous system specially sedatives and hypnotics, antipsychotics and anticonvulsants for skill development and employability.
CO5	To understand drugs acting on central nervous system especially general anesthetics and narcotic and non-narcotic analgesics for skill development and employability.

Course Code	BP 403 T
Course Name	**Physical Pharmaceutics-II (Theory)**
COs	**Description**
CO1	To understand the dispersed system, classification, kinetic and electrical properties and phenomenon of coacervation and peptization for skill development and employability.
CO2	To understand the basics regarding different fluid behavior and deformation of solids for skill development and employability.
CO3	To understand the various dispersion systems, characteristics and problems associated with it for skill development and employability.
CO4	To know the significance of particle size distribution, weight distribution, methods for determination as well as powder characteristics for skill development and employability.
CO5	To understand the stability studies, shelf life and methods for determination of shelf life for skill development and employability.

Course Code	BP 404 T
Course Name	**Pharmacology-I (Theory)**
COs	**Description**
CO1	To understand the concept of Pharmacology, pharmacodynamic and pharmacokinetics for skill development and employability.
CO2	To understand the concept of receptor, drug-receptor interaction, adverse drug reactions, drug interactions as well as drug discovery and clinical evaluation for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	To understand the concept of ANS, neuronal transmission, neuro-muscular blocking agents, myasthenia gravis and glaucoma etc for skill development and employability at national and international level.
CO4	To understand the pharmacology of anaesthetics, sedative, hypnotics and anti-epileptics for skill development and employability.
CO5	To study the psychopharmacological agents and CNS disorders like Parkinson's diseases, Opioid analgesic, drug addiction and drug abuse for skill development and employability.

Course Code	BP 405 T
Course Name	Pharmacognosy and Phytochemistry I (Theory)
COs	**Description**
CO1	To know the Pharmacognosy, sources, classification of crude drugs along with quality control measures for skill development, entrepreneurship and employability.
CO2	To understand the Cultivation, Collection, Processing and storage of crude drugs along with conservation of medicinal plants for skill development, entrepreneurship and employability.
CO3	To understand the Plant tissue culture and concept of edible vaccines for skill development, entrepreneurship and employability.
CO4	To know the importance of Indian system of medicine as well as secondary metabolites for skill development, entrepreneurship and employability at local, regional and global platform.
CO5	To understand concept of Primary metabolites and plant products like plant fibres, teratogens etc for skill development, entrepreneurship and employability.

Course Code	BP501T
Course Name	Medicinal Chemistry – II (Theory)
COs	**Description**
CO1	Understand the chemistry, mechanism of action, uses and structure activity relationship of drugs related to Antihistaminic agents, Gastric Proton pump inhibitors and Anti-neoplastic agents for skill development and employability.
CO2	Understand the chemistry, mechanism of action, uses and structure activity relationship of drugs acting as Anti-anginal, Vasodilators, Calcium channel blockers, Diuretics and Anti- hypertensive Agents for skill development and

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability at national and international level.
CO3	Understand the chemistry, mechanism of action, uses and structure activity relationship of Anti-arrhythmic Drugs, Anti-hyperlipidemic agents, Coagulants & Anticoagulants along with drugs used in Congestive Heart Failure for skill development and employability.
CO4	Understand the chemistry, mechanism of action, uses and structure activity relationship of drugs acting on endocrine system for skill development and employability at local, regional and global platform.
CO5	Understand the chemistry of Antidiabetic drugs, Local Anaesthetics, and some Miscellaneous drugs for skill development and employability.

Course Code	BP 502 T
Course Name	Industrial Pharmacy I (Theory)
COs	**Description**
CO1	Learn various preformulation parameters including physicochemical properties of drug affecting formulation of a dosage form for skill development, entrepreneurship and employability.
CO2	Understand the formulation and evaluation of tablets and liquid orals using established procedures and technology for skill development, entrepreneurship and employability.
CO3	Understand the formulation and evaluation of soft and hard gelatin capsules and pellets for skill development, entrepreneurship and employability at local, regional and global platform.
CO4	Learn the preformulation factors, standards, evaluation, packaging of parenterals and ophthalmic preparations for skill development, entrepreneurship and employability.
CO5	Understand the formulation of cosmetic products and aerosols. Learn the packaging materials science of pharmaceutical products for skill development, entrepreneurship and employability.

Course Code	BP503 T
Course Name	Pharmacology-II (Theory)
COs	**Description**
CO1	Understand the mechanism of drugs acting on cardiovascular system and its relevance in the treatment of different cardiovascular disease for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the mechanism of drugs acting on urinary system and cardio vascular system. Its relevance in the treatment of urinary system and cardio vascular system diseases for skill development and employability.
CO3	Understand the classification, mechanism of action, pharmacological action, pharmacokinetic, therapeutic uses and contraindications of autacoids and related drugs for skill development and employability at local, regional and global platform.
CO4	Learn the classification, mechanism of action, indications, and side effects of drugs for the treatment of endocrine and metabolic diseases for skill development and employability.
CO5	Understand the pharmacology of endocrine drugs and learn the bioassay techniques for skill development and employability.

Course Code	BP504 T
Course Name	**Pharmacognosy and Phytochemistry II (Theory)**
COs	**Description**
CO1	Attain knowledge about basic metabolic pathways of higher plants using radio isotopes for skill development, entrepreneurship and employability at national and international level.
CO2	Understand application, therapeutic importance and chemical origin of various secondary plant metabolites for skill development, entrepreneurship and employability.
CO3	Learn isolation, identification and analysis of phytoconstituents for skill development, entrepreneurship and employability.
CO4	Acquire knowledge about industrial production and utilization of some important phytoconstituents for skill development, entrepreneurship and employability.
CO5	Understand modern separation and identification techniques like extraction, electrophoresis, spectroscopy and chromatography etc for skill development, entrepreneurship and employability.

Course Code	BP 505 T
Course Name	**Pharmaceutical Jurisprudence (Theory)**
COs	**Description**
CO1	Understand legal requirements related Drugs and Cosmetics Act, 1940 and its rules 1945 for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Learn basic knowledge of schedules, rules related to sale, labeling & packaging of drugs and administration of the act as per drug and cosmetic act 1940 for skill development and employability.
CO3	Understand Pharmacy Act –1948, Medicinal and Toilet Preparation Act – 1955 and Narcotic Drugs and Psychotropic substances Act-1985 and Rules for skill development and employability.
CO4	Understand about Salient Features of Drugs and Magic Remedies Act and its rules; and Prevention of Cruelty to animals Act-1960; and National Pharmaceutical Pricing Authority for skill development and employability at national and international level.
CO5	Understand about the Pharmaceutical Legislations, various codes of ethics, Medical Termination of Pregnancy Act, Right to Information Act, Introduction to Intellectual Property Rights (IPR) related to practice standards in pharmacy for skill development and employability.

Course Code	**BP601T**
Course Name	**Medicinal Chemistry – III (Theory)**
COs	**Description**
CO1	Understand the historical background, Nomenclature, Stereochemistry, Structure activity relationship, Chemical degradation classification and important products of β-Lactam antibiotics, Aminoglycosides and Tetracyclines for skill development and employability.
CO2	Learn the historical background, nomenclature, stereochemistry, structure activity relationship, classification of macrolides /anti-malarials and cencepts of prodrugs for skill development and employability at local, regional and global platform.
CO3	Understand the chemistry of drugs with respect to their biological activity, metabolism, adverse effect and therapeutic activity of anti-tubercular Agents, urinary tract anti-infective agents and antiviral agents for skill development and employability.
CO4	To understand the introduction, classification, mechanism of action, SAR, uses and adverse drug reactions of anti-fungal, anthelmintic, anti-protozoal and sulphonamides for skill development and employability.
CO5	Understand the different modern techniques of drug design including QSAR, Molecular modeling, Docking and the Concept of Combinatorial Chemistry for skill development and employability

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BP602 T
Course Name	Pharmacology-III (Theory)

COs	Description
CO1	Understand the mechanism of drug acting on respiratory system and gastrointestinal tract and its relevance in the treatment of different respiratory system and gastrointestinal tract disease for skill development and employability.
CO2	Understand the general principles of chemotherapy, mechanism of action of antibiotics of different classes and their relevance in the treatment of various infectious diseases for skill development and employability at national and international level.
CO3	Understand the mechanism of action of antitubercular agents, antileprotic agents, antifungal agents, antiviral drugs, anthelmintics, antimalarial drugs, antiamoebic agents and its relevance in the treatment of different diseases for skill development and employability at local, regional and global platform.
CO4	Understand the mechanism of action of drugs used in urinary tract infections, sexually transmitted diseases and and its relevance in the treatment of different disease. Learn about immunostimulants and immunosuppressant for skill development and employability.
CO5	Comprehend the principles of toxicology and treatment of various poisonings and learn about biological clock and their significance leading to chronotherapy for skill development and employability.

Course Code	BP 603 T
Course Name	Herbal Drug Technology (Theory)

COs	Description
CO1	Understand transformation of raw materials into herbal drugs and ayurvedic formulations for skill development, entrepreneurship and employability at national and international level.
CO2	Learn about nutraceuticals and herbal-drug and herb-food interactions for skill development, entrepreneurship and employability.
CO3	Understand role of herbs as cosmetic, excipients in formulations for skill development, entrepreneurship and employability.
CO4	Learn about evaluation of drugs, patenting, regulatory requirements and regulatory issues related to natural products for skill development, entrepreneurship and employability.
CO5	Understanding GMP in herbal drug industry for skill development,

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	entrepreneurship and employability.

Course Code	BP 604 T
Course Name	Biopharmaceutics and Pharmacokinetics (Theory)
COs	**Description**
CO1	Understand the basic concepts in biopharmaceutics related to absorption and distribution of drugs for skill development and employability at national and international level.
CO2	Understand the basic concepts in biopharmaceutics related to elimination, bioavailability and bioequivalence of drugs for skill development and employability.
CO3	Analyze various pharmacokinetic parameters, understanding of their significance and applications for skill development and employability.
CO4	Knowledge about multicompartmnet models and kinetics of multiple dosing for skill development and employability.
CO5	Understand the basic concept of nonlinear pharmacokinetics for skill development and employability.

Course Code	BP 605 T
Course Name	Pharmaceutical Biotechnology (Theory)
COs	**Description**
CO1	Understand the production of immobilized enzymes and principles of biosensor, genetic and protein engineering for skill development and employability.
CO2	Learn about rDNA technology and PCR principles and applications for skill development and employability.
CO3	Understand the concept of immunity, vaccines, blood products, plasma substitutes and hybridoma technology for skill development and employability at local, regional and global platform.
CO4	Analyze the immuno blotting techniques, understand microbial genetics and mutations concept for skill development and employability.
CO5	Learn about fermentation methods for production of pharmaceuticals and concept of blood products for skill development and employability at national and international level.

Sanjiv Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BP606T
Course Name	Pharmaceutical Quality Assurance (Theory)

COs	Description
CO1	Understand the concepts of Quality Assurance, Quality Management and Total Quality Management. Learn ICH Stability testing guideline, QbD program, benefits of ISO 9000 & ISO14000 and NABL accreditation for skill development and employability.
CO2	Learn guidelines about organization, personnel and premises and understand the requirement of equipments and raw materials for skill development and employability at local, regional and global platform.
CO3	Understand Good Laboratory Practices and learn quality control test for containers, rubber closures and secondary packing materials for skill development and employability
CO4	Learn evaluation of complaints, handling of return good, recalling and waste disposal and document maintenance in pharmaceutical industry for skill development and employability.
CO5	Understand calibration, validation and good warehousing practices for skill development and employability.

Course Code	BP701T
Course Name	Instrumental Methods of Analysis (Theory)

COs	Description
CO1	Understand the theory, instrumentations and applications of Ultravoilet spectroscopy and Fluorimetry for skill development, entrepreneurship and employability.
CO2	Attain knowledge about the theory, instrumentations and applications of IR spectroscopy, Atomic absorption spectroscopy, Flame Photometry and Nepheloturbidometry for skill development, entrepreneurship and employability at local, regional and global platform.
CO3	Learn the basic concept, instrumentation and applications of of Chromatographic techniques like Column chromatography, Thin layer chromatography, Paper chromatography, Electrophoresis for skill development, entrepreneurship and employability.
CO4	Describe the instrumentation, applications, advantages and disadvantages of Gas chromatography and High performance liquid chromatography for skill development, entrepreneurship and employability at national and international level.
CO5	Know about the instrumentation, applications, advantages and disadvantages

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	of Ion exchange chromatography, Gel Chromatography and Affinity Chromatography for skill development, entrepreneurship and employability.

Course Code	BP 702 T
Course Name	Industrial Pharmacy II (Theory)
COs	**Description**
CO1	Learn the process of pilot plant scale up of pharmaceutical dosage forms for skill development, entrepreneurship and employability.
CO2	Understand the practice and the process of technology transfer from lab scale to commercial for skill development, entrepreneurship and employability at local, regional and global platform.
CO3	Learn the approval process and regulatory requirements of the new drug products for skill development, entrepreneurship and employability at national and international level.
CO4	Understand the concept of quality management systems of the products for skill development, entrepreneurship and employability.
CO5	Understand the role and responsibility of national and state licensing authority; and regulatory agencies in the approval of drugs for skill development, entrepreneurship and employability.

Course Code	BP 703 T
Course Name	Pharmacy Practice (Theory)
COs	**Description**
CO1	Understand classification, function, organization of hospitals, community pharmacy and learn the concepts of adverse drug reactions for skill development, entrepreneurship and employability.
CO2	Understand drug distribution systems in a hospital and learn concept of hospital formulary, therapeutic drug monitoring, medication adherence, patient medication history interview and community pharmacy management for skill development, entrepreneurship and employability at local, regional and global platform.
CO3	Understand organization and function of pharmacy and therapeutic committee and concepts of drug information services, patients counseling, education, training programs in the hospital, prescribed medication order and communication skills for skill development, entrepreneurship and employability.
CO4	Understand functions and responsibilities of clinical pharmacist and learn

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	the concepts of over the counter (OTC) sales, process of budget preparation and implementation for skill development, entrepreneurship and employability.
CO5	Understand drug store management and inventory control and learn the concepts of investigational use of drugs and interpretation of clinical laboratory tests for skill development, entrepreneurship and employability.

Course Code	**BP 704 T**
Course Name	**Novel Drug Delivery Systems (Theory)**
COs	**Description**
CO1	Learn the various approaches to design controlled/sustained release drug delivery systems and attain knowledge about polymers in the formulation of controlled/sustained release drug delivery systems for skill development and employability.
CO2	Understand the formulation approaches, mechanism, applications, advantages and disadvantages of microencapsulation, mucosal drug delivery system and implantable drug delivery systems for skill development and employability.
CO3	Learn the formulation approaches, mechanism, applications, advantages and disadvantages of transdermal drug delivery system, gastroretentive drug delivery system and nasopulmonary drug delivery systems for skill development and employability.
CO4	Understand the various approaches for the development of targeted drug delivery systems for skill development and employability.
CO5	Understand the development of ocular formulations and intra uterine devices (IUDs) and its applications for skill development and employability.

Course Code	**BP 801 T**
Course Name	**Biostatisitcs and Research Methodology (Theory)**
COs	**Description**
CO1	An Understanding about various statistical methods such as Frequency distribution, standard deviation, Karl Pearson's coefficient of correlation etc. to solve different types of problems for skill development, entrepreneurship and employability.
CO2	Learn about the basic concepts of statistics, Graphics, Correlation, Regression, logistic regression Probability theory, Sampling technique,

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Parametric tests and ANOVA for skill development, entrepreneurship and employability at national and international level.
CO3	To understand significance and applications of various Non-Parametric tests, Introduction to Design of Experiments, Phases of Clinical trials and Observational & Experimental studies for skill development, entrepreneurship and employability.
CO4	To Understand implementation and analyzing the statistical data using Excel, SPSS, R and MINITAB statistical software's for skill development, entrepreneurship and employability.
CO5	An Understand basic concept and Optimization Techniques of Factorial Design, Central composite design and Historical design for skill development, entrepreneurship and employability.
Course Code	**BP 802 T**
Course Name	**Social And Preventive Pharmacy**
COs	**Description**
CO1	An Understanding about fundamentals of public health and prevention of diseases ability to use principles of therapeutics, quality improvement, communication, economics, health behavior, social and administrative aspects, health policy and legal issues in the practice of pharmacy for skill development and employability.
CO2	An Understanding about prevention programs of communicable and non-communicable diseases for skill development and employability.
CO3	To understand basic Knowledge about National health programs, its objectives & functions for skill development and employability.
CO4	To understand basic Knowledge about National health intervention programme for mother and child, National family welfare programme, National tobacco control programme, National Malaria Prevention Program, National programme for the health care for the elderly for skill development and employability.
CO5	An Understand basic concept of Health promotion and Health education for skill development and employability.

Course Code	**BP 803ET**
Course Name	**Pharma Marketing Management (Theory)**
COs	**Description**
CO1	An Understanding about fundamentals of marketing concepts and techniques and their applications in the pharmaceutical industry and also

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	learn about the basic concepts of market research and its applications for skill development, entrepreneurship and employability.
CO2	To know basic knowledge about product portfolio and analysis of product research for skill development, entrepreneurship and employability at local, regional and global platform.
CO3	To understand basic Knowledge about product promotion and OTC drug product for skill development, entrepreneurship and employability.
CO4	To understand basic Knowledge about channels of pharmaceutical marketing and salesmanship for skill development, entrepreneurship and employability at national and international level.
CO5	To understand basic concept of pricing of the product and global marketing for skill development, entrepreneurship and employability.

Course Code	BP 804ET
Course Name	Pharmaceutical Regulatory Science (Theory)
COs	**Description**
CO1	An Understanding about advanced knowledge & learn concepts of drug discovery & generic drugs and their developments, clinical & non-clinical studies for skill development, entrepreneurship and employability.
CO2	Understand about regulatory requirements of IND, NDA & ANDA for product approval and regulatory filings in different countries for skill development, entrepreneurship and employability.
CO3	Learn about Registration process of Indian drug products in overseas market for skill development, entrepreneurship and employability.
CO4	An understanding of Basic requirements for approval and safety monitoring to conduct clinical trials and Pharmacovigilance for skill development, entrepreneurship and employability.
CO5	An understanding about basics of Regulatory Concepts, Laws, Acts and Code of Federal Regulation for skill development, entrepreneurship and employability.

Course Code	BP 809ET
Course Name	Cosmetic Science (Theory)
COs	**Description**
CO1	An understanding about fundamentals and key ingredients used in cosmetics and cosmeceuticals for skill development, entrepreneurship and employability.

Sanjeev Bijarnia
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Learn about the key building blocks for various formulations and basic science to develop cosmetics and cosmeceuticals for skill development and employability.
CO3	To understand the basic Knowledge about role of different herbs used in cosmetic formulations for skill development, entrepreneurship and employability at national and international level.
CO4	To understand Scientific knowledge to develop cosmetics and its evaluation with desired Safety, stability, and efficacy for skill development, entrepreneurship and employability.
CO5	Basic understanding about Cosmetic problems associated with various products applied on skin, hair and scalp for skill development, entrepreneurship and employability.

Course Code	BP 810ET
Course Name	Experimental Pharmacology
COs	**Description**
CO1	Understand the applications of various commonly used laboratory animals, route of drug administration, euthanasia and functions of CPCSEA for skill development, entrepreneurship and employability.
CO2	Understand the preclinical screening models for analgesics and antipyretic, general anesthetics antidepressant activity and dose selection, calculation and conversions for skill development, entrepreneurship and employability at national and international level.
CO3	Know about the preclinical screening models for sympathomimetics, skeletal muscle relaxants and drug acting on eye for skill development, entrepreneurship and employability.
CO4	Understand the preclinical screening models for antiulcer, anticancer, antihyperlipidemic activity, and antidiabetic activity for skill development, entrepreneurship and employability.
CO5	Understand the definition of research, selection of research topic, graphical representation of data, ANOVA for skill development, entrepreneurship and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – Master of Pharmacy (Pharmaceutical Chemistry)

Course Code	(MPC101T)
Course Name	Modern Pharmaceutical Analytical Techniques

COs	Description
CO1	Understand theory, instrumentation and applications of various spectroscopic techniques for skill development, entrepreneurship and employability at national and international level.
CO2	Know about the concept and applications of NMR spectroscopy for skill development, entrepreneurship and employability.
CO3	Learn theory, instrumentation and applications of Mass spectroscopy for skill development, entrepreneurship and employability.
CO4	Understand principle and instrumentation of various chromatographic methods for skill development, entrepreneurship and employability.
CO5	Understand electrophoresis, X-Ray Crystallography, potentiometry, different thermal techniques and/or immunological assay for skill development, entrepreneurship and employability.

Course Code	(MPC102T)
Course Name	Advanced Organic Chemistry – I

COs	Description
CO1	Understand the basic aspects of organic chemistry, addition reactions, elimination and rearrangement reactions for skill development and employability.
CO2	Describe the mechanism and synthetic applications of various name reactions for skill development and employability.
CO3	Learn about various synthetic reagents and protecting groups for skill development and employability at national and international level.
CO4	Describe the mechanism and applications of various organic name reactions and synthesis of heterocyclic compounds for skill development and employability.
CO5	Learn the synthon approach and retero synthesis for skill development and employability at local, regional and global platform.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	(MPC103T)
Course Name	Advanced Medicinal Chemistry – I

COs	Description
CO1	Understand the concept of drug discovery and biological drug targets for skill development and employability.
CO2	Attain knowledge about prodrug design, analogue design and drug resistance for skill development and employability.
CO3	Describe the chemistry, SAR, Mechanism of Action and synthesis of new generation molecules of different classes of drugs for skill development and employability.
CO4	Understand the rational design of enzyme inhibitors for skill development and employability at local, regional and global platform.
CO5	Learn about the autacoids, peptidomimetics and design of peptodomimetics for skill development and employability.

Course Code	(MPC104T)
Course Name	Chemistry of Natural Products

COs	Description
CO1	Attain detailed knowledge about chemistry of medicinal compounds from natural origin as lead molecule for drug discovery for skill development, entrepreneurship and employability.
CO2	Understand classification, isolation, general methods of structural elucidation of naturalcompounds like alkaloids, flavonoids and steroids for skill development, entrepreneurship and employability.
CO3	Understand isolation, purification and characterization of terpenoids and learn chemistryand importance of vitamins for skill development, entrepreneurship and employability at national and international level.
CO4	Understand the concept of rDNA technology for drug discovery and to identify the activeconstituent of crude drugs used in indigenous system for skill development, entrepreneurship and employability.
CO5	Understand structural characterization of natural compounds by spectroscopic methods for skill development, entrepreneurship and employability at local, regional and global platform.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	(MPC201T)
Course Name	Advanced Spectral Analysis

COs	Description
CO1	Acquire the knowledge about theoretical principles of UV, IR Spectroscopy and Woodward- Fieser rule for skill development, entrepreneurship and employability at national and international level.
CO2	Understand the NMR Spectroscopy 1-D and 2-D NMR, NOESY and COSY, HECTOR,INADEQUATE techniques, and Interpretation of the NMR of various organic compounds for skill development, entrepreneurship and employability.
CO3	Understand the Principle of Mass Spectroscopy Mass fragmentation and its rule, Mc Lafferty rearrangement, Ring rule, Isotopic peaks, Interpretation of organic compounds for skill development, entrepreneurship and employability.
CO4	Understand the Principle, Instrumentation and Applications of Various Chromatographytechniques for skill development, entrepreneurship and employability.
CO5	Learn the general theory and principles of thermal analysis, Raman spectroscopy, Bioassay and ELISA and techniques involved in radioimmuno assay for skill development, entrepreneurship and employability at local, regional and global platform.

Course Code	(MPC202T)
Course Name	Advanced Organic Chemistry - II

COs	Description
CO1	Learn about the concept of green chemistry, microwave assisted reactions, ultrasoundassisted reactions and continuous flow reactors for skill development and employability.
CO2	Gain knowledge about peptide chemistry for skill development and employability at national and international level.
CO3	Know about the photochemical reactions and pericyclic reactions for skill development and employability.
CO4	Understand heterogeneous catalysis, homogenous catalysis, transition-metal and organo- catalysis in organic synthesis, metal-catalyzed reactions, biocatalysis and phase transfer catalysis for skill development and employability.
CO5	Know about the concept of stereochemistry and asymmetric synthesis for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	(MPC203T)
Course Name	COMPUTER AIDED DRUG DESIGN

COs	Description
CO1	Attain detailed knowledge about computer aided drug design and quantitative structure activity relationships for skill development, entrepreneurship and employability.
CO2	Understand Hansch analysis, Free Wilson analysis, 2D-QSAR equations, 3D-QSAR approaches, contourmap analysis and Statistical methods used in QSAR for skill development, entrepreneurship and employability at national and international level.
CO3	Understand molecular modeling and docking for skill development, entrepreneurship and employability.
CO4	Understand the concept of molecular properties and drug design for skill development, entrepreneurship and employability.
CO5	Understand pharmacophore mapping and virtual screening for skill development, entrepreneurship and employability.

Course Code	(MPC204T)
Course Name	Pharmaceutical Process Chemistry

COs	Description
CO1	Learn the process chemistry, stages of scale up process, case studies of some scale up process of APIs and impurities in API for skill development and employability.
CO2	Attain detailed knowledge about extraction, filtration, distillation, evaporation and crystallization for skill development and employability.
CO3	Attain detailed knowledge about nitration, halogenation and oxidation for skill development and employability
CO4	Understand the reduction, catalyst, metal hydrides, fermentation, production of various pharmaceutically active drugs and reaction progress kinetic analysis for skill development and employability.
CO5	Understand the industrial safety, MSDS, personal protection equipment, firehazards, fire-extinguishers, OHSAS-1800, ISO-14001,

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	effluents and its management for skill development and employability.

Course Code	MRM301T
Course Name	Research Methodology & Biostatistics

COs	Description
CO1	Learn the general research methodology for skill development and employability at national and international level.
CO2	Learn the biostatistics, sample size, statistical tests of significance, parametric tests, non- parametric tests, null hypothesis, P values, degree of freedom and interpretation of P values for skill development and employability.
CO3	Attain detailed knowledge about medical Research for skill development and employability at local, regional and global platform.
CO4	Understand the CPCSEA guidelines for laboratory animal facility for skill development and employability.
CO5	Understand the declaration of Helsinki, basic principles for all medical research andadditional principles for medical research combined with medical care for skill development and employability.

PROGRAMME NAME – Master of Pharmacy (Pharmacology)

Course Code	MPL101T
Course Name	Modern Pharmaceutical Analytical Techniques

COs	Description
CO1	Understand theory, instrumentation and applications of various spectroscopic techniques for skill development, entrepreneurship and employability at local, regional and global platform.
CO2	Know about the concept and applications of NMR spectroscopy for skill development, entrepreneurship and employability.
CO3	Learn theory, instrumentation and applications of Mass spectroscopy for skill development, entrepreneurship and employability.
CO4	Understand the principle and instrumentation of various chromatographic methods for skill development, entrepreneurship and employability at national and international level.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Understand electrophoresis, X-Ray Crystallography, potentiometry, different thermal techniques and/or immunological assay for skill development, entrepreneurship and employability.

Course Code	(MPL102T)
Course Name	Advanced Pharmacology-I

COs	Description
CO1	Understand general pharmacology including pharmacokinetics and pharmacodynamics for skill development, entrepreneurship and employability at national and international level.
CO2	Understand the concepts of neurohumoral synthesis, release and transmission of various neurotransmitters along with peripheral nervous system pharmacology for skill development, entrepreneurship and employability.
CO3	Understand the central nervous system and associated diseases with their drug classification and pharmacological activity for skill development, entrepreneurship and employability.
CO4	Understand drug classification and pharmacological actions of cardiovascular and haematopoetic system along with associated diseases for skill development, entrepreneurship and employability.
CO5	Understand the physiology and pharmacology of different autocoids along with their drug classification for skill development, entrepreneurship and employability.

Course Code	MPL103T
Course Name	Pharmacological and Toxicological Screening Methods – I

COs	Description
CO1	Understand various regulations and ethical requirements for the usage of experimental animals and bioassay concept for skill development and employability at national and international level.
CO2	Learn various screening methods involved in the drug discovery process in CNS and ANS for skill development and employability.
CO3	Learn screening methods involved in the drug discovery process in respiratory pharmacology, reproductive pharmacology, analgesics, anti-inflammatory and antipyretic agents along with gastrointestinal drugs for skill development and employability.
CO4	Describe the various screening methods involved in the drug discovery

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	process in cardiovascular pharmacology and drugs for metabolic disorders and hepatoprotective agents for skill development and employability at local, regional and global platform.
CO5	Understand general principles of immunoassay along with extrapolation of in vitro data to preclinical and preclinical to humans for skill development and employability.

Course Code	MPL104T
Course Name	Cellular and Molecular Pharmacology

COs	Description
CO1	Understand the cell biology for skill development and employability.
CO2	Understand outline of cells communication and main sequences of events essential for cell-cell communication for skill development and employability at national and international level.
CO3	Understand critical analysis of methods and principles of genome sequencing and genome mapping for skill development and employability at local, regional and global platform.
CO4	Understand the pharmacogeomics and immunotherapeutics for skill development and employability.
CO5	Learn the cell culture techniques and biosimilars for skill development and employability.

Course Code	MPL201T
Course Name	Advanced Pharmacology - II

COs	Description
CO1	Attain detailed knowledge about Endocrine Pharmacology, Molecular & cellular mechanism of action of hormones, anti-thyroid drugs, oral hypoglycemic agents, oral contraceptives and Corticosteroids for skill development and employability.
CO2	Understand the chemotherapy, molecular and cellular mechanism of action of antimicrobialagents for skill development and employability.
CO3	Understand the drugs used in protozoal infections, helminthiasis. Also, learn about chemotherapy of cancer, immunopharmacology, immunosuppressants and immunostimulants for skill development and employability at national and international level.
CO4	Understand the pharmacology related to GIT and chronopharmacology

Sanjeev Dayal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	for skill development and employability.
CO5	Understand Free radical pharmacology and recent advances in treatment such as Alzheimer's disease, Parkinson's disease, Cancer, Diabetes Mellitus for skill development and employability

Course Code	MPL202T
Course Name	Pharmacological and Toxicological Screening Methods-II

COs	Description
CO1	Learn about the toxicology, OECD, ICH, EPA guidelines, Schedule Y and OECD principles of good laboratory practice for skill development and employability.
CO2	Attain detailed knowledge about Acute, sub-acute, chronic-oral, dermal, inhalational, acute eye irritation, skin sensitization, dermal irritation & dermal toxicity studies and test item characterization for skill development and employability.
CO3	Attain detailed knowledge about reproductive toxicology studies, genotoxicity studies and in vivo carcinogenicity studies for skill development and employability at local, regional and global platform.
CO4	Understand the IND enabling studies and safety pharmacology studies for skill development and employability.
CO5	Understand the toxicokinetics and alternative methods to animal toxicity testing for skill development and employability

Course Code	MPL203T
Course Name	Principles of Drug Discovery

COs	Description
CO1	Learn about the modern drug discovery process, target discovery and validation for skill development and employability.
CO2	Attain detailed knowledge about lead identification, combinatorial chemistry, high throughput screening, lead discovery techniques, protein structure and application of NMR & X- ray crystallography in protein structure prediction for skill development and employability.
CO3	Attain detailed knowledge about reproductive toxicology studies, genotoxicity studies and in vivo carcinogenicity studies for skill development and employability.
CO4	Understand the molecular docking, QSAR, SAR versus QSAR, Hansch

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	analysis and Fee Wilson analysis for skill development and employability at national and international level.
CO5	Understand the QSAR statistical methods, COMFA, COMSIA and Prodrug design for skill development and employability.

Course Code	MPL204T
Course Name	Clinical Research and Pharmacovigilance

COs	Description
CO1	Learn the regulatory perspectives of clinical trials, ICH-GCP, ethical committee, ICMR and informed consent process for skill development and employability at national and international level.
CO2	Attain detailed knowledge about clinical trials, experimental study, observation study, roles and responsibilities of clinical trial personnel for skill development and employability.
CO3	Attain detailed knowledge about clinical trial documentation and adverse drug reactions for skill development and employability.
CO4	Understand the basic aspects, terminologies and establishment of pharmacovigilance for skill development and employability.
CO5	Understand the methods, ADR reporting and tools used in pharmacovigilance. Also, learn pharmacoepidemiology, pharmacoeconomics, safety pharmacology for skill development and employability.

Course Code	MRM301T
Course Name	Research Methodology & Biostatistics

COs	Description
CO1	Learn the general research methodology for skill development and employability.
CO2	Learn biostatistics, sample size, statistical tests of significance, parametric tests, non-parametric tests, null hypothesis, P values, degree of freedom and interpretation of P values for skill development and employability at local, regional and global platform.
CO3	Attain detailed knowledge about medical Research for skill development and employability.
CO4	Understand the CPCSEA guidelines for laboratory animal facilities for skill development and employability at national and international level.
CO5	Understand the declaration of Helsinki, basic principles for all medical research and additional principles for medical research combined with medical care for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – M. Pharm. (Master of Pharmacy) (Pharmaceutics)

Course Code	MPH101T
Course Name	Modern Pharmaceutical Analytical Techniques
COs	**Description**
CO1	Understand theory instrumentation and applications of various spectroscopic techniques for skill development, entrepreneurship and employability.
CO2	Know about the concept and applications of NMR spectroscopy for skill development, entrepreneurship and employability.
CO3	Learn theory, instrumentation and applications of Mass spectroscopy for skill development, entrepreneurship and employability.
CO4	Understand principle and instrumentation of various chromatographic methods for skill development, entrepreneurship and employability.
CO5	Understand electrophoresis, X-Ray Crystallography, potentiometry, different thermal techniques and/or immunological assay for skill development, entrepreneurship and employability at national and international level.

Course Code	MPH102T
Course Name	Drug Delivery Systems
COs	**Description**
CO1	Understand the principles and technology used in the design of sustained /controlled release drug delivery system and application of polymers controlled drug delivery systems. Learn the concept of pharmacy, personalized medicine and 3Dprinting in pharmacy for skill development and employability.
CO2	Understand the principles and fundamentals of mechanically activated, pH activated, osmotic activated and enzyme activated drug delivery systems for skill development and employability.
CO3	Learn the principle, concepts and various approaches of gastro-retentive drug delivery systems and buccal drug delivery system for skill development and employability at national and international level.
CO4	Understand the barriers of ocular drug permeation and method s the formulation and evaluation of transdermal drug delivery system for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Understand the formulation of protein and peptide drug delivery system and various aspects of vaccine drug delivery system for skill development and employability at local, regional and global platform.

Course Code	MPH103T
Course Name	Modern Pharmaceutics
COs	**Description**
CO1	Understand the preformulation concept, stability testing, dispersion systems and factorial design optimization for skill development and employability
CO2	Know about validation concept, ICH and WHO guidelines for skill development and employability at local, regional and global platform.
CO3	Observe about current good manufacturing practices (cGMP), inventory management and sale forecast during industrial production for skill development and employability.
CO4	Analyze the principles of solubility, tablet compression and compaction profiles of tablet for skill development and employability.
CO5	Develop the consolidation parameter sand release kinetics principles and the interpretation during evaluation studies for skill development and employability at national and international level.

Course Code	MPH104T
Course Name	Regulatory Affairs
COs	Description
CO1	Course impart advanced knowledge and learn concepts of generic drugs and their development with regulatory filings for skill development and employability at local, regional and global platform.
CO2	Understand about regulatory requirements for product approval for skill development and employability.
CO3	Learn about CMC and post approval regulatory affairs for skill development and employability at national and international level.
CO4	Understand about process of non clinical drug development for skill development and employability.
CO5	Understand requirements for approvals to conducting clinical trials for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MPH201T
Course Name	Molecular Pharmaceutics (Nanotechnology & Target eddds) (NTDS)

COs	Description
CO1	Understand concept of targeted drug delivery: tumor targeting and brain specific delivery for skill development and employability.
CO2	Understand about preparations and evaluation of nanoparticles and liposomesfor skill development and employability.
CO3	Understand about preparation and evaluation of microcapsules, microspheres, niosomes, aquasomes, phtosomes and electrosomes for skill development and employability at national and international level.
CO4	Understand about preparation and evaluation of pulmonary and nasal drug delivery system. Also, to know about types of Aerosols, propellants and containers used for skill development and employability.
CO5	Understand about nucleic acid based therapeutic delivery system, gene therapy for inherited disorder and cancer disease and liposomal gene delivery system for skill development and employability.

Course Code	MPH202T
Course Name	Advanced Biopharmaceutics & Pharmacokinetics

COs	Description
CO1	Understand the concept of drug absorption from GIT, factors affecting, pH-partition theory, Dissolution method and correlation of data and permeability-solubility-charge state transport model for skill development and employability.
CO2	Understand the concept of biopharmaceutical factor affecting bioavailability, physicochemical nature of drug and formulation factors affecting drug product performance and dissolution testing and drug product stability for skill development and employability at local, regional and global platform.
CO3	Understand about the concept of pharmacokinetics models, compartment modeling and drug interactions for skill development and employability.
CO4	Understand the concept of bioavailability, permeability methods and bioequivalence studies for skill development and employability.
CO5	Understand the concept of modified release drug product, targeted drug delivery system and biotechnological products pharmacokinetic and pharmaco dynamics for skill development and employability.

Sanjeev Bhasin
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MPH203T
Course Name	Computer Aided Drug Development
COs	**Description**
CO1	Understand the concept of computer in pharmaceutical research and development for skill development, entrepreneurship and employability.
CO2	Understand the concept of computational modeling of drug disposition for skill development, entrepreneurship and employability.
CO3	Understand the concept of Computeraided formulation development for skill development, entrepreneurship and employability.
CO4	Understand the concept of Artificial Intelligence (AI), Robotics and computational fluid dynamics for skill development, entrepreneurship and employability at national and international level.
CO5	Understand the concept of Herbal Cosmetics and review of guidelines and challenges in formulation for skill development and employability.

Course Code	MPH204T
Course Name	Cosmetics and Cosmeceuticals
COs	Description
CO1	Understand the concept of Cosmetics regulatory provisions for skill development and employability.
CO2	Understand the concept of Biological barriers in Cosmetics such as skin, hair for skill development and employability.
CO3	Understand the concept of formulation building blocks for cosmetic formulations, Classification of Perfumes for skill development and employability at local, regional and global platform.
CO4	Understand the concept of design of cosmetic products such as sun protection, sunscreens for skill development and employability.
CO5	Understand the concept of Herbal Cosmetics and review of guidelines and challenges in formulation for skill development and employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MPH301T
Course Name	Research Methodology& Biostatistics

COs	Description
CO1	Learn the general research methodology for skill development and employability.
CO2	Learn the biostatistics, sample size, statistical tests of significance, parametric tests, non-parametric tests, null hypothesis, P values, degree of freedom and interpretation of P values for skill development and employability.
CO3	Attain detailed knowledge about medical Research for skill development and employability at local, regional and global platform.
CO4	Understand the CPCSEA guidelines for laboratory animal facility for skill development and employability at national and international level.
CO5	Understand the declaration of Helsinki, basic principles for all medical research and additional principles for medical research combined with medical care for skill development and employability.

PROGRAMME NAME – M. Pharm (Pharmacognosy and Phytochemistry)

Course Code	MPG – 101 T
Course Name	Modern Pharmaceutical Analytical Techniques

COs	Description
CO1	Understand theory, instrumentation and applications of various spectroscopic techniques for skill development, entrepreneurship and employability at local, regional and global platform.
CO2	Know about the concept and applications of NMR spectroscopy for skill development, entrepreneurship and employability.
CO3	Learn theory, instrumentation and applications of Mass spectroscopy for skill development, entrepreneurship and employability.
CO4	Understand principle and instrumentation of various chromatographic methods for skill development, entrepreneurship and employability.
CO5	Understand electrophoresis, X-Ray Crystallography, potentiometry, different thermal techniques and/or immunological assay for skill development, entrepreneurship and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MPG - 102 T
Course Name	Advanced Pharmacognosy-I

COs	Description
CO1	Attain the knowledge about cultivation, production and conservation of medicinal plants for skill development and employability.
CO2	Understand about marine natural products with their isolation, purification, taxonomical identification and chemical screening for skill development and employability.
CO3	Learn the formulation and standardization of various nutraceuticals/ herbs and their regulatory aspects for skill development and employability.
CO4	Learn the occurrence, isolation and characteristic features of phyto-pharmaceuticals for skill development and employability.
CO5	Understand about pharmacovigilance of natural drugs for safety monitoring and spontaneous reporting schemes for skill development and employability at national and international level.

Course Code	MPG – 103 T
Course Name	Phytochemistry

COs	Description
CO1	Learn biosynthetic pathways and radio-tracing techniques for phytopharmaceuticals for skill development, entrepreneurship and employability at local, regional and global platform.
CO2	Understand drug discovery and development of lead molecule from natural origin for skill development, entrepreneurship and employability.
CO3	Understand drug discovery and development of lead molecule from natural origin for skill development, entrepreneurship and employability.
CO4	Acquire knowledge about phytochemical fingerprinting of herbal extracts for skill development, entrepreneurship and employability.
CO5	Understand structure elucidation of phytoconstituents by spectroscopic techniques for skill development, entrepreneurship and employability.

Course Code	MPG – 104 T
Course Name	Industrial Pharmacognostical Technology

COs	Description
CO1	Understand infrastructure of herbal drug industry and learn current challenges in upgrading of herbal medicines and entrepreneurship development for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Learn knowledge about regulatory requirements for setting herbal drug industry including concepts of TQM, GMP, GLP, ISO-9000,export - import (EXIM) policy, TRIPS and understand quality assurance in herbal/natural drug products for skill development and employability.
CO3	Gain knowledge about structure of monographs of herbal drugs in pharmacopoeias, and understand WHO guidelines in quality assessment of herbal drugs for skill development and employability.
CO4	Learn concepts of stability testing of natural products, protocols and clinical laboratory testing for skill development and employability.
CO5	Understand Indian and international patent laws in reference to herbal drugs and to gain detail knowledge about Geographical indication, Copyright and Patentable subject matters for skill development and employability at local, regional and global platform.

Course Code	MPG – 201 T
Course Name	**Medicinal Plant Biotechnology**

COs	Description
CO1	To understand plants on molecular and genetics basis for application in pharmacy and allied fields for skill development, entrepreneurship and employability at national and international level.
CO2	To understand various tissue culture techniques and their applications for skill development, entrepreneurship and employability.
CO3	To understand immobilization techniques of plant cell and its application on secondary metabolite Production for skill development, entrepreneurship and employability.
CO4	To understand biotransformation of plant cells, biosynthetic potential in cell culture, transgenic methods and application of PCR in genome analysis for skill development, entrepreneurship and employability.
CO5	To understand fermentation technology, enzyme, single cell protein production and its application for skill development, entrepreneurship and employability.

Course Code	MPG – 202 T
Course Name	**Advanced Pharmacognosy –II**

COs	Description
CO1	To understood pharmacokinetics and pharmacodynamics of herbal medicines for skill development, entrepreneurship and employability.
CO2	To understand quality control of herbal medicines for skill development, entrepreneurship and employability at national and international level.

Sanjeev Kumar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	To understand ethnobotany and ethnopharmacology of herbal drugs for skill development, entrepreneurship and employability.
CO4	To understand analytical profile of herbal drugs for skill development, entrepreneurship and employability.
CO5	To understand in vitro, in vivo biological screening of herbal drugs and toxicity studies as per OECD guidelines for skill development, entrepreneurship and employability.

Course Code	MPG – 203 T
Course Name	Indian Systems of Medicine
COs	**Description**
CO1	To understand fundamental concepts of Indian system of medicines for skill development and employability.
CO2	To understand naturopathy, yoga and aromatherapies for skill development and employability at national and international level.
CO3	To understand formulation of traditional medicines as Indian, Unani, Ayurvedic and Siddha pharmacopeia along with their shelf life and stability studies for skill development and employability.
CO4	To understand schedule T (GMP) of Indian system of Medicine for skill development and employability at local, regional and global platform.
CO5	To understand about AYUSH portal and departments for skill development and employability.

Course Code	MPG – 204 T
Course Name	Herbal Cosmetics
COs	**Description**
CO1	To understand herbal cosmetics, their classification, economic aspects and regulatory affairs for skill development and employability.
CO2	To understand preformulation studies and formulation of herbal cosmetics for skill development and employability at national and international level.
CO3	To understand physiology of skin, nails, hair, their specific cosmetics and their formulations for skill development and employability.
CO4	To understand formulation of cosmeceuticals of herbal and natural origin for skill development and employability.
CO5	To understand analysis and toxicity screening of cosmetics as per Drug and Cosmetic Act for skill development and employability.

Sanjeev Dozenal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

Course Code	MRM – 301 T
Course Name	Research Methodology & Biostatistics

COs	Description
CO1	Learn the general research methodology for skill development and employability.
CO2	Learn the biostatistics, sample size, statistical tests of significance, parametric tests, non- parametric tests, null hypothesis, P values, degree of freedom and interpretation of P values for skill development and employability at local, regional and global platform.
CO3	Attain detailed knowledge about medical Research for skill development and employability at national and international level.
CO4	Understand the CPCSEA guidelines for laboratory animal facility for skill development and employability.
CO5	Understand the declaration of Helsinki, basic principles for all medical research and additional principles for medical research combined with medical care for skill development and employability.

Sanjeev Dawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

SCHOOL OF BIOTECHNOLOGY

PROGRAMME NAME – B. Sc. (Biotechnology)

Course Code	BSB101T
Course Name	Animal Science

COs	Description
CO1	Understand the taxonomy and the basis of the animal kingdom for skill development at global level.
CO2	Understand the taxonomic positions of different phyla with their characteristics hybridization understanding for entrepreneurial skill.
CO3	Understand the characteristics of vertebrates and phylum Mammalia
CO4	Understand Human physiology related to the Digestive, Circulatory and Reproductive systems.
CO5	Understand the human physiology related to the Nervous system, Endocrine system and Muscular System understanding for better entrepreneurial skill

Course Code	BSB102T
Course Name	Plant Science

COs	Description
CO1	Understand the detailed structure, organization, classification, and properties of Algae understanding for better entrepreneurial skill
CO2	Understand the elaborate idea about structure, organization, classification, and properties of Fungi for skill development globally.
CO3	Understand the structure, organization, classification, and properties of the Bryophyte understanding for better skill
CO4	Understand the detailed knowledge about the structure, organization, classification, and properties of Pteridophytes hybridization
CO5	Understand the detailed structure, organization, classification and properties of Gymnosperms & Angiosperms.

Course Code	BSB103T
Course Name	Biochemistry and Metabolism

COs	Description
CO1	Understand the basics of biochemistry, properties of water, and biological interaction for skill development at global level.
CO2	Learn the carbohydrates, their types, and their biological functions understanding for better entrepreneurial skill

Sanjiv Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the amino acids and proteins, their structure and function, purification and denaturation- renaturation
CO4	Understand the lipids and their structure and functions protein for entrepreneurship & employability
CO5	Understand the lipid and carbohydrate metabolism knowledge for better employability in global industry.

Course Code	BSB104T
Course Name	Chemistry I

COs	Description
CO1	Understand the Chemical equilibrium and its relationship on the basis of reversible and irreversible for skill development at global level.
CO2	Understand the ideal solution and debate the chemical potential in the ideal solution and interpret the colligative properties understanding for better skill
CO3	Understand the concept of acid & base on the basis of different theories
CO4	know about Chemical kinetics and how reaction rates are measured and represented in rate laws, and applications of chemical kinetics knowledge for better employability in global industry
CO5	Understand the idea of different electrochemical cells and colloidal systems series for entrepreneurship & local employability

Course Code	TPSD101
Course Name	Professional Skill Development

COs	Description
CO1	Use grammar in their writing in English correctly for skill development.
CO2	Have in-depth knowledge of action words, preposition and conjunction and to express their strong feelings and emotion. To inculcate skill providing employability globally.
CO3	Use clauses and phrases, write a sentence using Present, Past and Future Tense and to interchange the Voice (Active and Passive) and Narration (Direct and Indirect). Understanding for better skill
CO4	Write gist and paragraphs and to recall what is being read and listen including facts and main ideas for entrepreneurship & local employability.
CO5	Differentiate between Resume and Bio-data and to write letters for different reasons.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Cod	BSB201T
Course Name	Principles of Biotechnology

COs	Description
CO1	Understand the historical perspectives, application and role of Biotechnology in India and global trends) understanding for entrepreneurial skill at global level.
CO2	Understand the structure and functions of biomolecules as well as classification, purification and characterization of enzymes for skill development.
CO3	Understand the cell theory and its structure. Learn the origin, classification and application of microbes globally.
CO4	Explain the basic concept of recombinant DNA technology, tools of rDNA and how to identify the recombinants.
CO5	Describe the application of bioinformatics and learn the biological databases.

Course Code	BSB202T
Course Name	Fundamentals of Computers

COs	Description
CO1	Increases the knowledge of fundamental concepts of computer for skill development at global level.
CO2	Ability to know the Input-Output devices & Number System.
CO3	Ability to know the Memoryunderstanding for entrepreneurial skill
CO4	Ability to demonstrate the Software Packages.
CO5	Students would understand the CN, OS and DBMS & Internet knowledge for better employability in global industry.

Course Code	BSB203T
Course Name	Chemistry II

COs	Description
CO1	Understand the basic concepts of chemical structure and bonds, inclusion compounds, clatherates, charge transfer complex, resonance and hyperconjugation for skill development.
CO2	Describe the different types of reagents and reactions such as types of electrophiles and nucleophiles, different types of organic reactions and their mechanisms understanding for entrepreneurial skill globally.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Explain the geometrical and optical isomerism; Conformations of molecules with respect to ethane, butane and cyclohexane; Interconversion of Wedge Formula; Newman, Sawhorse and Fischer representations for better skilling of local employability
CO4	Understand the nomenclature, classification, isomerism, sources, and methods of preparation, physical properties and chemical reactions of alkanes and cycloalkanes.
CO5	Describe the chemical nature, properties, preparation and chemical reactions of alcohols, phenols and ethers entrepreneurship & employability.

Course Code	**BSB204T**
Course Name	**Plant Physiology**
COs	**Description**
CO1	Understand the importance of photosynthesis for plants at global level
CO2	Understand the water, solute and sugar transport processes in plants and different mechanisms in plants used for water & mineral transport.
CO3	Understand the plant hormones and their roles in plant development.
CO4	Understand the light and dark reactions of photosynthesis and compare the dark reactions in plants.
CO5	Understand the photochemical and biochemical characteristics of phytochrome.

Course Code	**BSB205T**
Course Name	**Environmental Science**
COs	**Description**
CO1	Understand about the introductory concept of environmental science, renewable and non-renewable resources, biogeochemical cycles, ecological succession and ecological pyramid for skill development at global level.
CO2	Learn about the concept of an ecosystem and structure & function of various ecosystem.
CO3	Learn about various types of environmental pollution and pollutants at global level.
CO4	Understand about the concept of biodiversity, its value and conservation globally.
CO5	Learn about the various global phenomenon and their management for understanding for entrepreneurial skill.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSB301
Course Name	Modern Analytical Techniques

COs	Description
CO1	Understand the concept of GLP and GMP, quality assurance and quality control, and aspects related to their analysis for skill development
CO2	Understand the EM spectrum and various spectroscopy- their principle and instrumentation knowledge for better employability in global industry.
CO3	Learn all the related aspects of centrifugation and sedimentationfor better skilling of entrepreneurship.
CO4	Learn the principle of chromatography and its various types application understanding for entrepreneurial skills.
CO5	Understand the concept of electrophoresis and its types to inculcate skill provide local employability & entrepreneurial skills.

Course Code	BSB302
Course Name	Enzymology

COs	Description
CO1	Understand enzyme nomenclature, classification, and purification techniques for entrepreneurship & local employability
CO2	Derive the kinetics expression of enzymatic reactions like Michaelis-Menten Equation for skill development
CO3	Understand the immobilization techniques and will learn methods a applications. To inculcate skill provide local employability & entrepreneur skills.
CO4	Identify the regulatory factors of enzymes for skill development.
CO5	Explore the application of enzymes in food, beverages, and agricultu industries. Knowledge for better employability in global industry.

Course Code	BSB303
Course Name	Plant Physiology

COs	Description
CO1	Understand the importance of photosynthesis for plants for better employability globally.
CO2	Understand the water, solute and sugar transport processes in plants and different mechanisms in plants used for water & mineral transport for entrepreneurial skill.
CO3	Understand the plant hormones and their roles in plant development for entrepreneurial skill.

Sanjeev Bhanot
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the light and dark reactions of photosynthesis and compare the dark reactions in plants for skill development.
CO5	Understand the photochemical and biochemical characteristics of phytochrome for entrepreneurial skill.

Course Code	BSB304
Course Name	Basics of Immunology

COs	Description
CO1	Compare and contrast innate and adaptive immunity for skill development
CO2	Understand the cell types and organs present in the immune response or skill development.
CO3	Will gain practical application on the various Immunological techniques viz ELISA, RIA, and western blotting for disease diagnosis providing local employability.
CO4	Exemplify the adverse effect of the immune system including Allergy, hypersensitivity and autoimmunity. For better skill development.
CO5	Elucidate the reasons for immunization and be aware of different vaccination by providing skill at global level.

Course Code	BSB305
Course Name	Cell & Molecular Biology

COs	Description
CO1	Describe the cell and its properties, structural components and organelles, types of cell division and significance of cell cycle to inculcate skill, provide local employability and entrepreneurial skills.
CO2	Explain the different types of receptors and their mechanism of action, signal amplification, role of cyclic AMP in signalling and different types of transport mechanisms for skill development
CO3	Describe the mechanism of bacterial replication, structure of prokaryotic and eukaryotic RNA Polymerase, mechanism of transcription in prokaryotes, significance of promoter sequences and RNA processing for entrepreneurial skill.
CO4	Describe the molecular mechanisms of Translation in prokaryotes and eukaryotes, posttranslational medications of proteins and mechanisms of regulation of gene expression in prokaryotes for entrepreneurial skill.
CO5	Explain the various molecular tools and techniques like purification of nucleic acid, PCR and Blotting techniques (Southern, Northern and Western blotting) and importance of molecular probes for entrepreneurial skill.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EHU-301
Course Name	Disaster Management

COs	Description
CO1	Ability to understand major types of disaster in Indian context for skill development.
CO2	Understanding of approaches to reduce disaster risks for better skilling of entrepreneurship &local employability.
CO3	Capable of understanding relationship between development and disaster. Sustainable development for skill development.
CO4	Understanding of when an event becomes disaster and the phases to handle the situation for local employability.
CO5	Ability to analyze how to handle a situation of disaster by taking case studies of events in past to inculcate skill provide local employability &entrepreneurship.

Course Code	BMA-409
Course Name	Introductory Biostatistics

COs	Description
CO1	Demonstrate knowledge of the properties of parametric, semi-parametric and non-parametric testing procedures in Biostatistics to inculcate skill, provide employability and entrepreneurship at global level
CO2	Remember restate the principal concepts about biostatistics and collect data relating to variable which will be examined to provide local employability and entrepreneurship.
CO3	Understand and interpret the concepts of descriptive statistics from these data for skill development.
CO4	Understand and be able to address ethical, regulatory and practical aspects of human subject's research including human subjects protections for skill development globally.
CO5	Be capable of self-directed learning of unfamiliar statistical methods and written and oral presentation of results/findings for skill development globally.

Course Code	BSB-401

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Recognize the importance of GLP, Understand the levels of Biosafety and biosafety guidelines in India bioethics to inculcate skill, provide local employability and entrepreneurship.
CO5	Understand the ethical issues in biotechnological products and NGO for bioethics understanding for entrepreneurial skill.

Course Code	BSB-502
Course Name	**Fundamentals of Bioprocess Engineering**

COs	Description
CO1	Understand the concept of bioprocess engineering in biotechnology, medium preparation and inoculum development providing local employability and entrepreneurship
CO2	Know the different types of microbial cultivation techniques, Biomass, and product yield identification for skill development
CO3	Sterilize the fermentation medium, fermenter, vessel, and air for better skill development
CO4	Utilize the element and material balance to design the stoichiometry of growth and product formation understanding for entrepreneurial skill.
CO5	Use the different types of bioreactors in industrial fermentation, Role of aeration and agitation in product optimization for better employability in global industry.

Course Code	BSB-503
Course Name	**Protein & Enzyme Technology**

COs	Description
CO1	Understand protein structure, factors affecting protein structure, protein assays to inculcate skill, provide employability and entrepreneurship
CO2	Explain enzyme classification, nomenclature, technique for isolation and purification of enzymes to provide employability and entrepreneurship
CO3	Understand the enzyme rate kinetics, factors affecting reaction rate and catalysis for skill development.
CO4	Understandchemical properties, mechanism and functions of important biological enzymes for better employability.
CO5	Explain and understand the various applications of enzymes in industries for better skill development.

Course Code	BSB-504

Sanjeev Kumar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name	Introductory Bioinformatics
COs	**Description**
CO1	Demonstrate knowledge of the properties of parametric, semi-parametric and non-parametric testing procedures in Biostatistics to inculcate skill, provide employability and entrepreneurship at global level
CO2	Remember restate the principal concepts about biostatistics and collect data relating to variable which will be examined to provide employability and entrepreneurship
CO3	Understand and interpret the concepts of descriptive statistics from these data for skill development.
CO4	Understand and be able to address ethical, regulatory and practical aspects of human subject's research including human subjects protections for skill development globally.
CO5	Be capable of self-directed learning of unfamiliar statistical methods and written and oral presentation of results/findings for skill development globally.

Course Code	BSB-402
Course Name	Recombinant DNA Technology
COs	**Description**
CO1	Familiarize the basic concepts of recombinant DNA technology such as tools of rDNA technology, different types of commonly employed enzymes, and their use in r-DNA techniques to enhance employability skills globally.
CO2	Understand the vectors used in gene cloning such as Plasmids, Ti plasmid, Cosmids, Phagemids, shuttle vectors, expression vectors like YAC for skill development at global level.
CO3	Understand the different mechanisms of gene recombination like transformation, bacterial conjugation and methods of gene transfer such as transfection, microinjection, electroporation, shot-gun method to enhance employability skills globally.
CO4	Describe the technique of construction of recombinant DNA molecule and gene libraries, screening, and selection of recombinant host cells to inculcate skill, provide employability and entrepreneurship.
CO5	Define the concept of PCR technique, principle and procedure of PCR, components of PCR, and different types of PCR techniques and identify the applications of r DNA technology providing employability.

Course Code	BSB-403

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name	Metabolism of Carbohydrates and Nucleic Acids

COs	Description
CO1	Understand the macromolecules carbohydrates, classification, properties and Isomerism for skill development.
CO2	Understand the metabolic processes of carbohydrates and its regulation mechanisms for skill development.
CO3	Understand the carbohydrate metabolism, control mechanisms and energy production pathways to develop skills for local employability.
CO4	Describe the structure of Nucleic acid, properties and their biological role for skill development.
CO5	Define the concept of metabolism of Nucleic acids providing local employability.

Course Code	BSB-404
Course Name	Industrial Biotechnology

COs	Description
CO1	Understand the history of industrial microbiology, techniques for preparation of culture, maintenance and preparation of culture for better entrepreneurial skill.
CO2	Understand the techniques for improvement of techniques for skill developmentat global level.
CO3	Understand the basic design of fermenter, types and functions of fermenter components for better skill development.
CO4	Understand the techniques of product recovery, different recover processes for better employability.
CO5	Understand the industrial production of various products obtained from microbes for skill development and entrepreneurship.

Course Code	BSB-501
Course Nam	IPR in Biotechnology

COs	Description
CO1	Identify different types of Intellectual Properties (IPs), the right of ownership as well as the scope of protection. Outline the process of patenting and development for skill development at global level.
CO2	Understand the roles of different organizations and conventions related to IP knowledge for better employability in industry
CO3	Identify activities and constitute IP infringements and the remedies available to the IP owner for better skill development

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name	Food Biotechnology

COs	Description
CO1	Understand the basic characteristics of microbes that affect microbial growth for skill development.
CO2	Understand the basic characteristics of microbes that are important in the food industry and methods that are employed for the reservation of food knowledge for better employability in global industry.
CO3	Understand the basics of production of several industrially important fermented products like wine, cheese, and vinegar provide local employability and entrepreneurship.
CO4	Understand the characteristics and classification of food additives understanding for entrepreneurial skill.
CO5	Understand the different Food laws and standards for better skill development.

Course Code	BSB-505
Course Name	Animal Biotechnology

COs	Description
CO1	Understand the requirement for animal cell culture for skill development.
CO2	Understand the techniques and procedures involved in the development of cell clines
CO3	Apply the applications of gene therapy for the treatment of various diseases to provide local employability and entrepreneurship.
CO4	Understand the various gene transfer techniques and the concept of in-vitro fertilization for better skill development.
CO5	Get insight into applications or recombinant DNA technology in sericulture, aquaculture and apiculture understanding for entrepreneurial skill.

Course Code	BSB-504 I
Course Name	Food Storage

COs	Description
CO1	Understand the principles and mode of action of food preservation for local employability.
CO2	Gain knowledge about the use of high temperature to preserve the food for employability in global industry.
CO3	Understand the concept about the use of low temperature of preservation for employability in global industry.

Sanjeev Dawra
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the principle and importance of dry storage of food for skill development as well as employability in industry.
CO5	Understand the principles and type the use of low temperature storage to preserve the food for local employability in industry.

Course Code	BSB-504 II
Course Name	Nutraceuticals

COs	Description
CO1	Understand the classification of nutraceuticals and nutrition related diseases and disorders for employability in global industry.
CO2	Gain knowledge about the use nutraceuticals of plant and animal origin, Microbial and algal nutraceuticals for employability in industry.
CO3	Understand the concept phyto nutraceutical biotechnology and pre-clinical and clinical trials for employability in global industry.
CO4	Understand the Functional Foods, Cereal and cereal products, Milk and milk productsfor employability in industry.
CO5	Understand the scope of functional foods and nutraceuticals, Future prospects of functional foods for employability and skill development globally.

Course Code	BSB-504 III
Course Name	Stem Cell Biology

COs	Description
CO1	Understand the properties, proliferation, and culture of stem cells, medical applications of stem cells, ethical and legal issues in use of stem cells for employability in global industry.
CO2	Gain knowledge about the Types of stem cells for employability in industry.
CO3	Understand the concept of Stem cell and founder zones in plants for employability in industry.
CO4	Understand the Therapeutic applications of stem cells Gene Therapy for skill development in industry.
CO5	Understand the Ethical Issues associated with stem cell-based regenerative medicine field Regulatory and Ethical Considerations of stem cell and Gene Therapy for employability and entrepreneurship development globally.

Course Code	BSB-505 I

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name	Normal Therapeutic Nutrition

COs	Description
CO1	Understand the Community nutrition as a field, public health nutrition, goals of nutrition programmefor employability in global industry.
CO2	Gain knowledge about the direct nutritional assessment of human groups for employability in industry.
CO3	Understand the concept of Vital statistics, indicators and their use; health policy indicators, social and economic indicators for employability in industry globally.
CO4	Understand the national nutrition programmes and policies and Programmes for improving nutritional status at national level for employability in industry.
CO5	Understand the Magnitude of nutritional problems in India for employability in industry globally.

Course Code	BSB-505 II
Course Name	Diet Therapy and Counseling

COs	Description
CO1	Understand the role of a dietician, Principles of diet preparation and counselling for local employability in industry.
CO2	Gain knowledge about the therapeutic diets for the several disorders for employability in industry.
CO3	Understand the diseases of the liver, gall bladder and cardio vascular systemfor employability in industry and skill development.
CO4	Understand the Causes and dietary treatment of kidney diseases and dialysis for employability in industry and skill development.
CO5	Understand the Diet in Allergy and Diet in relation to deficiency diseases for employability in industry globally.

Course Code	BSB-505 III
Course Name	Fermented Milk Products

COs	Description
CO1	Understand the technology of fermented milk products, status and scope in dairy industry for employability in global industry.
CO2	Gain knowledge about the standard and classification of milkfor employability in industry.
CO3	Understand the Production and practice of fermented Foodsfor local employability in industry and skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the Production and practice of different varieties of Cultured Butter-Milkfor employability in industry and skill development globally.
CO5	Understand the standardization, neutralization, pasteurization and cooling of cream for entrepreneurship development.

Course Code	BSB-601
Course Name	Fermentation Technology

COs	Description
CO1	Understand the basic concepts of fermentation, Isolation, screening and maintenance of microbes for skill development.
CO2	Know the fermentation medium and its components, pretreatment process for better skill development at global level.
CO3	Develop the design and construction and types of bioreactors to provide employability and entrepreneurship
CO4	Develop the understanding of the production of industrially important products like alcohol, amino acids, etc. knowledge for better employability in global industry.
CO5	Understand the techniques of antibiotics and vitamins production to inculcate skill, provide local employability and entrepreneurship.

Course Code	BSB-602
Course Name	Introductory Bioenergetics

COs	Description
CO1	Learn about the applicability of laws of thermodynamics in biological systems, about high energy compounds, and related reactions to inculcate skill, provide local employability and entrepreneurship
CO2	Understand the structure and function of the biological membrane in transport activity of cells and signal transduction and response towards the internal and external factors for skill development
CO3	Understand generation and utilization of ATP, Metabolism of Nitrogen-containing compounds, Nitrogen cycle.
CO4	Know about Metabolic Pathways of high-energy compounds ATP, GTP, FADH, NADH, maintenance energy; energy involvement in aerobic processes for better employability in global industry.
CO5	Understand the concept of Substrate level and oxidative phosphorylation for better skill development.

Course Code	BSB-603
Course Name	Immunoinformatics

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

COs	Description
CO1	Study the immune system and its types. To explain the structure, types and functions of Immunoglobulins and Hybridoma technology to inculcate skill, provide local employability and entrepreneurial skills.
CO2	Understand the structure of BCR and TCR. To explain the mechanism of Antigen processing and presentation To familiarize the students with autoimmune disease to inculcate skill, provide local employability and entrepreneurial skills.
CO3	familiarize the students with the concept of vaccine types and its designing. To explain the immunoinformatic based approach to designing of vaccines for skill development at global level.
CO4	Understand the Immunoinformatic tools like BIMAS, SVMHC and databases of epitopes for better employability.
CO5	Explain the methodology of Predicting 3D structure using homology modeling and molecular docking. To describe the concept of MHC polymorphism for better development of skills.

Course Code	BSB-604
Course Name	**Fundamentals of Proteomics and Genomics**

COs	Description
CO1	Understand the type, structure, properties and organization of genome in prokaryotes and eukaryotes for skill development.
CO2	Understand the different techniques of mapping and genome sequencing for entrepreneurial skill development at global level.
CO3	familiarize the students with the concept of gene evolution and identification of regulatory elements and human genome project for better employability globally.
CO4	Understand the methods and techniques for determination of expression and characterization of proteins for skill development
CO5	Explain the protein structure databases and structure visualization toolsfor skill development.

Course Code	BSB-605
Course Name	**Biomedical Instrumentation**

COs	Description
CO1	Understand the biomedical instrumentation, transducers and bioelectric potentials for skill development globally.
CO2	Understand the CVS and its measurement, patient care and respiratory

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	measurement for entrepreneurial skill development
CO3	Familiarize the students with the iinstrumentation for sensory measurements for better employability.
CO4	Understand the instrumentation for X-ray and radioisotope for skill development
CO5	Explain the computational tools and electrical safety of instruments for skill development.

Course Code	BSB-604 I
Course Name	Microbial Diversity

COs	Description
CO1	Gain Knowledge about basics of microbial world, their types, morphology examples, reproduction etc. of bacteria, virus, fungus and molds for skill development at global level.
CO2	Learn about Nutritional requirements and growth of microorganisms, role of macro and micro nutrients for skill development
CO3	Learn the skill of Bacterial Growth, its cultivation and bacterial count for skill development and local employability.
CO4	Learn the skill of Isolation, culturing and maintenance of pure culture, media preparation for skill development and local employability
CO5	Understand selection methods, concepts of pure culture Indian and International collection centers.

Course Code	BSB-604 II
Course Name	Wildlife Science

COs	Description
CO1	Learn about Definition of Wildlife, Causes of wildlife depletion, Economic importance for global development of entrepreneurship.
CO2	Know about various types of forests in India, deforestation and its impact, silviculture, aquaculture etc. for enhancement of skills
CO3	Understand the different behaviors of wildlife animals, classical and modern concepts behavior for enhancement of skills
CO4	Learn the methods of Wildlife Census Techniques, Vegetative analyses Quadrat, Strip transect, Wildlife Photography, Capture-recapture techniques to generate local employability
CO5	Learn about Human Wildlife Conflicts health care and Conservation of Wildlife, Translocation of Wild animals etc. Biodiversity Act 2000 for enhancement of local skills and entrepreneurship.

Course Code	BSB-604 III

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name	Economic Zoology
COs	**Description**
CO1	Know and Learn about Apiculture & Lac Culture for development of entrepreneurship and to generate local employability
CO2	Understand about Poultry-Types of birds for poultry – Bio-security measures followed in Poultry farms, Diseases and pests for development of entrepreneurship and to generate local employability
CO3	Learn about Aqua culture- Site selection and Construction, fishing methods, diseases for development of entrepreneurship and to generate local employability
CO4	Understand the concept of Vermiculture: Species of earthworm used in vermiculture, production, economy associated for development of entrepreneurship and to generate local employability
CO5	Understand the concept of Pharmaceuticals: Sericulture–Types of Silk worms, Rearing techniques, Diseases

Course Code	BSB-605 I
Course Name	Behavioural Science
COs	**Description**
CO1	Understand the principles of behavioral sciences and their application to problems facing societies for skill enhancement
CO2	Understand Scientific inquiry in applied behavioral science: Objectivity, definitions, observation, reliability for development of entrepreneurship and to generate local employability
CO3	Understand Child behavior and developmental stages, growth, intelligence etc.
CO4	Understand Psychological, social, and physical development of humans across the lifespan for enhancing the skills at global level.
CO5	Understand Ethical, Legal and Professional Issues in Applied Behavioral Science for development of entrepreneurship and to generate local employability.

Course Code	BSB-605 II
Course Name	Food Toxicology
COs	**Description**
CO1	Understand the Principles of Toxicology, toxic agents, characteristics, tolerance and interactions to inculcate skill, provide employability & entrepreneurial skills globally.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Learn about Toxins in food, importance and causative agents, determinants and their management in food to inculcate skill, provide local employability & entrepreneurial skills
CO3	Understand Food allergies and sensitivities, source and their management understanding for entrepreneurial skill globally.
CO4	Learn about Environmental contaminants and drug residues in food: fungicide and pesticide etc. for skill development and local employability.
CO5	Understand about Food additives and toxicants added or formed during food processing, safety and evaluation to inculcate skill, provide local employability & entrepreneurial skills.

Course Code	BSB-605 III
Course Name	Plant Pathology

COs	Description
CO1	Learn about definitions and concepts, history and importance of Plant pathology for skill development.
CO2	Understand about Growth, Reproduction, Survival and dispersal of important plant pathogens for skill development.
CO3	Learn Host - parasite interaction, recognition concept and infection Altered plant metabolism as affected by plant pathogens knowledge to inculcate skill for better employability globally.
CO4	Understand Genetics of resistance, mechanism of genetic variation in pathogens, for skill development.
CO5	Understand Disease management strategies, Seed certification, Biotechnology for crop disease management knowledge for skill development and local employability.

PROGRAMME NAME – B. Sc. (Food Technology)

Course Code	BSB101T
Course Name	Animal Science

COs	Description
CO1	Understand the taxonomy and the basis of the animal kingdom for skill development and employability.
CO2	Understand the global taxonomic positions of different phyla with their characteristics for skill development and employability.
CO3	Understand the characteristics of vertebrates and phylum Mammalia for skill development.
CO4	Understand Human physiology related to the Digestive, Circulatory and Reproductive systems for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Understand the human physiology related to the Nervous system, Endocrine system and Muscular System for skill development and employability.

Course Code	**BSB102T**
Course Name	**Plant Science**

COs	**Description**
CO1	Understand the detailed structure, organization, classification, and properties of Algae for skill development and employability.
CO2	Understand the elaborate idea about structure, organization, classification, and properties of Fungi for skill development and employability.
CO3	Understand the structure, organization, classification, and properties of the Bryophyte for skill development and employability.
CO4	Understand the detailed global knowledge about the structure, organization, classification, and properties of Pteridophytes for skill development and employability.
CO5	Understand the detailed structure, organization, classification and properties of Gymnosperms & Angiosperms for skill development and employability.

Course Code	**BSB103T**
Course Name	**Biochemistry and Metabolism**

COs	**Description**
CO1	Understand the basics of biochemistry, properties of water, and biological interaction for skill development and employability.
CO2	Learn the carbohydrates, their types, and their global biological functions for skill development and employability.
CO3	Understand the amino acids and proteins, their structure and function, purification and denaturation- renaturation for skill development and employability.
CO4	Understand the lipids and their structure and functions for skill development and employability.
CO5	Understand the lipid and carbohydrate metabolism for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSB104T
Course Name	Chemistry I

COs	Description
CO1	Understand the Chemical equilibrium and its relationship on the basis of reversible and irreversible reactions for skill development and employability.
CO2	Understand the ideal solution and debate the chemical potential in the ideal solution and interpret the colligative properties for skill development, employability and entrepreneurship development.
CO3	Understand the concept of acid & base on the basis of different theories for global skill development and employability.
CO4	know about Chemical kinetics and how reaction rates are measured and represented in rate laws, and applications of chemical kinetics for skill development, employability and entrepreneurship development.
CO5	Understand the idea of different electrochemical cells and colloidal systems for skill development, employability and entrepreneurship development.

Course Code	TPSD101
Course Name	Professional Skill Development-I

COs	Description
CO1	Use grammar in their writing in English correctly for skill development.
CO2	Have in-depth knowledge of action words, preposition and conjunction and to express their strong feelings and emotion for skill development.
CO3	Use clauses and phrases, write a sentence using Present, Past and Future Tense and to interchange the Voice (Active and Passive) and Narration (Direct and Indirect) for local skill development.
CO4	Write gist and paragraphs and to recall what is being read and listen including facts and main ideas for skill development.
CO5	Differentiate between Resume and Bio-data and to write letters for different reasons for local skill development and employability.

Course Code	BFT201T
Course Name	Principles of Food Processing

COs	Description
CO1	Understand the objectives of preservation & processing of foods, causes of spoilage of foods and degree of the perishability of foods for global skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Learn about the global concepts of refrigeration, freezing, controlled and modified storage of foods for skill development, employability and entrepreneurship development.
CO3	Understand the methods of preservation of foods by high temperature, thermal destruction of microorganisms, and General canning process of foods for skill development, employability and entrepreneurship development.
CO4	Understand the principle, technological aspects, and application of Dehydration and Drying, Evaporative Concentration, and Freeze-drying of foods for skill development and employability.
CO5	Understand the principle and global application of various non-thermal preservation methods used in food industries for skill development, employability and entrepreneurship development.

Course Code	**BFT202T**
Course Name	**Food Microbiology**

COs	**Description**
CO1	Understand the historical development and role of microorganisms in food for skill development, employability and entrepreneurship development.
CO2	Understand the classification, growth, pure culture techniques, and control of microorganisms for skill development, employability and entrepreneurship development.
CO3	Gain knowledge about the contamination, spoilage, and preservation of different types of foods for skill development and employability.
CO4	Understand the beneficial microorganisms and their global utilization in food fermentation. The student will learn about the concept of HACCP for skill development, employability and entrepreneurship development.
CO5	Predict the causative agent and pathogenesis of disease-causing by food borne pathogens and their toxins for skill development, employability and entrepreneurship development.

Course Code	**BSB203T**
Course Name	**Chemistry II**

COs	**Description**
CO1	Understand the basic concepts of chemical structure and bonds, inclusion compounds, clatherates, charge transfer complex, resonance and hyper conjugation for skill development, employability and entrepreneurship development.
CO2	Describe the different types of reagents and reactions such as types of

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	electrophiles and nucleophiles, different types of organic reactions and their mechanisms for skill development, and employability.
CO3	Explain the geometrical and optical isomerism; Conformations of molecules with respect to ethane, butane and cyclohexane; Interconversion of Wedge Formula; Newman, Sawhorse and Fischer representations for skill development and employability.
CO4	Understand the nomenclature, global classification, isomerism, sources, and methods of preparation, physical properties and chemical reactions of alkanes and cycloalkanes for skill development, employability and entrepreneurship development.
CO5	Describe the chemical nature, properties, preparation and chemical reactions of alcohols, phenols and ethers for skill development, employability and entrepreneurship development

Course Code	**BSB204T**
Course Name	**Plant Physiology**

COs	**Description**
CO1	Understand the importance of photosynthesis for plants for skill development, employability and entrepreneurship development.
CO2	Understand the water, solute and sugar transport processes in plants and different mechanisms in plants used for water & mineral transport for skill development, employability and entrepreneurship development.
CO3	Understand the plant hormones and their roles in plant development for skill development and employability.
CO4	Understand the light and dark reactions of photosynthesis and compare the dark reactions in plants for skill development and employability.
CO5	Understand the photochemical and biochemical characteristics of phytochrome for global skill development, employability and entrepreneurship development.

Course Code	**BSB205T**
Course Name	**Environmental Science**

COs	**Description**
CO1	Understand about the introductory concept of environmental science, renewable and non-renewable resources, biogeochemical cycles, ecological succession and ecological pyramids for skill development and employability.
CO2	Learn about the concept of an ecosystem and structure & function of various ecosystem for skill development, employability and

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	entrepreneurship development.
CO3	Learn about various types of environmental pollution and pollutants globally for skill development and employability.
CO4	Understand about the concept of biodiversity, its value and conservation globally for skill development, employability and entrepreneurship development.
CO5	Learn about the various global phenomenon and their management for skill development, employability and entrepreneurship development.

Course Code	BSB301
Course Name	Modern Analytical Techniques
COs	**Description**
CO1	Understand the concept of GLP and GMP, quality assurance and quality control, and global aspects related to their analysis for skill development.
CO2	Understand the EM spectrum and various spectroscopy- their principle and instrumentation knowledge for better employability in industry.
CO3	Learn all the related aspects of centrifugation and sedimentationfor better skilling of entrepreneurship.
CO4	Learn the principle of chromatography and its various types application understanding for entrepreneurial skills.
CO5	Understand the concept of electrophoresis and its types to inculcate skill provide employability & entrepreneurial skills.

Course Code	BSB302
Course Name	Enzymology
COs	**Description**
CO1	Understand enzyme nomenclature, classification, and purification techniques for entrepreneurship & employability
CO2	Derive the kinetics expression of enzymatic reactions like Michaelis-Menten Equation for skill development
CO3	Understand the immobilization techniques and will learn methods and applications globally to inculcate skill provide employability &entrepreneurial skills.
CO4	Identify the regulatory factors of enzymes for skill development.
CO5	Explore the global application of enzymes in food, beverages, and agriculture industries. knowledge for better employability in industry

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BFT301
Course Name	Principles of Food Processing

COs	Description
CO1	Understand the global objectives of preservation & processing of foods, causes of spoilage of foods and degree of the perishability of foods for skill development, employability and entrepreneurship development.
CO2	Learn about the concepts of refrigeration, freezing, controlled and modified storage of foods for skill development, employability and entrepreneurship development.
CO3	Understand the methods of preservation of foods by high temperature, thermal destruction of microorganisms, and General canning process of foods for skill development, employability and entrepreneurship development.
CO4	Understand the principle, technological aspects, and application of Dehydration and Drying, Evaporative Concentration, and Freeze-drying of foods for skill development and employability.
CO5	Understand the principle and global application of various non-thermal preservation methods used in food industries for skill development, employability and entrepreneurship development.

Course Code	BFT302
Course Name	Food and Nutritional Chemistry

COs	Description
CO1	Understand properties of water, carbohydrates and its incorporation in processed foodfor skill development, employability and entrepreneurship development.
CO2	Explain the lipids and fat products, modification, nutrition and role in food productsfor skill development, employability and entrepreneurship development.
CO3	Understand and learn about proteins as food supplements, modifications and functional properties for skill development, employability and entrepreneurship development.
CO4	Understand properties and bioavailability of minerals, pigments and flavoursfor skill development for employability.
CO5	Describe the role, properties and types of nutraceuticals globallyfor skill development, employability and entrepreneurship development.

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BFT303
Course Name	Food Microbiology

COs	Description
CO1	Understand the historical development and role of microorganisms in food for skill development, employability and entrepreneurship development.
CO2	Understand the classification, growth, pure culture techniques, and control of microorganisms for skill development, employability and entrepreneurship development.
CO3	Gain global knowledge about the contamination, spoilage, and preservation of different types of foods for skill development and employability.
CO4	Understand the beneficial microorganisms and their utilization in food fermentation globally. The student will learn about the concept of HACCP for skill development, employability and entrepreneurship development.
CO5	Predict the causative agent and pathogenesis of disease-causing by food borne pathogens and their toxins for skill development, employability and entrepreneurship development.

Course Code	EHU-301
Course Name	Disaster Management

COs	Description
CO1	Ability to understand major types of disaster in Indian context for skill development.
CO2	Understanding of global approaches to reduce disaster risks for better skilling of entrepreneurship & employability.
CO3	Capable of understanding relationship between development and disaster. Sustainable development for skill development.
CO4	Understanding of when an event becomes disaster and the phases to handle the situation for employability.
CO5	Ability to analyze how to handle a situation of disaster by taking case studies of events in past to inculcate skill provide employability & entrepreneurship.

Course Code	BFT-401
Course Name	Principles of Food Preparation

COs	Description
CO1	Understand the fundamental and basic concepts of cooking techniques, heat transfer process, cooking media, and some general cookery terms for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Acquaint with global knowledge on cereals and their processing aspects, utilization of different ingredients and their role in bakery, preparation of ready to eat breakfast cereals and instant cereal foods for skill development, employability and entrepreneurship development.
CO3	Acquaint with the major pulses and their rudimentary processing, the nutritional value enhancement and the fermented foods prepared through pulses for skill development and employability.
CO4	Learn processing of fruits & vegetables - different preservation techniques to improve the shelf life of seasonal fruits and nutritional content for skill development, employability and entrepreneurship development.
CO5	Understand the properties of milk due to the effect of heat, Production of milk products and beverages, and their nutritional content for skill development, employability and entrepreneurship development.

Course Code	**BFT-402**
Course Name	**Food Engineering**
COs	**Description**
CO1	Understand the basic principles of unit operation, thermodynamics, heat and mass transfer. Also, will be able to apply basic engineering principles to the design process and equipment for food processing for skill development, employability and entrepreneurship development.
CO2	Understand the basic concept of fluid flow and its global application to the food processor for skill development, employability and entrepreneurship development.
CO3	Understand the basic concept of freezing, refrigeration and applications of frozen food storage in food processing industries for skill development, employability and entrepreneurship development.
CO4	Learn about the various heat transfer equipment and mode of heat transfer for skill development and employability.
CO5	Conceptualize boilers, dryers and evaporators for skill development and employability.

Course Code	**BFT-403**
Course Name	**Technology of Cereals, Pulses and Oil Seeds**
COs	**Description**
CO1	Understand the types, structure, chemical composition, physicochemical properties, and milling of wheat for skill development and employability.
CO2	Understand the composition, structure, physicochemical properties, and milling (mechanical & solvent extraction) of rice. Learn about the

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	parboiling and ageing of rice for skill development, employability and entrepreneurship development.
CO3	Understand the local milling process of different cereal grains like corn, oats, sorghum, millets, and barley for skill development and employability.
CO4	Gain knowledge on composition, milling, and antinutritional factors of pulses for skill development, employability and entrepreneurship development.
CO5	Learn the composition and extraction of oil from -groundnut, sunflower, soybean, and coconut. Also, gain global knowledge about the oil refining process and sources of protein for skill development and employability.

Course Code	**BFT-404**
Course Name	**Food Chemistry-I**

COs	**Description**
CO1	Understand about composition of food, water in food- it's types and interaction with food and water activity for skill development, employability and entrepreneurship development.
CO2	Learn about the lipids, its characteristics, physical and chemical properties, effects of frying for skill development and employability.
CO3	Understand about the protein (classification, structure, nature of food proteins) and various properties of protein for skill development, employability and entrepreneurship development.
CO4	Understand about the carbohydrates, structure of important polysaccharides, chemical reactions of carbohydrates and modified carbohydrates for skill development and employability.
CO5	Gain the global knowledge about the structure, importance and different types of vitamins. One should also learn about flavour and flavour enhancers for skill development, employability and entrepreneurship development.

Course Code	**BMA-409**
Course Name	**Introductory Biostatistics**

COs	**Description**
CO1	Demonstrate global knowledge of the properties of parametric, semi-parametric and non-parametric testing procedures in Biostatistics for skill development.
CO2	Remember restate the principal concepts about biostatistics and collect data relating to variable which will be examined for skill development.
CO3	Understand and interpret the concepts of descriptive statistics from these

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	data for skill development.
CO4	Understand and be able to address ethical, regulatory and practical aspects of human subject's research including human subjects protections globally for skill development.
CO5	Be capable of self-directed learning of unfamiliar statistical methods and written and oral presentation of results/findings for skill development and employability.

Course Code	**BFT-501**
Course Name	**Techniques in Food Analysis**
COs	**Description**
CO1	Understand the sampling techniques and the factors involved, error analysis, and minimization for skill development, employability and entrepreneurship development.
CO2	Understand the principle and analysis of compositional attributes of food for skill development, employability and entrepreneurship development.
CO3	Understand the fundamental principle and laws of spectrophotometry and its global application in food analysis for skill development and employability.
CO4	Understand the basic principle and classification of chromatographic techniques and their application in food analysis for skill development and employability.
CO5	Understand the physiological and psychological basis for sensory evaluation and its methodologies to solve specific problems in food quality analysis for skill development, employability and entrepreneurship development.

Course Code	**BFT-502**
Course Name	**Food Industry By-Products & Waste Utilization**
COs	**Description**
CO1	Understand the definition, handling, classification, and properties of food waste; Types of product-specific food waste, and ways to reuse food waste for skill development, employability and entrepreneurship development.
CO2	Understand the working and global applications of UASB and fixed bed loop reactor used in the food industry for skill development, employability and entrepreneurship development.
CO3	Understand the utilization of by-products from animal, meat, poultry, and fish industries for skill development, employability and entrepreneurship development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Identify and analyze the utilization of sugarcane by-products. Gain knowledge about the recovery of proteins, dietary fibres, and antioxidants for skill development and employability.
CO5	Understand the utilization of various dairy by-products like casein and ghee residue for skill development and employability

Course Code	BFT-503
Course Name	Food Safety and Microbial Standard

COs	Description
CO1	Understand food safety and its microbiology for skill development, employability and entrepreneurship development.
CO2	Know major chemical and biochemical (enzymatic) reactions that influence food quality with emphasis on food industry applications for skill development, employability and entrepreneurship development.
CO3	Understand how the properties of different food components and interactions among these components modulate the specific quality attributes of food systems for skill development and employability.
CO4	Understand the principles that underlie the biochemical/enzymatic techniques used in food analysis for skill development and employability.
CO5	Gain global knowledge and be able to use food regulations for skill development, employability and entrepreneurship development.

Course Code	BFT-504
Course Name	Fat Rich and Traditional Dairy Products

COs	Description
CO1	Understand the different cream separation methods used in the dairy industry for skill development, employability and entrepreneurship development.
CO2	Understand the butter-making process and the key functions of the processing steps involved for skill development, employability and entrepreneurship development.
CO3	Understand the classification and local standard methods of manufacture of khoa for skill development and employability.
CO4	Identify the physicochemical changes during the manufacture and storage of paneer for skill development and employability.
CO5	Identify and analyze the production, packaging, and preservation of ghee for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BFT-504 I
Course Name	Nutrition During Lifecycle

COs	Description
CO1	Understand the basic physiologic changes in infancy, childhood, adolescence, adulthood, and elderly for skill development.
CO2	Gain global knowledge about the basic info on micro and macro nutrients metabolism, their role in human health for employability in industry.
CO3	Understand the basic nutrition during pregnancy review of major physiological changes during pregnancy for employability in industry.
CO4	Understand the basic nutrition during infancy exclusive breastfeeding, formula feeding, nutrient needs, assessment of nutrient intake, introduction to solid food, some common problems for employability in industry.
CO5	Understand the basic nutrition during adulthood life style and nutrient needs, body weight management and energy intakefor employability in industry and entrepreneurship development.

Course Code	BFT-504 II
Course Name	Food Plant Layout & Design

COs	Description
CO1	Understand the plant design, difference and considerationsfor skill development.
CO2	Gain global knowledge about the food plant size, utilities and services-ventilation, illumination and fly controlfor employability in industry.
CO3	Understand the food plant layout introduction, planning and experimentation for employability in industry.
CO4	Understand the food processing enterprise and engineering economics, evaluation methods for employability in industry.
CO5	Understand the process scheduling and operation, process schedule, plant operations for employability in industry and entrepreneurship development.

Course Code	BFT-504 III
Course Name	Food Supply Chain Management

COs	Description
CO1	Understand the logistics and supply chain management - scope, significance and drivers for skill development.
CO2	Gain knowledge about the demand forecasting and warehousing demand and supply management for employability in industry for better employability in industry and skill development

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the distribution and transportation, various sources of distribution channels, distribution models for employability in industry.
CO4	Understand the packaging and information technology, global applications of packaging in logistics, types of packaging and packaging materials for employability in industry.
CO5	Understand the global LCSM and performance analysis, export and import procedure and documentation for employability in industry and entrepreneurship development.

Course Code	BFT-505
Course Name	Food Packaging Technology

COs	Description
CO1	Impart the knowledge of various areas related to food processing and packaging for skill development, employability and entrepreneurship development.
CO2	Understand food composition and its physiochemical, nutritional, microbiological, and sensory aspects for skill development, employability and entrepreneurship development.
CO3	Learn the global importance of food safety, food quality, food laws, marketing, and food distribution system for skill development, employability and entrepreneurship development.
CO4	Evaluate different packaging materials (metals, cans, glass) based on various types of analysis in the laboratory for skill development and employability.
CO5	Understand packaging materials and effective packaging processes for skill development and employability.

Course Code	BFT-505 I
Course Name	Food Physics

COs	Description
CO1	Understand the unit measurements and conversion of units from one form to another in food science for skill development and employability.
CO2	Understand about the food flow and viscoelastic behaviors in food on the basis of different properties such as density, heat capacity and thermal conductivity.
CO3	Understand the different tests and instruments used for the texture analysis of food and measure various force-related properties to inculcate skill, provide employability.
CO4	Understand the effect of moisture content on electrical properties energy absorption from high frequency electric field and Food Codex for skill

Sanjeev Dawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development.
CO5	Understand the global concept of the composition of raw materials used in processed foods and changes in chemical composition and physical properties to improve the food quality for employability.

Course Code	BFT-505 II
Course Name	Juice Process Technology

COs	Description
CO1	Understand all about the composition, processing and preparation of beverages for skill development.
CO2	Understand the various types of beverages from fruit juices, their preparation and preservation globally for skill development.
CO3	Understand the non-carbonated and carbonated synthetic beverages, Ingredients, processing and packaging for skill development.
CO4	Understand the alcoholic Beverages for enhancing skills for employability.
CO5	Understand about water for beverages, Additives for beverages and global Quality standards for beverages for better employability.

Course Code	BFT-505 III
Course Name	Fish and Marine Products Technology

COs	Description
CO1	Understand the classification based movement for Fishes and manner of reproduction for skill development.
CO2	Understand the general and brief account of about economically important groups of fishes globally for better employability in industry.
CO3	Understand the natural populations and criteria for distinguishing units or multi-stock species for better employability in industry
CO4	Understand the general account of life history of Indian fishes and reproduction and spawning and fish eggs and larvae for better employability in industry.
CO5	Understand the movement and migration in fishes and knowledge for better employability in industry.

Course Code	BFT-601
Course Name	Food Fermentation Technology

COs	Description
CO1	Understand the culture media, important cultures and inoculum transfer

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	method for skill development, employability and entrepreneurship development.
CO2	Understand the microbial production of various enzymes such as lipase, amylase, protease, pectinase, lactase, and cellulase for skill development, employability and entrepreneurship development.
CO3	Understand the design of fermentor and different processes and control systemfor skill development, employability and entrepreneurship development
CO4	Understand the global industrial production process of various alcoholic beverages and distilled alcoholic products for skill development and employability.
CO5	Understand the distillation process, types of alcoholic beveragesfor skill development and employability

Course Code	BFT-602
Course Name	Food Chemistry II
COs	**Description**
CO1	Understand distribution, role and bioavailability of macro, micro and trace elements for skill development, employability and entrepreneurship development.
CO2	Learn about the natural food pigments its characteristics, physical and chemical properties for skill development and employability.
CO3	Understand about the protein and mechanism of browningfor skill development, employability and entrepreneurship development.
CO4	Understand about the enzymes, characteristics, properties and global industrial uses for skill development and employability.
CO5	Explain the pphysico-chemical and nutritional changes due to food processing for skill development, employability and entrepreneurship development.

Course Code	BFT-603
Course Name	Technology of Meat, Poultry & Eggs
COs	**Description**
CO1	Understand the need and importance of the livestock, egg and poultry industry. They will get knowledge about meat quality parameters and what are the factors that affect it for skill development, employability and entrepreneurship development.
CO2	Acquire in-depth knowledge of the slaughter process of buffalo, sheep/goat, poultry, and pig, the importance of antemortem and

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	postmortem inspection, HACCP for slaughter Process for skill development, employability and entrepreneurship development.
CO3	Acquire detailed global knowledge about the various preservation techniques for meat for skill development, employability and entrepreneurship development.
CO4	Understand the egg industry, its techniques of working, general management, structure, composition and nutritive value of egg and its products for skill development and employability.
CO5	Gain knowledge about various preservation techniques for eggs. Also understand the factors affecting egg quality and measures of egg quality for skill development and employability.

Course Code:	**BFT-604**
Course Name:	**Project Management and Entrepreneurship**
COs	**Description**
CO1	Describe Entrepreneurship and examine the role of an entrepreneur in global economic development for skill development, employability and entrepreneurship development.
CO2	Learn about the key principles behind small businesses. Also, will be able to do strategic planning for small businesses and assess the organizational strength for skill development, employability and entrepreneurship development.
CO3	Analyze the concept of Project planning, scheduling, and Execution. Will also have clarity about project organization and feasibility analysis for skill development, employability and entrepreneurship development.
CO4	Learn about the different traditional and alternative sources for the arrangement of funds. Also, know about the role played by various institutions for skill development, employability and entrepreneurship development.
CO5	Understand the role played by commercial banks and other institutions in the approval of loans. Also, learn about the concept of project implementation for skill development, employability and entrepreneurship development

Course Code	**BFT-604 I**
Course Name	**Cane Sugar Technology**
COs	**Description**
CO1	Understand about sugars, its types and disorders globallyf or skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand about carbohydrates and its classification for skill development, employability and entrepreneurship development.
CO3	Understand about di and polysaccharides for skill development.
CO4	Understand about organic acids and poly phenols for skill development.
CO5	Understand about physical and chemical properties of sugars for employability.

Course Code	BFT-604 II
Course Name	**Food Borne Infection & Intoxicants**

COs	Description
CO1	Understand about food born diseases for skill development.
CO2	Understand about milk born infections for skill development, employability and entrepreneurship development.
CO3	Understand about milk born intoxications for skill development.
CO4	Understand about global strategies for prevention and control of food borne diseases skill development.
CO5	Understand about Recent trends and advancements in the field of food toxicology for employability.

Course Code	BFT-604 III
Course Name	**Clinical Nutrition**

COs	Description
CO1	Understand about basic human physiology for skill development.
CO2	Understand about human metabolism for skill development, employability and entrepreneurship development.
CO3	Understand about global nutrition in pregnancy for skill development.
CO4	Understand about diseases in infants for skill development.
CO5	Understand about nutrition during adolescence for employability.

Course Code	BFT-605
Course Name	**Food Quality Management**

COs	Description
CO1	Understand why there is a need for food quality management and what parameters are generally analyzed. Understand why and how the government controls the quality of food for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the food contamination in terms of physical, chemical, and biological parameters for global skill development, employability and entrepreneurship development for skill development, employability and entrepreneurship development.
CO3	Understand the chemical, technological and toxicological aspects of different types of food additives in food preservation for skill development, employability and entrepreneurship development.
CO4	Learn the basic principles and application of processing techniques in foods like microwave processing, cryogenic freezing, ultra-filtration, supercritical fluid extraction, flavour encapsulation, and nanotechnology for skill development and employability
CO5	Understand National and International Food Laws, Standards, and Regulations for skill development and employability.

Course Code	BFT-605 I
Course Name	**Food Laws and Quality Assurance**

COs	Description
CO1	Understand about food hazard and natural toxins for skill development.
CO2	Understand about global food laws and regulations for skill development, employability and entrepreneurship development.
CO3	Understand about global safety assessment and safety evaluations for skill development.
CO4	Understand about principles of quality control for skill development.
CO5	Understand about quality assurance and total quality management for employability

Course Code	BFT-605 II
Course Name:	**Grain Storage**

COs	Description
CO1	Understand about principles and grain storage practices for skill development.
CO2	Understand about flow characteristics of granular material and their design for skill development, employability and entrepreneurship development.
CO3	Understand about local management and maintenance of grain storage for skill development.
CO4	Understand about improved grain storage methods for skill development.
CO5	Understand about functions of packaging materials for employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BFT-605 III
Course Name	Flavour Chemistry and Technology

COs	Description
CO1	Understand about classification of flavors for skill development.
CO2	Understand about important chemical reactions involved in converting raw material into flavor chemicals for skill development, employability and entrepreneurship development.
CO3	Understand about biogenesis of flavors in fruits and vegetables for skill development.
CO4	Understand about flavour enhancers and modifiers for skill development.
CO5	Understand about legal global aspects related to flavors for employability.

PROGRAMME NAME – B. SC. (Microbiology)

Course Code	B080101T
Course Name	General Microbiology

COs	Description
CO1	Understand the historical concept, scope of microbiology. It will also clear the concept of microbial classification for skill development at global level.
CO2	Understand about structure, characteristics, classification and reproduction of various members of microbial world including virus, fungi and protozoa for skill development and employability.
CO3	Gain the knowledge about the various microscopy techniques used in microbiology for skill development and employability
CO4	Gain the knowledge about the various techniques and instruments used in laboratory for skill development and employability globally.
CO5	Learn about the methods and techniques for sterilization and asepsis for skill development and employability.
CO6	Understand the concept of isolation, cultivation, maintenance and preservation of microorganism to acquire knowledge for employability.
CO7	Clear the concept of various staining techniques used in microbiology laboratory to develop employability skills.
CO8	Understand biostatistics that helps to create the analytic ability for skill enhancement and local employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BMB101T
Course Name	Animal Science

COs	Description
CO1	Describe general taxonomic rules of animal classification to acquire knowledge for skill enhancement at global level
CO2	Classify Protozoan on basis of features and examples from parasitic adaptationfor skill development.
CO3	Classify Phylum Porifera with taxonomic keys using examples from parasitic adaptation for skill development and employability globally.
CO4	Describe Phylum Annelids with their type studyfor effective development of skills.
CO5	Understand general characteristics of Echinodermata and Arthropodafor skill development and local employability.
CO6	Identify, classify, and characterize phylum Chordata& class Mammaliafor skill development.
CO7	Describe the Human physiology including the digestive system, circulatory system, respiratory system, excretory system, and endocrine systemfor skill development.
CO8	Understand the human physiology including the Nervous system, muscular and reproductive systemsfor skill development and better employability.

Course Code	BMB102T
Course Name	Plant Science

COs	Description
CO1	Gain knowledge about the structure and development of different parts of plants for skill development at global level.
CO2	Understand proper metabolic pathways that are signification in physiological functioning for skill development and employability.
CO3	Analyze and apply taxonomy and systematic in plant kingdom for evolutionary classification to enhance knowledge for better local skill development and employability.
CO4	Learn the basic concept of Algal classification on basis of common features for effective development of employability skills.
CO5	Learn the basic concept of Fungi classification on basis of common features for skill development and employability.
CO6	Learn the basic concept of Bryophyte classification on basis of common features to acquire skills for better employability.
CO7	Learn the basic concept of Pteridophyta classification on basis of common features for skill development.
CO8	Learn the basic concept of Gymno & Angiosperms classification on basis of common features for skill enhancement globally.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BMB103T
Course Name	Chemistry I

COs	Description
CO1	Understand the Chemical equilibrium and its relationship on the basis of reversible and irreversible reactions to enhance knowledge for skill development at global level.
CO2	Solve problems of chemical kinetics by using appropriate mathematical concepts for skill development and employability.
CO3	Understand the ideal solution, chemical potential in ideal solution and interprets the colligative properties for better skill development and employability.
CO4	Understand the concept of acid & base on the basis on different theories for skill development and employability.
CO5	Understand the role of thermodynamics laws along with concept of free energy for skill development at global level.
CO6	Understand measurement of reaction rates, representation of rate laws, and applications of chemical kinetics for skill development and local employability.
CO7	Understand the classification, types and properties of colloids for skill development.
CO8	Understand an idea on different electrochemical cells and electrochemical series to acquire knowledge for better employability skills.

Course Code	A190101T
Course Name	Foundations of Library and Information Science

COs	Description
CO1	Comprehend the concept, objectives and development of libraries and its importance to the society for effective development of employability skills globally.
CO2	Understand the professional ethics of librarianship and the five laws of library science with their implications on various services of the libraries for skill development and employability.
CO3	Understand the importance of library legislation and features of library acts for skill development and employability.
CO4	Familiarize with the role of various National and International Library Associations and organizations to enhance knowledge for skill development and employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	Z010101T
Course Name	Food Nutrition and Hygiene

COs	Description
CO1	Learn the basic concepts of food and nutrition for skill development and employability at global level.
CO2	Study the nutritional requirement-it's excess and deficiency in the body for effective development of employability skills.
CO3	Learn about meal planning and 100 days nutrition concept for skill development and local employability.
CO4	Study common health issues and special nutritional requirements during common illness to acquire knowledge for better skill development and employability.

Course Code	B080201T
Course Name	Agriculture & Environmental Microbiology

COs	Description
CO1	Get the knowledge of natural and extreme habitats of microbes for skill development and employability at global level.
CO2	Learn the interaction among themselves and with plant and animals to acquire knowledge for skill development and local employability.
CO3	Learn about different biogeochemical cycles running in ecosystem and role of microbes within it for skill development.
CO4	Get knowledge about different types of waste and their management to enhance knowledge for skill development and employability.
CO5	Learn the management of pollutants and the activities of microbes within it for skill development and employability.
CO6	Learn about safety measures of water and it's treatment method for development of employability skills.
CO7	Gain knowledge of bio-fertilizers and their types for effective skill development and employability.
CO8	Study about bio-pesticides-it's types, applications, advantages and disadvantages for skill development and employability.

Course Code	BMB201T
Course Name	Elementary Biology

COs	Description
CO1	Define cell biology and gain some basic concept of functioning of various organelles for skill development at global level.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understands the Structural Organization and functions of different parts of plants. Students also learn the basic concepts of botanical garden, herbaria, zoological park and museums to enhance knowledge for better skill development and local employability.
CO3	Understands the concept of animal and plant classification for enhanced skill development and employability.
CO4	Develop the knowledge of genes and understands the laws of inheritance for skill development.
CO5	Understands the concept of diffusion, osmosis, imbibition in plants and movement of water, food, nutrients and gases in itto acquire better employability skills.
CO6	Basic construction of a living organism, its metabolism and relation to diseases for skill development and employability.
CO7	Understands the basic structure of mitochondria, cellular respiration and factors affecting respiration for effective development of employability skills.
CO8	Understands the basic concepts of immunology and reproductive health and human welfare for skill development.

Course Code	**BMB202T**
Course Name	**Chemistry II**
COs	**Description**
CO1	Understand the basic concepts of chemical structure, bonding, bond properties and other chemical bond characteristics for skill enhancement.
CO2	Describe the different types of reagents and reactions such as types of electrophiles and nucleophiles, different types of organic reactions and their mechanisms to acquire employability skills.
CO3	Learn isomerism in ethane, butane and cyclohexane and different methods of two-dimensional projection of organic molecules for skill development and employability.
CO4	Explain the stereoisomerism and nomenclature of different isomers for effective development of employability skills.
CO5	Understand the nomenclature, classification, properties and reactions of alkanes to enhance knowledge for skill development and local employability.
CO6	Understand the nomenclature, classification, properties and reactions of cycloalkanes for skill development and employability at global level.
CO7	Describe the chemical nature, properties, preparation and chemical reactions of alcohols, phenols to acquire knowledge for better skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO8	Describe the chemical nature, properties, preparation and chemical reactions of ethers for skill development and employability.

Course Code	BMB203T
Course Name	Fundamentals of Computer

COs	Description
CO1	Increases the knowledge of fundamental concepts of computer for skill development at global level.
CO2	Ability to know the Input-Output devices to acquire knowledge for better skill development.
CO3	Ability to know Number System for skill development and employability.
CO4	Ability to know the Memory for effective development of employability skills.
CO5	Ability to demonstrate the Software Packages for better employability skills.
CO6	Ability to know the CN, OS for skill development and employability.
CO7	Ability to know the DBMS to enhance knowledge for skill development and employability globally.
CO8	Ability to know the Internet for local skill development and employability.

Course Code	A270101T
Course Name	Basics of Mass Communication and Journalism

COs	Description
CO1	Students will get familiar with different types of Communication and Journalism for skill enhancement globally.
CO2	Acquaint students with practical knowledge of Media related Computer software's for better skill development.
CO3	Explain the need and importance of studying Communication across life span to acquire better employability skills.
CO4	Identify the factors affecting Journalism for skill development at global level.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	Z020201
Course Name	First Aid and Health

COs	Description
CO1	Provide awareness about use of first aid, laws related to first aid, simple hygiene techniques for better skill development at global level.
CO2	Learn difference first aid technique used in heart, blood circulation and difference between CPR and recovery positions to enhance knowledge for better skill development.
CO3	Get knowledge about first aid technique used in wounds, injuries, fractures and joint injuries for skill development and local employability.
CO4	Learn the skills needed to provide first aid during nervous system, GIT conditions for skill enhancement.
CO5	Provide awareness for various accidental poison consumption, bites, stings, basic sense organs and steps taken during any disastrous condition to acquire knowledge for better employability skills.
CO6	Learn about basic reproductive, urinary system for skill development and employability.
CO7	Awareness about the concept of sex education, LGBTQ issues and most importantly prevention of STDs for effective skill development and employability globally.
CO8	Know about mental health issues, understanding depression, disorders and first aid use mental health aid to acquire better for employability skills.

Course Code	BSB-301
Course Nam	Modern Analytical Techniques

COs	Description
CO1	Understand the concept of GLP and GMP, quality assurance and quality control, and aspects related to their analysis for skill development.
CO2	Understand the EM spectrum and various spectroscopy- their principle and instrumentation knowledge for better employability in global industry.
CO3	Learn all the related aspects of centrifugation and sedimentation for better skilling of entrepreneurship.
CO4	Learn the principle of chromatography and its various types application understanding for entrepreneurial skills.
CO5	Understand the concept of electrophoresis and its types to inculcate skill provide local employability & entrepreneurial skills.

Sanjeev Agrawal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSB-302
Course Name	Enzymology

COs	Description
CO1	Understand enzyme nomenclature, classification, and purification techniqu for entrepreneurship & local employability.
CO2	Derive the kinetics expression of enzymatic reactions like Michaelis- Ment Equation for skill development.
CO3	Understand the immobilization techniques and will learn methods a applications to inculcate skill provide local employability &entrepreneur skills.
CO4	Identify the regulatory factors of enzymes for skill development
CO5	Explore the application of enzymes in food, beverages, and agricultu industries knowledge for better employability in global industry.

Course Code	BSB-304
Course Name	Basics of Immunology

COs	Description
CO1	Compare and contrast innate and adaptive immunity for skill development
CO2	Understand the cell types and organs present in the immune response for skill development.
CO3	Will gain practical application on the various Immunological techniques viz ELISA, RIA, and western blotting for disease diagnosis providing local employability
CO4	Exemplify the adverse effect of the immune system including Allergy, hypersensitivity and autoimmunity. For better skill development
CO5	Elucidate the reasons for immunization and be aware of different vaccination providing skill globally.

Course Code	BMB-301
Course Name	Microbial Genetics

COs	Description
CO1	Understand the fundamental concepts of microbial genetics, structure and properties of genetic material for skill development.
CO2	Explain the structural features and properties of bacteriophages, life cycle and gene transfer mechanisms for better employability skills.
CO3	Learn about replication mechanism, expression of gene and its regulation on prokaryotes for skill development.
CO4	Understand the techniques of genetic engineering, screening, methodology

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and applications of microbial genetics for skill development.
CO5	Learn about the various global phenomenon and their management for understanding for entrepreneurial skill.

Course Code	BMB-302
Course Name	Microbial Physiology
COs	**Description**
CO1	Understand the theories of continuity of life, classification and identification of microbes for entrepreneurship & local employability
CO2	Explain the bacterial structure, function and intracellular components for skill development.
CO3	Describe the energy production pathways for skill development.
CO4	Know the photosynthetic organisms, mechanism and phases of photosynthesis for better skilling of entrepreneurship.
CO5	Understand the microbial growth curve, effect of various factors on growth process of microbes to inculcate skill provide local employability &entrepreneurial skills.

Course Code	EHU-301
Course Name	Disaster Management
COs	**Description**
CO1	Ability to understand major types of disaster in Indian as well as global context for skill development
CO2	Understanding of approaches to reduce disaster risks for better skilling of entrepreneurship &employability.
CO3	Capable of understanding relationship between development and disaster. Sustainable development for skill development
CO4	Understanding of when an event becomes disaster and the phases to handle the situation for employability
CO5	Ability to analyze how to handle a situation of global disaster by taking case studies of events in past to inculcate skill provide employability &entrepreneurship

Course Code	BSB-401
Course Name	Introductory Bioinformatics
COs	**Description**
CO1	Demonstrate knowledge of the properties of parametric, semi-parametric

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and non-parametric testing procedures in Biostatistics to inculcate skill, provide local employability and entrepreneurship
CO2	Remember restate the principal concepts about biostatistics and collect data relating to variable which will be examined to provide local employability and entrepreneurship
CO3	Understand and interpret the concepts of descriptive statistics from these data for skill development.
CO4	Understand and be able to address ethical, regulatory and practical aspects of human subject's research including human subjects protections for skill development globally.
CO5	Be capable of self-directed learning of unfamiliar statistical methods and written and oral presentation of results/findings for skill development.

Course Code	BSB-402
Course Name	Recombinant DNA Technology

COs	Description
CO1	Familiarize the basic concepts of recombinant DNA technology such as tools of rDNA technology, different types of commonly employed enzymes, and their use in r-DNA techniques to enhance local employability skills.
CO2	Understand the vectors used in gene cloning such as Plasmids, Ti plasmid, Cosmids, Phagemids, shuttle vectors, expression vectors like YAC for skill development.
CO3	Understand the different mechanisms of gene recombination like transformation, bacterial conjugation and methods of gene transfer such as transfection, microinjection, electroporation, shot-gun method to enhance local employability skills.
CO4	Describe the technique of construction of recombinant DNA molecule and gene libraries, screening, and selection of recombinant host cells to inculcate skill, provide local employability and entrepreneurship
CO5	Define the concept of PCR technique, principle and procedure of PCR, components of PCR, and different types of PCR techniques and identify the applications of r DNA technology providing local employability.

Course Code	BSB-403
Course Name	Metabolism of Carbohydrates and Nucleic Acids

COs	Description
CO1	Understand the macromolecules carbohydrates, classification, properties and Isomerism for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the metabolic processes of carbohydrates and its regulation mechanisms for skill development
CO3	Understand the carbohydrate metabolism, control mechanisms and energy production pathways to develop skills for local employability.
CO4	Describe the structure of Nucleic acid, properties and their biological role for skill development.
CO5	Define the concept of metabolism of Nucleic acids providing local employability

Course Code	BMB-401
Course Name	Industrial Microbiology

COs	Description
CO1	Understand the history of industrial microbiology, techniques for preparation of culture, maintenance and preparation of culture for better entrepreneurial skill.
CO2	Understand the techniques for improvement of techniques for skill development.
CO3	Understand the basic design of bioreactors, types and functions of bioreactor components for better skill development.
CO4	Understand the techniques of downstream processing, different recover processes for better employability.
CO5	Understand the industrial production of various products obtained from microbes for skill development and entrepreneurship globally

Course Code	BMA-409
Course Name	Introductory Biostatistics

COs	Description
CO1	Understand the importance of photosynthesis for plants for effective development of skills at global level.
CO2	Understand the water, solute and sugar transport processes in plants and different mechanisms in plants used for water & mineral transport for enhanced local employability skills.
CO3	Understand the plant hormones and their roles in plant development for effective development of skills.
CO4	Understand the light and dark reactions of photosynthesis and compare the dark reactions in plants for enhanced employability skills.
CO5	Understand the photochemical and biochemical characteristics of phytochrome for enhanced employability skills.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSB-501
Course Name	IPR in Biotechnology

COs	Description
CO1	Identify different types of Intellectual Properties (IPs), the right of ownership as well as the scope of protection. Outline the process of patenting and development for skill development globally.
CO2	Understand the roles of different organizations and conventions related to IP knowledge for better employability in global industry
CO3	Identify activities and constitute IP infringements and the remedies available to the IP owner for better skill development
CO4	Recognize the importance of GLP, Understand the levels of Biosafety and biosafety guidelines in India bioethics to inculcate skill, provide local employability and entrepreneurship.
CO5	Understand the ethical issues in biotechnological products and NGO for bioethics understanding for entrepreneurial skill globally.

Course Code	BSB-502
Course Name	Fundamentals of Bioprocess Engineering

COs	Description
CO1	Understand the concept of bioprocess engineering in biotechnology, medium preparation and inoculum development providing local employability and entrepreneurship globally.
CO2	Know the different types of microbial cultivation techniques, Biomass, and product yield identification for skill development.
CO3	Sterilize the fermentation medium, fermenter, vessel, and air for better skill development
CO4	Utilize the element and material balance to design the stoichiometry of growth and product formation understanding for entrepreneurial skill.
CO5	Use the different types of bioreactors in industrial fermentation, Role of aeration and agitation in product optimization for better employability in global industry.

Course Code	BSB-503
Course Name	Protein & Enzyme Technology

COs	Description
CO1	Understand protein structure, factors affecting protein structure, protein assays to inculcate skill, provide local employability and entrepreneurship
CO2	Explain enzyme classification, nomenclature, technique for isolation and

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	purification of enzymes to provide local employability and entrepreneurship
CO3	Understand the enzyme rate kinetics, factors affecting reaction rate and catalysis for skill development.
CO4	Understand chemical properties, mechanism and functions of important biological enzymes for better employability.
CO5	Explain and understand the various applications of enzymes in global industries for better skill development.

Course Code	BMB-501
Course Name	Food Microbiology

COs	Description
CO1	Understand the substrate requirements for culture growth, growth characteristics and properties of different microorganisms for skill development, local employability and entrepreneurship development.
CO2	Understand the techniques for control of microorganisms using heat for skill development, employability and entrepreneurship development at global level.
CO3	Gain knowledge about the contamination, spoilage, and preservation of different types of foods for skill development and employability.
CO4	Understand the techniques and principles of culture maintenance and preparation-for skill development, employability and entrepreneurship development.
CO5	Explain the different types of bacterial food borne diseases and non-bacterial diseases for skill development, employability and entrepreneurship development.

Course Code	BMB-502
Course Name	Microbial Biotechnology

COs	Description
CO1	Understand the role of microbes in agriculture, GM crop, microbes as biofertilizer and biofuels for skill development, employability and entrepreneurship development at global level.
CO2	Understand the concept of microbial leaching, bio-recovery, bioremediation and bio-deterioration for skill development and employability globally.
CO3	Understand the role of GE microbes, production of biologically important proteins for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the process for production of dairy and food products using microbes for skill development.
CO5	Understand the working principle of biosensors, biopolymers, biochips, biofilms and bioplastic for skill development, employability and entrepreneurship development.

Course Code	BMB-501 I
Course Name	Principle of Human Nutrition

COs	Description
CO1	Understand the relationship of nutrition to health, growth and human welfare for employability in global industry.
CO2	Gain knowledge about the Physiology of Nutrition-digestive system, digestion, circulatory and lymphatic system, excretion of waste products for employability in global industry.
CO3	Understand the Macronutrients types, function, sources, and requirements for employability in global industry.
CO4	Understand the Micronutrients types, function, sources, and requirements for employability in industry.
CO5	Understand the Energy value of food, basic functions of energy for employability in industry and entrepreneurship development.

Course Code	BMB-501 II
Course Name	Food Science & Nutrition

COs	Description
CO1	Understand the Functional food groups, Food Pyramid and Study of various cooking methods for employability in global industry.
CO2	Gain knowledge about the Varieties of pulses & grams, composition, nutritive value, cooking quality of pulses, germination and its effect for employability in industry.
CO3	Understand the Beverages - Classification, nutritive value for employability in industry.
CO4	Understand the Egg - Structure, composition, classification, nutritive value, uses of egg in cookery, methods of cooking for employability in global industry.
CO5	Understand the Meat -Structure, composition, nutritive value for local employability in industry and entrepreneurship development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BMB-501 III
Course Name	Technology of Beverages

COs	Description
CO1	Understand the type of beverages for employability in global industry.
CO2	Gain knowledge about the fruit and vegetable beverages: juice extraction, clarification, preservation for employability in global industry.
CO3	Understand the non carbonated and carbonated synthetic beverages for employability in industry.
CO4	Understand the alcoholic beverages: non-distilled beverages: beer and wine. distilled beverages –vodka , rum etc for employability in industry.
CO5	Understand the non-alcoholic beverages, Processing of tea, coffee and cocoa for employability in industry and entrepreneurship development globally.

Course Code	BMB-502 I
Course Name	Cloning Strategies and Nanomicrobiology

COs	Description
CO1	Understand the nanotechnology -structures, concepts and applications for employability in industry.
CO2	Gain knowledge about the basic characterization techniques through microscopy for employability in industry.
CO3	Understand the thin films colloidal nano-structures, nano-vesicles, nanospheres, nanocapsules for employability in global industry.
CO4	Understand the applications of nano-materials in biosystems: proteins - lipids - rna and dna for employability in industry.
CO5	Understand the nanomaterials and diagnostics/drug delivery and therapeutics for local employability in industry and entrepreneurship development.

Course Code	BMB-502 II
Course Name	Clinical Operations & Clinical Data Management

COs	Description
CO1	Understand the Different types of Clinical Research, Clinical Pharmacology, Pharmacokinetics, Pharmacodynamics Research for employability in global industry.
CO2	Gain knowledge about the History of Clinical Research Sulphanilamide Tragedy, Thalidomide Disaster, Nazi Experiments, Tuskegee Study, Belmont report for employability in global industry.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the Concept of Clinical Trail Management for employability in global industry.
CO4	Understand the International GMP regulation, Indian GMP regulation for employability in industry.
CO5	Understand the clinical data management systems and safety of herbal medicines for employability in industry and entrepreneurship development.

Course Code	BMB-502 III
Course Name	Substitute and Food Evaluation

COs	Description
CO1	Understand the food situation in India and outside for employability in industry.
CO2	Gain knowledge about the physical principles underlying food processing and preservation for employability in global industry.
CO3	Understand the basic processing technology of fruits and vegetables for employability in industry.
CO4	Understand the methods of evaluation and quality control of various food industry for employability in industry.
CO5	Understand the additives and preservatives used in processing and formulation for employability in industry and entrepreneurship development globally.

Course Code	BSB-601
Course Name	Fermentation Technology

COs	Description
CO1	Understand the basic concepts of fermentation, Isolation, screening and maintenance of microbes for skill development
CO2	Know the fermentation medium and its components, pretreatment process for better skill development
CO3	Develop the design and construction and types of bioreactors to provide local employability and entrepreneurship
CO4	Develop the understanding of the production of industrially important products like alcohol, amino acids, etc. knowledge for better employability in global industry
CO5	Understand the techniques of antibiotics and vitamins production to inculcate skill, provide employability and entrepreneurship globally.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSB-602
Course Name	Introductory Bioenergetics

COs	Description
CO1	Learn about the applicability of laws of thermodynamics in biological systems, about high energy compounds, and related reactions to inculcate skill, provide local employability and entrepreneurship globally.
CO2	Understand the structure and function of the biological membrane in transport activity of cells and signal transduction and response towards the internal and external factors for skill development.
CO3	Understand generation and utilization of ATP, Metabolism of Nitrogen-containing compounds, Nitrogen cycle.
CO4	Know about Metabolic Pathways of high-energy compounds ATP, GTP, FADH, NADH, maintenance energy; energy involvement in aerobic processes for better employability in industry.
CO5	Understand the concept of Substrate level and oxidative phosphorylation for better skill development.

Course Code	BMB-601
Course Name	Advanced Virology

COs	Description
CO1	Classify the viruses on different basis and know about isolation and cultivation process of viruses for skill development.
CO2	Understand the classification of plant viruses, genome organization, life cycle and pathogenicity of some viruses to enhance knowledge for local employability.
CO3	Learn about structure genomic organization of some specific plant viruses along with symptoms and serological testing methods for global skill development.
CO4	Classify animal viruses and understand the infection cycle with example of some very important DNA and RNA viruses or effective development of skills
CO5	Describe the Bacteriophages Mycophages, Cyanophages and the Bacteriophage therapy to combat the infection bacterial disease to acquire knowledge for employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BMB-602
Course Name	Clinical Parasitology

COs	Description
CO1	Understand the mechanism of infection, concepts related to host-pathogen interaction, exotoxin and endotoxin for skill development.
CO2	Understand and acquaint the students with the key aspects of medical microbiology related to the diverse microbial pathogens, their virulence mechanisms, symptoms and their mode of transmission for global skill development.
CO3	Understand morphology, symptoms, life cycle and diagnosis of important diseases caused by protozoans for better employability.
CO4	Understand morphology, pathogenesis, life cycle and laboratory diagnosis of important diseases caused by cestodes for skill development.
CO5	Understand morphology, geographical distribution, pathogenesis, life cycle and laboratory diagnosis of important diseases caused by helminthes for effective development of skills.

Course Code	BMB-603
Course Name	Dairy Microbiology

COs	Description
CO1	Familiarize the concept of different types of milk, its uses, sources, chemical composition of milk and to understand the principle and procedure of manufacturing Fermented dairy products like yogurt, kefir, cultured cream, buttermilk, Cheese to develop employability skills at global level.
CO2	understand the principle and procedure of microbial analysis of milk, microflora of raw milk, Total Bacterial count, Dry reduction test, Brucella ring test, Test for mastitis and to identify the factors affecting the microbial growth in milk for skill development.
CO3	Describe the different microorganisms present in milk and milk products and factors responsible for the growth of microorganisms to develop employability skills.
CO4	Describe the processing methodology for controlling microorganisms in various dairy products like cream, butter, evaporated milk and other dairy products for skill development.
CO5	Describe the various methods employed for the preservation of milk products such as removal of microorganisms by use of heat, low temperature, drying and preservatives to develop employability skills.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BMB-602 I
Course Name	Microbial Quality Control in Food and Pharmaceutical Industries

COs	Description
CO1	Understand Definition, concepts, perception, attributes of quality for effective development of employability skills
CO2	Understand Quality risk management in Pharmaceuticals, HACCP, Fish Bone approach etc. to promote entrepreneurship skills and local employability.
CO3	Understand Pharmaceutical Quality System, OOS, OOT, Complaints: Evaluation and handling for skill development.
CO4	Learn about Physical and chemical contaminants in food processing, Risk assessment studies for effective development of employability skills.
CO5	Food Laws, standards and regulations FSSAI, USFDA, EU, Codex alimentarius, ISO Series, World Trade Organization for effective development of employability skills globally.

Course Code	BMB-602 II
Course Name	Microbial Diagnosis in Health Clinics

COs	Description
CO1	Learn about Importance of diagnosis of infectious diseases, Challenges in diagnosis for skill development.
CO2	Learn various methods of Microscopic examination of clinical samples and develop employability skill and entrepreneurship
CO3	Learn about Rapid Detection of bacterial pathogens and antibiotic sensitivity of bacteria for skill development
CO4	Understand and learn Current approaches to diagnosis, PCR, ELISA, collection marking etc. for effective development of employability skills globally.
CO5	Understand Anti-microbial chemotherapy General characteristics and mode of action for better employability.

Course Code	BMB-602 III
Course Name	Economic Botany

COs	Description
CO1	Understand the definition concept and importance with reference to Vavilov's work for enhancing skills
CO2	Learn the extraction and processing of the commercially important products wheat, maize paddy, sorghum etc for development of

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	entrepreneurship and to generate employability.
CO3	Learn about spices and contaminants, Pepper, Clove, Coriander, Ginger, Cardamom, Garlic, Onion, Turmeric, Chilli etc for development of entrepreneurship
CO4	Learn about Beverages, Sugar and Oil Yielding Plants their extraction process and economy related to them.
CO5	Learn about Plants Yielding High Commercial Value Products eg- Cotton, Jute, Hevea, Teak for development of entrepreneurship and to generate employability

Course Code	BMB-603 I
Course Name	Biofertilizers Technology

COs	Description
CO1	Understand History and concept of Bio fertilizers, status scope and importance in India and world for generating skills for local employability.
CO2	Understand the Structure and characteristic features of bacterial Bio fertilizers Azotobacter, Bacillus, Pseudomonas, Rhizobium etc. to enhance skills
CO3	Learn about Strain selection, sterilization, growth and fermentation and quality control of bio fertilizers to enhance skills for employability
CO4	Understand about technology for seeds, seedlings, tubers. Storage and shelf life of to generate skills for employability
CO5	Understand the Quality standard for biofertilizers, quality control assessment to enhance skills for employability globally.

Course Code	BMB-603 II
Course Name	Plant and Algal Physiology

COs	Description
CO1	Understand the plant water relationship for local skill development.
CO2	Understand about mineral nutrition and enzymes for skill development, employability and entrepreneurship development globally.
CO3	Understand about photosynthesis and other photosynthetic reactions of plant for skill development.
CO4	Understand about growth and development phases and kinetics for skill development.
CO5	Understand about photosynthesis in marine algae and their chemical structure and properties for employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BMB-603 III
Course Name	Clinical Pharmacokinetics

COs	Description
CO1	Understand about introduction of clinical pharmacokinetics for skill development at global level.
CO2	Understand about pharmacokinetics and drug interactions for skill development, employability and entrepreneurship development.
CO3	Understand about mixed effect modeling and pharmacometrics software for skill development.
CO4	Understand about altered pharmacokinetics and drug dosing in different conditions for skill development.
CO5	Understand about therapeutic drug monitoring for employability globally.

PROGRAMME NAME – B. Tech. (Biotechnology)

Course Code	TEMA – 102
Course Name	Elementary Mathematics – I

COs	Description
CO1	Understand the concept of partial fraction, logarithms, functions and limits of continuity skill development and employability.
CO2	Know the concept of matrices and determinant in field of engineering.
CO3	Understand the concept of calculus for employability.
CO4	Get familiar with the analytical geometry including straight line and integration.
CO5	Know the concept of differential equations and its applications in the field of engineering for entrepreneurship.

Course Code	TEPH-101/TEPH201
Course Name	Engineering Physics-I

COs	Description
CO1	Learn relativistic Mechanics, Frame of reference, Lorentz transformation equation. for global problem solutions.
CO2	Learn the air quality parameters and control of air pollution applications to gain skill
CO3	Understand the air quality parameters and control of air pollution providing employability
CO4	Understand about the industrial and domestic pollution and role of

Sanjeev Dave
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	government agencies for better employability in industry
CO5	Gain knowledge of optical fibre, propagation and their applications for better employability in industry

Course Code	TECE-101/201
Course Name	Environmental Science

COs	Description
CO1	Understand the issues related to environment and their impact on the human life to gain skill.
CO2	Learn the for global problem solutions. air quality parameters and control of air pollution applications to gain skill.
CO3	Understand the air quality parameters and control of air pollution providing employability
CO4	Understand about the industrial and domestic pollution and role of government agencies for better employability in industry

Course Code	TECH-101/201
Course Name	Engineering Chemistry

COs	Description
CO1	Gain knowledge about the basic concepts of chemistry and states of matter understanding for entrepreneurial skill development and employability.
CO2	Understand kinetic and electrochemical methods for various reactions for entrepreneurship
CO3	Demonstrate the mechanism of different reactions and their characterization using spectroscopy providing employability.
CO4	Learn about the various kinds of polymers and their applications for employability.
CO5	Demonstrate knowledge of science behind common impurities in water, methods to treat them and gain the basic knowledge of various types of Fuels, their properties skill development and employability

Course Code	TEEC101/ 201
Course Name	Electronics Engineering

COs	Description
CO1	Understand the basic of semiconductor technology for skill development.
CO2	Define the purpose of different diodes used in several applications for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Develop understanding and impact of resistance regions for skill development, employability and entrepreneurship development.
CO4	Discuss how basic communication occurs over wireless medium for skill development and employability.
CO5	Discuss the benefits of transistors over conventional vacuum tubes for to enhance skill providing employment

Course Code	TEEE-101/TEEE-201
Course Name	Electrical Engineering

COs	Description
CO1	Use basic electrical DC concepts and theorems to analyze circuits for skill development.
CO2	Draw the relevant phasor diagrams and waveform diagrams of voltage and current along with the concepts of reactance and impedance and power factor. Use of resonance and implications for practical circuits for skill development and employability.
CO3	Understand the preference of poly phase system over single phase system, star and delta connections along with develops the knowledge of theoretical and mathematical principles of electrical measuring instruments for skill development, employability and entrepreneurship development.
CO4	Analyze magnetic circuit and differentiate magnetic and electric circuits and understand single phase transformer, auto transformer and three phase transformer for skill development and employability.
CO5	Understand the construction of D.C machine, different windings, their merits and demerits and the basic concept of Three-phase induction motor and its working principle instruments for skill development, employability and entrepreneurship development

Course Code	TPSD101/TPSD201
Course Name	Professional Skill Development-I

COs	Description
CO1	Use grammar in their writing in English correctly for skill development
CO2	Have in-depth knowledge of action words, preposition and conjunction and to express their strong feelings and emotion knowledge for better employability.
CO3	Use clauses and phrases, write a sentence using Present, Past and Future Tense and to interchange the Voice (Active and Passive) and Narration (Direct and Indirect) to enhance skill providing employment.
CO4	Write gist and paragraphs and to recall what is being read and listen

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	including facts and main ideas.
CO5	Differentiate between Resume and Bio-data and to write letters for different reasons for enhancing skill.

Course Code	TEME101 / 201
Course Name	Engineering Mechanics
COs	**Description**
CO1	Recognize different force systems, moments and couple for skill development.
CO2	To draw Free Body Diagram and label the reactions on it for skill development and employability.
CO3	Find centroid and Moment of Inertia of different bodies. for skill development and employability.
CO4	To draw shear force diagram and bending moment diagram for skill development and employability.
CO5	Understand Newton's law in motion, and recognize different kinds of particle motions for skill development and employability

Course Code	TECS101/ TECS201
Course Name	Computer Fundamentals & Programming
COs	**Description**
CO1	Basic knowledge of components of Computer for skill development and employability
CO2	Understanding the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming globally to develop skill.
CO3	Write, compile and debug programs in C language and use different data types for writing the programs for entrepreneurship and employability.
CO4	Design programs using the concepts decision statements, loops, functions, arrays pointers etc.
CO5	Programming by using function, recursion and pointers for skill development and employability

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT107T
Course Name	Elementary Biology-I

COs	Description
CO1	Understand the basics of cell biology, the functioning of various cell organelles in prokaryotic and eukaryotic cells, and the difference between animal and plant cells for better skilling of entrepreneurship
CO2	Understand the structural organization and functions of different parts of plants along with the basic concept of the botanical garden, herbaria, zoological park, and museums providing employability
CO3	Understand the concept of animal and plant classification.
CO4	Develop knowledge about genes and Mendelian genetics for skill development
CO5	Understand the concept of diffusion, osmosis, imbibition in plants, and movement of water, food, and gases

Course Code	EBT102T/EBT202T
Course Name	Introduction to Biotechnology

COs	Description
CO1	Understand the field of biotechnology viz., Agricultural Biotechnology, Microbial biotechnology, medical biotechnology, etc. understanding for entrepreneurial skill.
CO2	Learn about the structure and function of macromolecules for skill development.
CO3	Understand the types, structure, function, evolution and diversity of cells to provide employability & skills.
CO4	Search and retrieve information from genomic and proteomic databases (e.g., GenBank, Swiss-Prot), and to analyze their search results using software available (e.g., BLAST, Clustal W) understanding for entrepreneurial skill.
CO5	Understand the theory of genome sequencing and other predictions for skill development

Course Code	TEMA – 202
Course Name	Elementary Mathematics- II

COs	Description
CO1	Remember equations, inequalities, and systems of equations to represent situations and find solutions via symbolic, numeric and graphic methods for

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	skill development and employability.
CO2	Understand and calculate Series, Sequences and Permutation and combinations issues for entrepreneurship and employability.
CO3	Understand and calculate probabilities by applying probability laws and theoretical results knowledge for better employability
CO4	Compare and analyze the methods by using coordinates to represent and work with vectors.
CO5	Understand the concepts & advance topics related to three-dimensional geometry and study the applications of conics for employability

Course Code	EBT209T
Course Name	Elementary Biology-II

COs	Description
CO1	Define the global science of microbiology, its development and importance in human welfare to develop skill.
CO2	Understand proper mode of action of the enzyme and its kinetics model for entrepreneurship and employability.
CO3	Analyze and apply mathematical derivations in enzyme inhibition reaction kinetics and inhibitions providing employability.
CO4	Learn the basic principles of various techniques for the immobilization of enzymes and their applications for entrepreneurship and employability.
CO5	Understand the design of different enzyme reactors and their applications to provide employability in various industries

Course Code	EBT-301
Course Name	Biochemistry

COs	Description
CO1	Understand the basics of cell biology, the functioning of various cell organelles in prokaryotic and eukaryotic cells, and the difference between animal and plant cells for better skilling of entrepreneurship
CO2	Understand the structural organization and functions of different parts of plants along with the basic concept of the botanical garden, herbaria, zoological park, and museums providing employability
CO3	Understand the concept of animal and plant classification.
CO4	Develop knowledge about genes and Mendelian genetics for skill development
CO5	Understand the concept of diffusion, osmosis, imbibition in plants, and movement of water, food, and gases

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-302
Course Name	Microbiology

COs	Description
CO1	Understand inventions and discoveries in microbiology, microbial culture techniques, preservation, and control methods yielding skill.
CO2	Learn about the diversity in the microbial world, their structure and classification, and photosynthesis in bacteria to provide employability & skills.
CO3	Know about the classification of global viruses on a morphological and physiological basis.
CO4	Understand microbial metabolisms and their regulations to provide employability & skills
CO5	Learn about the various applications of microbes yielding skill

Course Code	EBT-303
Course Name	Cell Biology

COs	Description
CO1	Understand the ultrastructure of prokaryotic and eukaryotic cells, properties of cells, membrane organization, cell divisions, and significance of cell cycle for entrepreneurship.
CO2	Differentiate types of transport mechanisms, ATP-dependent proton pumps, Co-transport, transport into prokaryotic cells, endocytosis, and exocytosis.
CO3	Develop the understanding of different types of receptors and their action mechanism in extracellular signaling for employment.
CO4	Know the models in signal amplification, the role of secondary messengers and kinases in signaling yielding skill
CO5	Use techniques of cell culture, characterization of cells, explants cultures, primary cultures, contamination, three-dimensional cultures, and role of matrix in cell growth to provide employability & skills

Course Cod	EMA-302
Course Name	Biostatistics

COs	Description
CO1	Understand the relationship between numbers in a data set through the calculation of median, mode, mean and range and graphs for skilling of entrepreneurship.
CO2	Understand and interpret the concepts of descriptive statistics from these data to provide employability & skills.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Remember restate the principal concepts about biostatistics and collect data relating to variable which will be examined for skill development.
CO4	Demonstrate knowledge of applicable large sample theory of estimators and tests and derive their properties. Be capable of self-directed learning of unfamiliar statistical methods and written and oral presentation of results/findings to provide employability & skills.
CO5	Understand how the analysis of variance can be extended to the randomized complete block design for skilling of entrepreneurship

Course Code	EBT-304
Course Name	Bioenergetics

COs	Description
CO1	Perceive the laws of thermodynamics along with the concept of systems, work, and heat to develop skill.
CO2	Know about concepts of entropy, free energy, redox reactions in the metabolism of energy-rich compounds to develop local skill.
CO3	Understand oxidative phosphorylation, electron transport, and mitochondrial shuttles knowledge for better employability in industry.
CO4	Understand the general idea about ATP production, utilization from different energy-producing pathways for entrepreneurship.
CO5	Understand the amphibolic pathways in which carbohydrates are involved for employability

Course Code	EBT-305
Course Name	Fluid Flow and Solid Handling

COs	Description
CO1	Understanding the concepts of fluid behavior for skill development.
CO2	Applying the concept of fluid mechanics on static as well as dynamic conditions for skill development and employability.
CO3	Analyzing the mechanics related to fluid motion for skill development.
CO4	Evaluating different problems related to the fundamental principles of fluid statics, fluid kinematics and fluid dynamics for skill development and employability.
CO5	Creating designs of different machining equipment's using fluid as a working medium for skill development and entrepreneurship development

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EHU-301
Course Name	Disaster Management

COs	Description
CO1	Ability to understand major types of disaster in Indian context for skill development
CO2	Understanding of approaches to reduce disaster risks for employability.
CO3	Capable of understanding relationship between development and disaster sustainable development for skill development
CO4	Understanding of when an event becomes disaster and the phases to handle the situation for global employability
CO5	Ability to analyze how to handle a situation of disaster by taking case studies of events in past for skill development

Course Code	ECS-409
Course Name	Data Structure Using C

COs	Description
CO1	Ability to select the data structures that efficiently model the information in a problem for skill development
CO2	Able to handle operations like searching, insertion, deletion, traversing mechanism etc. on various data structures development providing employability
CO3	Able to use linear data structures like stacks, queues.
CO4	Able to use non-linear data structures like tree and also know about hashing technique for entrepreneurship and employability
CO5	Able to know the application of graph and algorithms for sorting and pattern matching

Course Code	EBT-401
Course Name	Enzymology

COs	Description
CO1	Gain knowledge about the structure, properties of enzymes, skill-based enzyme classification, and purification from various sources.
CO2	Understand proper mode of action of the enzyme and its kinetics model for entrepreneurship and employability.
CO3	Analyze and apply mathematical derivations in enzyme inhibition reaction kinetics and inhibitions providing employability.
CO4	Learn the basic principles of various techniques for the immobilization of

Sanjeev Arora
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	enzymes and their applications for entrepreneurship and employability.
CO5	Understand the design of different enzyme reactors and their applications to provide employability in various industries

Course Code	EBT-402
Course Name	Immunology

COs	Description
CO1	Understand immunogenic response and differentiate between innate and adaptive immunity.
CO2	Know the concept of antigens and antibodies and their types for skill development.
CO3	Understand the structure and function of MHC molecules, complement system, and cytokines.
CO4	Develop practical application of various Immunological techniques viz ELISA, RIA, and western blotting for disease diagnosis for entrepreneurship and employability.
CO5	Understand the concept of autoimmunity, hypersensitivities and allergies providing employability

Course Code	EBT-403
Course Name	Molecular Genetics

COs	Description
CO1	Understand the fundamental principles of genetics and central dogma to develop skill.
CO2	Learn about the structure and function of DNA and its thermodynamic stability, the concept of the gene, and transposable elements to provide employability.
CO3	Understand the DNA replication in prokaryotes and eukaryotes, enzymes involved, DNA proofreading and repair.
CO4	Understand the transcription in prokaryotes and eukaryotes, post-transcriptional modifications, and ORF for better skilling of entrepreneurship.
CO5	Understand translation in eukaryotes and prokaryotes, genetic code, and regulation of gene expression to inculcate skill, provide employability and entrepreneurship

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-404
Course Name	Modern Analytical Techniques

COs	Description
CO1	Understand concept of good laboratory practices and learned the all constituents of GLP providing skill.
CO2	Understand the basic principle, instrumentation and rotors of different types of centrifuges to develop skill.
CO3	Understand the principle, instrumentation and chromatographic performance parameters of different types of Chromatography
CO4	Describe various applications of different types of electrophoresis to provide skilling of entrepreneurship.
CO5	Describe the theory and practical use of simple and compound microscope and understand the principle of spectroscopy and Raman Effect to provide employability and entrepreneurship

Course Code	EBT-501
Course Name	Bioinformatics

COs	Description
CO1	Understand the application of bioinformatics with the help of global databases and data retrieval systems for skill development.
CO2	Learn about skill-based development of computational methods to understand its features, function, structure, or evolution.
CO3	Understand methods of sequence alignment-based knowledge providing better entrepreneurship
CO4	Learn about parameters in protein structure prediction and protein modelling methods to provide employability and skills.
CO5	Learn about visualization and characterization of protein structures-based knowledge providing better entrepreneurship

Course Code	EBT-502
Course Name	Bioprocess Engineering-I

COs	Description
CO1	Do calculations in bioprocess engineering by a systematic approach with well-defined methods and rules to develop skill.
CO2	Analyze and apply different modes of mass transfer operations enhancing employability
CO3	Understand the Criteria for selection of bioreactors, design and functioning of various global types of reactors viz Batch, Fed-batch CSTR, Airlift,

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Fluidized bed and PFR for skilling of entrepreneurship
CO4	Understand the scale-up concepts for bioprocess and work on the scale-up process of the bioprocess plant/industry for development of skill and employability
CO5	Control of physical, chemical and biological environment of the bioreactor for skill development and employability

Course Code	EBT-503
Course Name	Engineering Principle and Calculations
COs	**Description**
CO1	Understand the basic concepts of Elementary/Non-elementary and reversible reactions in biological systems to provide employability and skills
CO2	Design the different modes of Bioreactors-Batch, Fed-batch, and Continuous operations.
CO3	Develop the concept for single and multiple reactor systems, adiabatic operation to provide employability and skills
CO4	Understand the solid catalyzed reactions for skill development and employability.
CO5	Understand the biochemical reaction system, competitive and non-competitive enzyme inhibition for providing employability

Course Code	EBT-504
Course Name	Genetic Engineering
COs	**Description**
CO1	Understand the concept of Gene cloning and vectors involved for local skill development.
CO2	Understand the enzymes involved in genetic engineering, PCR, and DNA delivery methods to provide employability.
CO3	Know the construction of local Gene Library, Screening, and Sequencing Techniques for skill based knowledge in industry.
CO4	Develop an understanding of Gene expression in prokaryotes and eukaryote systems.
CO5	Understand the prospects of cloning and related national ethical issues providing entrepreneurship.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-504 I
Course Name	Database Management System

COs	Description
CO1	Describe the databases and transactions, global purpose of database system, view of data, database architecture, transaction management. knowledge for better employability in industry
CO2	Explain the data models importance of data models, Basic building blocks, Business rules, evolution of data models, data abstraction for better employability and skill development
CO3	Understand the methods of design Unified Modelling Language Database design, ER Model, its constraints, diagrams, issues, weak entity sets, Codd's rules, Relational Schemas knowledge for better employability and skill development
CO4	Understand the SQL, types of constrains, integrity constraints, data independence, security, updates on views, comparison between tables and views SQL for skill development
CO5	Learn about transaction management, properties, serializability, concurrency control, lock-based concurrency control, time stamping methods for better employability in industry and skill development

Course Code	EBT-504 II
Course Name	Project Management

COs	Description
CO1	Explain the importance of local and global Project Management- Types of Projects, Life Cycle, Project Selection, Types of feasibility Steps in feasibility study knowledge for better employability in industry
CO2	Understand Project Scope, estimation of Project cost, Project Representation and preliminary manipulation, scheduling Concepts for skill development and entrepreneurship development
CO3	Setting a base line, project management Information System, importance of Contracts in projects, teamwork, attributes of a good project team skill development and entrepreneurship development
CO4	Understand the Project evaluation, Project Auditing, project closure reports Guidelines for closeout reports skill development
CO5	Explain the Computers, e-markets and their role in Project management- Risk management Environmental Impact Assessment for better employability in industry

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-504 III
Course Name	Patent Search and Analysis

COs	Description
CO1	Understand the inventions and patent Eligibility, prior art categories, disclosure norms, patent specification for better employability in industry
CO2	Understand the local and national patent anatomy, Patent search, Classification Search – IPC, CPC, USPC, F term –Combination knowledge for better employability in industry for skill development
CO3	Explain the public search databases, Patent Scope, subscribed databases search, for better employability in industry
CO4	Describe the types of Patent search, validity Search, patent landscape Search, clearance search advantages and limitations of each type of search knowledge for better employability in industry.
CO5	Understand the Patent Search with illustration, patent landscape analysis, Value of Patent Search and analysis for better employability in industry

Course Code	EBT-504 IV
Course Name	Stress Management

COs	Description
CO1	Understand the stress, its meaning, Eustress, Distress, types of stress, acute stress and chronic stress, signs and symptoms for better employability in industry. And skill development
CO2	Explain the psychological, social, environmental stress, academic, family and work stress knowledge for better employability in industry
CO3	Describe the physiological Impact of local stress, changes in Brain, Quality of sleep, Diet and Health effects, Psychological, Impact of stress, stressful Life Events, Social support and health knowledge for better employability.
CO4	Explain the stress Response, 'Fight or Flight' Response, Stress warning signals knowledge for better employability in industry. And skill development
CO5	Understand the Stress and Coping, appraisal focused, Emotional focused and Problem focused, Stress Reduction Techniques for Skill development

Course Code	EBT-504 V
Course Name	Biotechnology for Human Welfare

COs	Description
CO1	Understand the local waste management, bioremediation. Bioleaching. Biodegradation for effective development of employability skills.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Explain the clinical diagnosis. Lab diagnosis, biochemical, serological & Molecular diagnosis of diseases, for development of employability skills
CO3	Understand Symptomatic therapy, specific therapy, antimicrobials Prevention, immunization, herd immunity for skill development
CO4	Understand the global microbes as food, feed. prebiotics. probiotics, Fungi as food, Fermented food products to inculcate skills
CO5	Understand the Organic farming. Integrated farming, Vermicompost, Crop Improvement to acquire skills for the development of entrepreneurship and employability

Course Code	EBT-504 VI
Course Name	Molecular & Structural Biophysics

COs	Description
CO1	Understand the quantum mechanics, molecular orbits and covalent bonds and all atoms force field for skill development.
CO2	Understand the global architecture of protein and hydrophobic interactions by urea, ionic interactions, hydrophobic versus ionic interactions and universal solvent in biological systems.
CO3	Understand the local protein Structure & Stability and properties from amino acid composition for skill development.
CO4	Understand the Structure of Nucleic acids and IUPAC-IUB nomenclature for effective development of employability skills.
CO5	Understand the Structural Analysis by using the different techniques to acquire skills for the development of entrepreneurship and employability

Course Code	EBT-505
Course Name	Heat and Mass Transfer in Biological Systems

COs	Description
CO1	Understand the basic laws of heat transfer for skill development.
CO2	Analyze problems involving steady state heat conduction in simple geometries for skill development and employability.
CO3	Understand the fundamentals of convective heat transfer process for skill development and employability.
CO4	Evaluate heat transfer coefficients for natural convection and forced convection inside ducts for skill development and employability.
CO5	Calculate radiation heat transfer between black body surfaces & heat exchange between gray body surfaces for skill development and employability

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-506
Course Name	Plant Biotechnology

COs	Description
CO1	Understand the concept of explants in plant tissue culture and its applications in local crop improvement for better skilling of entrepreneurship
CO2	Explore the methods and use of Protoplast culture for developing cybrids
CO3	Realize the mechanism of DNA transfer, screening of the recombinant by PCR based and genetic markers.
CO4	Understand the ethics and national government regulations that are there for the safe introduction of GMOs for providing better employability.
CO5	Understand the skill-based plant cell culture for the production of useful secondary metabolites pigments, perfumes, flavor, pharmacologically significant compounds

Course Code	EBT-506 I
Course Name	Macromolecular Structure & Analysis

COs	Description
CO1	Understand the Classification of Reducing & Non-reducing Sugars, Glucose forms, determination of ring size, Inter-conversion of monosaccharides for development of employability skills
CO2	Explain the protein structure, characteristics for skill development., Structure of Primary, alpha- & beta chains of proteins, Classification of Amino acids for skill development
CO3	Understand Components of DNA and RNA, Nucleosides & Nucleotides, structure of DNA, various forms of DNA to acquire skills for the development of entrepreneurship and employability
CO4	Understand the lipids, its properties, biological membrane, Membrane protein – structural aspects, Lipoproteins for effective development of employability skills
CO5	Understand the DNA replication, mutations, recombination, genetic code to acquire skills for the development of entrepreneurship and employability

Course Code	EBT-506 II
Course Name	Cyto-Genetic Techniques

COs	Description
CO1	Understand the basic concepts of karyotype, chromosome properties, C

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	value paradox-DNA content, special types of chromosomes for knowledge for better employability in industry
CO2	Describe the crossing over mechanism, different types of chromosomal aberrations, breeding behaviour of deletion heterozygote, for better employability in industry and skill development
CO3	Explain the abnormal chromosomal behaviour, numerical chromosomal aberrations, haploids-its occurrence, properties, classification of haploids knowledge for better employability in industry and skill development
CO4	Understand the transfer of individual whole chromosome, apomixis, Chromosome painting, walking and chromosome jumping for skill development
CO5	Describe the fertilization barriers in plants, in vitro techniques to overcome fertilization barriers in crops; chromosome manipulations in wide hybridization for better employability

Course Code	**EBT-506 III**
Course Name	**Computational Biology**
COs	**Description**
CO1	Understand the information flow in biology, DNA sequence data, experimental approach to genome sequence data for effective development of employability skills
CO2	Explain the protein sequence and structural data, protein information resources and secondary data bases for development of employability skills
CO3	Internet basics, biological data analysis and application, sequence data bases, NCBI model, file format to acquire skills for the development of entrepreneurship
CO4	sequence alignment, FASTA algorithm for effective development of employability skills., BLAST, multiple sequence alignment, DATA base searching
CO5	Small molecules data bases, protein information resources, protein data bank for skill development

Course Code	**EBT-506 IV**
Course Name	**Introduction to DBMS, Computer Network & Numerical Analysis**
COs	**Description**
CO1	Understand the Characteristics of database approach, and data models, architecture knowledge for better employability in industry
CO2	Explain the local Entity types, Entity set, attribute and key, relationships, relation types, roles and structural constraints, weak entities, object

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	modeling, Sub classes; Super classes, inheritance for skill development
CO3	Describe the File Organization methods, Indexed sequential access files, extendible hashing, dynamic hashing approach implementation and performance for knowledge for better employability in industry and skill development
CO4	Understand SQL queries, programming using SQL, EER and ER to relational mapping knowledge for better employability in industry and skill development
CO5	Understand the Data Normalization, Concurrency Control, locking techniques, recovery techniques, Database Security knowledge for better employability in industry and skill development

Course Code	EBT-506 V
Course Name	**Model Organisms in Genome Project**
COs	**Description**
CO1	Understand the local and global genomes of model organisms (E. coli, Yeast, Arabidopsis thaliana, C. elegans, Drosophila melanogaster, genetic variation, comparison of different genomes, genome evolution for effective development of employability skills
CO2	Understand the history, comparative genomics, comparative genomic hybridization, functional genomics for development of employability skills.
CO3	Understand overview of genome projects of human and other model organisms of Human Genome Project for skill development.
CO4	Understand Genome Mapping, genetic mapping, gene ontology, gene annotation, microsatellite markers, sequencing, DNA microarray for skill development.
CO5	Understand the concept of an overview of the project, goals of the project, major scientific strategies & approaches used in HGP for employability

Course Code	EBT-506 VI
Course Name	**Advanced Mathematics for Biotechnology**
COs	**Description**
CO1	Understand the Binomial, Exponential and Logarithmic Series and Summation and Approximation (simple problems) for skill development.
CO2	Understand the Determinant-Symmetric & Skew symmetric matrices for skill development.
CO3	Understand the Basic definitions of Sequence and Series for development of employability skills.
CO4	Understand the Ordinary Differential Equations with variable coefficients

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	(Euler's form) (simple problems) for development of employability skills.
CO5	Understand the Functions of Several local Variables and Maxima and Minima by Lagrange's Method to acquire skills for the development of entrepreneurship and employability.

Course Code	EBT-601
Course Name	**Advanced Bioinformatics**
COs	**Description**
CO1	Understand the concept of scoring matrices and gap penalties in the local and global sequence alignment and will be able to assess the significance of sequence alignment for providing better employability
CO2	Conceptualize about machine-learning approach, iterative methods of multiple-sequence alignment and will learn about the statistical methods for aiding alignment to provide knowledge for better employability.
CO3	Learn about various global tools and methodologies used in the phylogenetic analysis in biological sequences for better skilling of entrepreneurship
CO4	Understand the various types of BLAST and FASTA and Microarray Technology knowledge for better employability
CO5	Gain knowledge about various steps of drug discovery, advanced techniques and tools like docking, QSAR providing skill development and employability

Course Code	EBT-602
Course Name	**Animal Biotechnology**
COs	**Description**
CO1	Understand the national limitations and challenges faced by the animal industries and learn about the requirements of cell culture for better understanding of entrepreneurial skill
CO2	Understand the techniques and procedures involved in the development of cell culture, tissue culture, and organ culture providing skill development and employability
CO3	Understand the concept of sub culturing. Skill based study to Gain knowledge about the process of in-vitro fertilization and tissue engineering.
CO4	Learn about the use of various bioreactors in animal biotechnology for entrepreneurship.
CO5	Learn about different gene transfer methods used for the development of

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	transgenic animals and the benefits of transgenic animals' knowledge for better employability

Course Code	EBT-603
Course Name	Nanobiotechnology

COs	Description
CO1	Understand the principles of nanobiotechnology and basic fabrication techniques for the synthesis of nanoparticles for better skilling of entrepreneurship
CO2	Acquire the knowledge to incorporate nanotechnology for developing global drug delivery systems like aerosol, inhalants, injectables, etc. providing employability
CO3	Get familiarize with potentialities and concerns associated with nanomaterials usage for targeting tumors and other diagnostics developing employability
CO4	Acquire the knowledge of synthesis and characterization of local skill based different classes of biopolymers and their applications in the field of health sciences.
CO5	Acquire the knowledge for designing diagnostic tools, biosensors, and microelectronic devices for various applications in health science developing employability

Course Code	EBT-604
Course Name	Fermentation Biotechnology

COs	Description
CO1	Understand the history, role, and range of fermentation products providing employability
CO2	Know the raw materials for national industrial fermentation and the pretreatment process providing employability
CO3	Isolate and skill-based method to preserve of the industrially important microbes.
CO4	Understand the metabolic pathways and their role in product formation for employment.
CO5	Develop the understanding of the global production of industrially important products knowledge for better employability in industry.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-604 I
Course Name	Cell Culture Technologies

COs	Description
CO1	Understand the local types of culture media and learn about the requirements of cell culture for better understanding of entrepreneurial skill
CO2	Understand the techniques and procedures involved in the development of cell culture, tissue culture, and organ culture providing skill development and employability
CO3	Understand the concept of sub culturing. Skill based study to Gain knowledge about the process of Application of animal cell culture for in vitro testing of drugs.
CO4	Learn about Microbial Cell Isolation and Culture maintenance for entrepreneurship.
CO5	Learn about Preservation of microbial products. Production of antibiotics knowledge for better employability

Course Code	EBT-604 II
Course Name	Technologies for Clean and Renewable Energy Production

COs	Description
CO1	Understand the characterization of coal; conventional routes for energy production from coal, cleaner routes for national energy production from coal for skill development.
CO2	Describe the cleaner routes for energy production form petroleum crude. Cleaner energy production from gaseous fuels for enhancing the technical skills.
CO3	Understand the characterization of crude oil, conventional routes for crude oil utilization to increase the knowledge that will be helpful in better employability.
CO4	Learn Solar energy production, wind energy production, production of hydro and geothermal energy for better employability.
CO5	Understand the Energy production from biomass and wastes and energy conservation to improve skills for a successful entrepreneurship

Course Code	EBT-604 III
Course Name	Polymers: Concepts, Properties, Uses and Sustainability

COs	Description
CO1	Describe the Biopolymers, macromolecular nature, renewable sources for polymers, polymer properties, molecular conformation, polyelectrolytes for

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	skill development
CO2	Explain the microstructure in polymers, additives for polymeric systems, composites in recycling, chemical crosslinking, mechanical properties to inculcate the conceptual skills
CO3	Describe the visco elasticity, thermal response, simple models, dynamic mechanical analysis, damping applications, properties of blends for skill development
CO4	Describe the compatibilizers. Biopolymer applications, adhesives, paints. polymerization kinetics, polymerization reactors, polymers processing techniques to enhance the concepts helpful in better employability
CO5	Define the microplastics, aerosols, sediments, biodegradation of polymers for improvement of skills for entrepreneurship

Course Code	EBT-604 IV
Course Name	**Basic Environmental Engineering and Pollution Abatement**
COs	**Description**
CO1	Understand the ecology, environment and biodiversity, ecosystem services and its risk, pollution types, transmission of pollutants for development of the skills
CO2	Describe water quality, standards, industrial pollution, sampling and characterization of gas/air/emission, water/waste, environmental law and regulatory framework to improve analytical skills
CO3	Explain the pollution prevention strategies and processes, pollution prevention air pollution control for skill development
CO4	Understand the treatment of domestic and industrial waste water, schemes, primary treatment equipment; Secondary treatment for better employability
CO5	Describe the Solid waste management schemes, incineration, gasification, Pyrolysis, Anaerobic digestion, hazardous waste management for developing the skills helpful in employability

Course Code	EBT-604 V
Course Name	**Mathematical Modelling and Simulation of Chemical Engineering Process**
COs	**Description**
CO1	Understand the global classification of different process types, modeling approaches, fluid flow, heat and mass transfer, mathematical models, Laplace and Fourier transform for skill development.
CO2	Describe the different types of method of numerical techniques, implicit and explicit methods. Numerical stability schemes for improving the

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	analytical skills
CO3	Explain the mass transfer based local transport problems, demonstration of COMSOL multi physics for skill development.
CO4	Explain the Pinch analysis, heat exchanger network design, aspen plus demonstration for enhancing the conceptual skills
CO5	Understand the dispersed phase modelling using population balance methods. Basics of Kinetics, artificial neural network design for better skilling required for employability

Course Code	EBT-604 VI
Course Name	Biofuels

COs	Description
CO1	Understand the about biogas technology and problems encountered in the installation of plants and methods to enhance the national biogas production.
CO2	Understand the alternate constructions material for local biogas plant construction and factors affects the biogas production.
CO3	Understand the technologies to produce Bio-Ethanol and Bio-Diesel Technology for skill development.
CO4	Understand the principle, construction of different types of fuel to acquire skills for the development of entrepreneurship and employability.
CO5	Understand the Methods of obtaining energy from Biomass and Factors affecting Bio digestion

Course Code	EBT-605
Course Name	Food Biotechnology

COs	Description
CO1	Learn about the role of microorganisms in food processing and global factors which effect microbial growth for skill development.
CO2	Learn about the production and spoilage of fermented animal products and beverages for skill development.
CO3	Understand the methods that are employed for the preservation of food for employability.
CO4	Know: the role of global microbes in relation to food borne diseases and case studies of food borne diseases outbreak in India to provide employability and skill
CO5	Acquire knowledge on the fundamentals of food science and nutrition, food chemistry and biochemical changes during processing and preservation, nutraceuticals for development of knowledge for better employability in industry

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-605 I
Course Name	Chemical Reaction Engineering

COs	Description
CO1	Understand the classification of reactions, Variables affecting rate, elementary and non-elementary reactions, molecularity for skill development
CO2	Explain the analysis of total pressure data obtained from a constant-volume batch reactor, analysis of data, Autocatalytic reactions, for better employability
CO3	Describe the performance equations for ideal batch, Plug flow, Back mix flow and semi batch reactors for isothermal condition, Size comparison of single reactors, Multiple-reactor systems, Recycle reactor for better employability in industry
CO4	Understand the parallel reactions of different orders, yield and selectivity, product distribution and design, first-order reactions and zero-order reactions for better skilling
CO5	Understand adiabatic and heat regulated reactions, design of non-isothermal reactors for building the concepts required for better skill development

Course Code	EBT-605 II
Course Name	Biological Inorganic Chemistry

COs	Description
CO1	Explain the biological inorganic chemistry, spectroscopic characteristics of bioinorganic systems, examples of inorganic elements in biology for skill development.
CO2	Understand the transport: mechanisms, energy, channels, pumps. biomineralization. nanoparticles, for conceptual skill development.
CO3	Describe the oxygen activation and processing by cytochromes, small molecule activation and conversion by metalloenzymes for better employability.
CO4	Understand the Bioorganometallic Chemistry from RNA to DNA and from Vitamin B12 to methanogens and methanotrophs for employability
CO5	Explain the metal pharmacology, uptake storage toxicity, metals in medicine to inculcate skills

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-605 III
Course Name	NMR Spectroscopy for Structural Biology

COs	Description
CO1	Explain the Nuclear Spin in static magnetic field, chemical Shift; Factors Influencing Isotropic Chemical shifts globally for conceptual skill development.
CO2	Understand the NMR instrument, magnet transmitters, two-dimensional NMR, practical aspects for experiment, protein structure for improving the analytical skills.
CO3	Describe the sample preparation for Protein NMR, Expression systems, optimization, multi-dimensional NMR experiments for skill development
CO4	Understand the Protein Structure determination from NMR data, calculation methods, NMR parameter, theory of spin relaxation in proteins to enhance the skills
CO5	Explain the Structural features and parameters for Nucleic acids. DNA and structure determination from NMR data to increase the chances of better employability

Course Code	EBT-605 IV
Course Name	Analytical Chemistry

COs	Description
CO1	Understand modern periodic law and present form of the periodic table, periodic trends in properties, classification elements for skill development
CO2	Understand principles of Organic Chemistry, biomolecules, carbohydrates, vitamins, proteins for better understanding of the concepts to improve conceptual skills
CO3	Understand matter, Dalton's atomic theory, the concept of the atom, compound, atomic properties, empirical and molecular formulae, stoichiometry for analytical skills
CO4	Understand the Photoelectron spectroscopy, Vibrational spectroscopy, Raman Spectroscopy, Electronic and emission Spectroscopy, Spectra in magnetic field for better employability
CO5	Understand the concept of Greenhouse effect and Global warming, acid rain. Particulate pollutant to inculcate the skills required for entrepreneurship and employability

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-605 V
Course Name	Organic Chemistry in Biology and Drug Development

COs	Description
CO1	Understand macromolecules, amino acids separation and detection, Electrophoresis and Ninhydrin reaction, primary structure of protein for skill development.
CO2	Describe proteins as biological catalyst, Nucleic acids: structure, functions, and their types for better understanding of the concepts to improve conceptual skills.
CO3	Understand synthetic biology, nucleic acid. DNA sequencing method to enhance the technical skills.
CO4	Understand concept of national drug design, Modern day drug discovery, Chemistry of diseases and Drug development to improve skills that will be helpful in better employability
CO5	Understand the Proton pump inhibitors. Gene replacement and delivery for better employability

Course Code	EBT-605 VI
Course Name	Hazardous Waste Management

COs	Description
CO1	Understand the local Types and Sources of hazardous wastes and biomedical wastes for skill development.
CO2	Understand the global Waste generation rates; waste sampling tests and reuse for development of employability skills.
CO3	Understand the labeling and handling of hazardous wastes for skill development.
CO4	Understand the 7423national stabilization of hazardous wastes and treatment of biomedical wastes.
CO5	Understand the landfill remediation and elements of integrated waste management for development of employability skills

Course Code	EHU-601
Course Name	Human Values and Professional Ethics

COs	Description
CO1	It ensures students sustained happiness through identifying the essentials of global human values for skill development and employability.
CO2	It facilitates a correct understanding between profession and happiness resulting in the development of entrepreneurship skills.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	It helps students in skill development and employability by understanding practically the importance of trust, mutually satisfying human behavior and enriching interaction with nature.
CO4	Provide ability to develop appropriate technologies for employability and management patterns to create national harmony in professional and personal life for skill development.
CO5	Understanding about the global issues for skill development and entrepreneurship

Course Code	EBT-701
Course Name	Downstream Processing
COs	**Description**
CO1	Implement the local cost-cutting strategies in downstream processing industries providing employability.
CO2	Understand various separation techniques involved in global downstream processing providing skill.
CO3	Apply the principles of major unit operations used in downstream processing for skill-based development of product isolation and concentration.
CO4	Understand various skill-based development of techniques used in the purification of biological products.
CO5	Know about the recovery of various products through case studies providing employability

Course Code	EBT-702
Course Name	Bioethics, Biosafety & IPR
COs	**Description**
CO1	Understand the national ethical issues in biotechnological products and NGO for bioethics for skill development and employability.
CO2	Recognize the importance of global GLP, levels of biosafety, and biosafety guidelines in India to develop skill.
CO3	Identify local types of Intellectual Properties (IPs), the right of ownership as well as the scope of protection. Outline the process of patenting and development enhancing employability
CO4	Identify the role of different organizations related to IP for skill development and employability.
CO5	Identify activities and constitute IP infringements and the remedies available for the IP owner to prevent infringement of proprietary rights to develop skill

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-031
Course Name	Vaccine Technology & Immunoinformatics

COs	Description
CO1	Understand the importance of global vaccines and vaccination in body defense mechanism for skill development and employability
CO2	Demonstrate the immunological techniques used for disease diagnosis and apply the knowledge of immune-associated mechanisms in medical biotechnology research for skill development and employability
CO3	Summarize the various databases used in Immunology like BIMAS, SVMHC, ProPred, MHCPred, KEGG in order to facilitate employability and entrepreneurship skills
CO4	Predict epitopes and will be able to use prediction tools like EpiDOCK, MotifScan, MAPPP, and EPISOPT.
CO5	Understand the development of predictive and robust QSAR, with a specified chemical domain, for the prediction of the activity of untested molecules for the development of skill and employability

Course Code	EBT-032
Course Name	Biofuels & Alcohol Technology

COs	Description
CO1	Understand the requirement for an alcohol industry and study about different global microbial strains used in alcohol industries for developing skills.
CO2	Explain the different recycling process and biochemistry of alcohol production to enhance skills.
CO3	Understand different alcoholic fermentation techniques and modern development in this field.
CO4	Have skill-based knowledge of the fundamental parameters affecting alcoholic fermentations.
CO5	Understand processing for production of bioethanol, biodiesel, biomethane and microbial fuel cell (MFC) providing employability and entrepreneurship development.

Course Code	EBT-033
Course Name	Cellular Biophysics

COs	Description
CO1	To learn about cell and its structure, difference between eukaryotic and prokaryotic cells and functions of cells

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the Cellular differentiation, Nucleocytoplasmic interaction and cell function to enhance skill development
CO3	Understand the Kinetics of cell growth, Role of protein in growth and various cell cycles for effective development of employability skills
CO4	Cell-cell communication, Sodium-Potassium pump, and role of various factors in effective cell communication
CO5	Principle, instrumentation and application of Microscopy, electrophoresis, electrophoretic mobility (EPM) and various Techniques in Biophysics. to enhance skills for entrepreneurship development and employability

Course Code	EBT-034
Course Name	**Plant Cell Bioprocessing**
COs	**Description**
CO1	To know History of plant tissue culture research - Basic principles of plant tissue - callus culture, Meristem culture etc for skill enhancement
CO2	Will learn Sterilization (physical and chemical methods), Plant cell culture method Morphogenesis in callus culture - Bioreactors for effective development of employability skills.
CO3	Will learn various global and local Gene transformation technology for development of employability skills
CO4	Understand Production of secondary metabolites from plants, principles and mechanisms of Processes for enhancing the production of secondary metabolites
CO5	Will learn Bioreactors systems and models for mass cultivation of plant cells and their applications

Course Code	EBT-035
Course Name	**Introduction to Developmental Biology**
COs	**Description**
CO1	Learn History of developmental biology. Techniques in developmental biology and model organism for skill development
CO2	Learn various concepts about spermatogenesis and fertilisation types of eggs and their interaction to acquire knowledge for better employability skills.
CO3	Will learn various global and local Gene transformation technology for development of employability skills
CO4	Gain knowledge of Gastrulation in sea urchin frog and chick and Drosophila
CO5	Cell-cell communication, Sodium-Potassium pump, Induction and

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	competence, and Molecular signalling for effective development of employability skills

Course Code	EBT-036
Course Name	Marine Biotechnology

COs	Description
CO1	Understand the introduction, characteristics and identification of national Marine Flora for skill development.
CO2	Understand the major marine invertebrates and characteristics and identification marine mammals.
CO3	Understand the methods of culturing, identification and preservation of Marine microbes for effective development of employability skills.
CO4	Understand the Microbial leaching and Biofouling for skill development.
CO5	Understand the local Marine pharmacology.

Course Code	EBT-041
Course Name	Molecular Modelling and Drug Design

COs	Description
CO1	Get familiar about the concepts of global bioinformatics to be implemented in drug design and development.
CO2	Find new targets to treat disease; mechanism of drug designing
CO3	Understand the concept of molecular modeling, mechanics and interactions
CO4	Develop concepts on bond angle, bond stretching, bond distance and role on different types of bonds in interactions
CO5	Acquire the knowledge about the local and global protein structure prediction and conformational changes throughout the simulation and brief idea of receptor and receptor-ligand complex, inhibition and inactivation of enzyme, receptor theories

Course Code	EBT-042
Course Name	Bioprocess Engineering-II

COs	Description
CO1	Do calculations in bioprocess engineering by a systematic approach with well-defined methods and rules to develop skill.
CO2	Analyze and apply different modes of mass transfer operations enhancing employability

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the Criteria for selection of bioreactors, design and functioning of various types of reactors viz Batch, Fed-batch CSTR, Airlift, Fluidized bed and PFR for skilling of entrepreneurship
CO4	Understand the scale-up concepts for global bioprocess and work on the scale-up process of the bioprocess plant/industry for development of skill and employability
CO5	Control of physical, chemical and biological environment of the bioreactor for skill development and employability

Course Code	EBT-043
Course Name	**Drug Delivery: Principles and Engineering**
COs	**Description**
CO1	Learn about definitions of Biopharmaceutics and pharmacokinetics and drug research for skill development.
CO2	Know about Protocol design and Methods for bioequivalence determination to enhance knowledge for better employability skills
CO3	Understand the concepts of Polymer classification, physical and chemical characterization techniques of biomaterials for skill enhancement.
CO4	Gain knowledge on Natural and Synthetic, biocompatibility, Biodegradation, commonly used biopolymers for better employability skills.
CO5	Understand and learn about target drug delivery to enhance skills for entrepreneurship development and employability

Course Code	EBT-044
Course Name	**Functional Genomics**
COs	**Description**
CO1	Understand Concepts and applications of global Forward genetics and Reverse genetics approaches for skill enhancement.
CO2	Learn the skills of TILLING, ECO-TILLING, DEALING - Genome wide mutation screening
CO3	Understand various type of Microarrays their Advantages and Experimental design, Molecular analysis of gene expression (RT-PCR) to enhance skills for entrepreneurship development and national employability skills.
CO4	Gain knowledge on Protein microarrays for better employability skills
CO5	Learn the skills of Mass Spectrometry for Protein–Protein Interaction Mapping

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-045
Course Name	Stem Cell Technology

COs	Description
CO1	Understand the anatomical tradition/Life cycles and the evolution of global biology developmental patterns.
CO2	Understand the early development of vertebrates: fish, birds and mammals for development of employability skills.
CO3	Understand the Stem cells - Definition, Classification and Properties and application of embryonic stem cells.
CO4	Understand the Stem Cell Processing and Transplantation, processing and storage for effective development of employability skills.
CO5	Understand the Clinical uses of hematopoietic stem cells in therapy

Course Code	EHU-701
Course Name	Industrial Management

COs	Description
CO1	Understand the concept, development, application and scope of national Industrial Management for employability and skill development.
CO2	To apply various management tools in systems of different local industrial configurations to develop entrepreneurship skills.
CO3	Facilitate employability and entrepreneurship skills by understanding the importance of inventory and the concept of supply chain management.
CO4	Analyze the mechanism and tools of quality control enhancing employability and introduction to total quality management for skill development.
CO5	To control and develop models for national environmental pollution by various management techniques gaining insight for skill development and employability.

Course Code	EBT-801
Course Name	Environmental Biotechnology

COs	Description
CO1	Classify types of local pollutions, pollutants and their adverse health and environmental impacts for the development of skill and employability
CO2	Understand properties of waste and role of microbes in waste metabolism
CO3	Study of analytical technique for environmental monitoring development of skill and employability

Sanjeev Bhowmik
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Learn about the type of bioreactors for global liquid waste management providing employment.
CO5	Understand, treatment method of solid waste management socioeconomically for skilling of entrepreneurship

Course Code	EBT-051
Course Name	Biotechnology in Health Care

COs	Description
CO1	Describe the role of the immune system and endogenous protein in cancer for skill development.
CO2	Explain the basic concepts in gene therapy, antisense therapy, and synthesis of vaccines for skill development, entrepreneurship and employability.
CO3	Describe the use of radiological agents in the diagnosis of diseases and various proteins as therapeutics in order to develop skill.
CO4	Describe the role of different types of chemotherapeutic agents and their properties for skill development.
CO5	Describe the basic concepts and advanced research in site-specific drug delivery systems for skill development, entrepreneurship and employability

Course Code	EBT-052
Course Name	Nanobiotechnology

COs	Description
CO1	Understand the principles of nanobiotechnology and basic fabrication techniques for the synthesis of nanoparticles for better skilling of entrepreneurship
CO2	Acquire the knowledge to incorporate nanotechnology for developing drug delivery systems like aerosol, inhalants, injectables, etc. providing employability
CO3	Get familiarize with potentialities and concerns associated with nanomaterials usage for targeting tumors and other diagnostics developing employability
CO4	Acquire the knowledge of synthesis and characterization of skill based different classes of biopolymers and their applications in the field of health sciences.
CO5	Acquire the knowledge for designing diagnostic tools, biosensors, and microelectronic devices for various applications in national and global health science developing employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-053
Course Name	Fundamentals of Micro and Nanofabrication

COs	Description
CO1	Learn the techniques of Micro fabrication such as Lithography, Thin Film Deposition and Doping etc for effective development of employability skills
CO2	Gain knowledge on Micro-Machining, Material removal at micro-scale their process and application for skill enhancement.
CO3	Gain knowledge on Bulk-Machining, to enhance knowledge for the development of employability skills
CO4	Understand Principle of the soft lithography and applications and process
CO5	Learn the concepts of Micro and nanotechnology to promote entrepreneurship development and employability

Course Code	EBT-054
Course Name	Nanotechnology in Biomedical

COs	Description
CO1	Understand the basics of Nanotechnology, definition, use, and its applications
CO2	learn the application of nanotechnology in DNA and RNA processing for effective national development of employability skills.
CO3	Learn about nanomaterials the applications in medical science, cancer etc. for skill enhancement and to acquire knowledge
CO4	Understand concepts of nanotherapeutics in diets and cellular uptake to acquire knowledge for the development of employability skills.
CO5	Understand Basic concepts in the design of global nanomedicine, specification and desired features of nanomedicine to enhance skills for entrepreneurship development and employability skills.

Course Code	EBT-055
Course Name	Design of Industrial Waste Water Management

COs	Description
CO1	Understand the Health and Environment Concerns in waste water management for skill development.
CO2	Understand the Components of waste water flows and mass balance analysis on the basis of ideal & non ideal flow in reactors for development of employability skills.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the role of local unit processes in waste water treatment for skill development
CO4	Understand the waste water treatment and sludge processing for effective development of employability skills.
CO5	Understand the advanced waste water treatment technologies for skill development

Course Code	EBT-061
Course Name	Biomedical Instrumentation

COs	Description
CO1	To facilitate employability and entrepreneurship skills and understand the global Biomedical Instrumentation system and types of biomedical equipments.
CO2	Elucidate cardiovascular system and related measurements to develop skill.
CO3	Understand the respiratory and nervous systems and related measurements.
CO4	Measure local non-invasive diagnostic parameters for employability.
CO5	Understand the application of such equipments – Audiometers & Densitometers for entrepreneurship

Course Code	EBT-062
Course Name	Genomics & Proteomics

COs	Description
CO1	Understand the scope and importance of genomics and genome analysis tools for developing skills.
CO2	Understand the concept of genome sequencing and genome assembly for skill development.
CO3	Understand the role of microarray technology and computational analysis of microarray data for better skilling of employability.
CO4	Understand the scope of proteomics and Protein-protein interactions.
CO5	Understand Proteomics and drug discovery; High throughput screening for drug discovery; Identification of drug targets; Pharmacogenomics and pharamacogenetics and drug development for employability

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-063
Course Name	Introduction To Protein Engineering

COs	Description
CO1	Learn about Proteins, their chemistry of amino acids and their structures and isomerism to acquire knowledge
CO2	Understand Gene functions through protein interactions to acquire knowledge for development of employability skills.
CO3	Learn the techniques of Mass spectroscopy and other techniques their basic principles, ionization sources and mass analyzers for enhanced employability skills
CO4	Understand the Principle of X-ray diffraction, scattering vector etc for effective development of employability skills.
CO5	Gain knowledge on Protein Engineering: Protein sources, Industrial and medical application of proteins to acquire skills for entrepreneurship development and employability skills

Course Code	EBT-064
Course Name	Transport Phenomenon in Biological Systems

COs	Description
CO1	Learn about Introduction to Momentum and Heat Transport: Newton's Law of viscosity-Non-Newtonian Fluid Models
CO2	Learn about viscosity of gases and liquids, Theory of thermal conductivity of gases for skill development.
CO3	Understand the concepts of diffusion in gases at low density Analogies between Heat mass and Momentum Transfer for effective development of employability skills.
CO4	Understand the General transport equations for momentum in biological systems for skill enhancement
CO5	Know about Application of shell balances to heat conduction problems to acquire skills for the development of entrepreneurship and employability

Course Code	EBT-065
Course Name	Phyto Chemical Technology

COs	Description
CO1	Understand the importance of global medicinal plants for human health for skill development.
CO2	Understand the extraction of solvent from medicinal plants by using different techniques.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the techniques to perform the extraction process.
CO4	Understand the application of Chromatography and Spectroscopy in Plant Drug Analysis for effective development of employability skills.
CO5	Understand the Standardization and WHO Guidelines of herbal drugs for Quality for skill development

Course Code	EBT-081
Course Name	Non–Conventional Energy Resources

COs	Description
CO1	Define the basic concepts of global conventional & non-conventional energy resources, Introduction, availability, classification, merits and demerits of conventional & non-conventional energy resources for skill development and entrepreneurship.
CO2	It provides the information about the importance of solar energy, its application, new technology by we can extract the solar energy for entrepreneurship and employability
CO3	Describe and discuss geothermal energy, MHD power plants and fuel cells. It also provides the information about MHD power plants, fuel cells for skill development, entrepreneurship and employability
CO4	This unit of this explorers the world of wind energy, its classification, uses, merits, demerits and designing of wind energy power plant. It also provides a basic knowledge about thermo electrical and thermionic conversions for skill development and entrepreneurship
CO5	Describe and discuss the importance of local bio mass, classification of biomass, use of biomass for non-conventional energy resources. It also provides the basic information about ocean thermal energy, wave energy and tidal energy for development of entrepreneurship and employability.

Course Code	EBT-082
Course Name	Non-Linear Dynamic Systems

COs	Description
CO1	Define the skill-based development of the Concept of global dynamic systems, importance of non-linearity, nonlinear dynamics of flows and Maps in phase space for skill development and entrepreneurship.
CO2	It provides the information about Lyapunov functions for developing skills.
CO3	Describe and discuss applications to control system, normal form theory and applications to nonlinear systems to develop skill.
CO4	Understand Elementary Bifurcation theory for skill development and entrepreneurship.
CO5	Understand deterministic Chaos, routes to chaos for skill development

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EBT-083
Course Name	Product Development

COs	Description
CO1	Develop the concepts of design methods, physical reliability, and economic feasibility providing employability
CO2	Understand the morphology of design, transformation, and convergence phase, ergonomics and identification of needs.
CO3	Develop the decision-making approach under multiple criteria.
CO4	Check the reliability of the local system, design of the display, and application of computers in for entrepreneurial skill development and product development.
CO5	Forecast technology for improving the method and quality of products for entrepreneurship development

Course Code	EBT-084
Course Name	Automation and Robotics

COs	Description
CO1	Understand the geometric classification and control classification of robotics for skill development.
CO2	Understand the robotic elements for developing skills.
CO3	Understand the Robot Coordinate Systems and Manipulator Kinematics for enhancing skills.
CO4	Understand the application of Robot Programming for effective development of employability skills.
CO5	Understand the Application of robot in welding, machine tools, material handling for skill development

Course Code	EBT-085
Course Name	Wildlife Ecology

COs	Description
CO1	Understand the definition, types, systems,, branches and functions of local and global ecology
CO2	Understand the ecology of community its nature, structure and attributes. knowledge for skill development
CO3	Learn about wildlife biology Hibernation, aestivation, Awakening, Migration etc. knowledge for skill development
CO4	Learn about Adaptation and Thermoregulation: local Animal adaptations to

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	water, temperature, salinity, predation knowledge for skill development.
CO5	Understand biological requirements of species, design of facilities, food, hygiene, disease control, breeding etc. knowledge for skill development

PROGRAMME NAME – M. Tech. (Biotechnology)

Course Code	MTB101T
Course Name	Advanced Bioprocess Engineering

COs	Description
CO1	Capable to global design and optimization methods of media preparations, sterilization procedures for the growth of micro-organisms for industrial applications. Analyze and apply new and recent techniques used for sterilization with their principle and mode of operation understanding for entrepreneurial skill
CO2	Understand proper global knowledge about microbial growth kinetics as well various factors that affect microbial growth for entrepreneurship &employability
CO3	Able to apply global mass and energy balances to calculate the concentration of different gases in the fermenter off-gas, amount of reactant used, amount of oxygen etc.
CO4	Understand the local and national Criteria for scale-up and selection of bioreactors, design and functioning of various types of reactors viz Batch, Fed-batch CSTR, Airlift, Fluidized bed and PFR for skill development
CO5	Control of physical, chemical and biological environment of the bioreactor for better skilling of employability local and national.

Course Code	MTB102T
Course Name	Advanced Bioseparation Engineering

COs	Description
CO1	Understand the role of bio separation in obtaining and formulating various biological products inculcate skill, provide be global employability and entrepreneurship.
CO2	Understand the difference between the downstream processing steps of intracellular and extracellular products and also about the various global separation techniques involved in downstream processing for skill development

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Apply the principles of major unit operations used in downstream processing for product isolation and recovery providing local and national employability
CO4	Understand various techniques in local and national used in the purification of biological products understanding for better skill
CO5	Know about the recovery of various products through local and national case studies for better skill development

Course Code	MTB103T
Course Name	**Bioinformatics**

COs	Description
CO1	Understand bioinformatics databases, data bank, data format, and data retrieval from global online sources for entrepreneurship & employability
CO2	Apply algorithms and matrices to solve the global biological problem for better skill development
CO3	Understand the global knowledge of protein structure visualization software, tools related to secondary and tertiary structure prediction for skill development
CO4	Apply molecular modelling technique for protein modeling understanding for local and national entrepreneurial skill
CO5	Understand the drug stereochemistry, drug designing, and molecular modelling of new drug molecules for entrepreneurship & local and national employability

Course Code	MTB104T
Course Name	**Biochemistry Biophysics & Molecular Dynamics**

COs	Description
CO1	Understand the basic concepts, biosynthetic pathways, and metabolism of carbohydrates, protein and lipids understand for local and national entrepreneurial skill
CO2	Understand how enzymes work, their kinetics and function, and the metabolism of vitamins for better national skill development
CO3	Understand global DNA and its metabolism for skill development
CO4	Learn the techniques like NMR and X-ray with their theories and function in detections knowledge for better employability in local and national industry

Sanjeev Bhanu
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Learn how human anatomy works especially in the context of muscular movement and cardiac activities. Effect to inculcate skill provide employability & local and national entrepreneurial skills

Course Code	MTB105T
Course Name	Advanced Biochemical Engineering

COs	Description
CO1	Understand the functioning of ideal reactors and designing of single and multiple reactor systems understanding for global entrepreneurial skill
CO2	Derive the kinetic parameters of microbial growth in a batch system exercises knowledge for better employability in local and national industry
CO3	Find out the non-ideal conditions of reactor operation and can optimize the intermediate products providing local and national employability
CO4	Design the various operations of bioreactors *viz* CSTR, Airlift, and Fluidized bed inculcate skill provide employability & global entrepreneurship
CO5	Understand the instrumental control and global Scale-Up for skill development

Course Code	MTB106T
Course Name	Food Biotechnology

COs	Description
CO1	Understand the nature and chemistry of biomolecules and their role in food nutrition to inculcate skill provide local and national employability & entrepreneurship
CO2	Identify the desirable and objectionable local flavor constituents in food; biochemical pathways and important chemical reactions for skill development
CO3	Understand the importance and growth factors of microorganisms and their role in the production, deterioration, and safety of foods, from both ecological and physiological perspectives for better skilling of entrepreneurship & local and national employability.
CO4	Understand the concepts of common principles of food product technologies understanding for global entrepreneurial skills
CO5	Grasp the fundamentals of local food processing and preservation.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MTB107T
Course Name	Cell & Tissue Culture Technology

COs	Description
CO1	Understand the basic developmental biology and also structure and organization of tissues, and concept of therapeutics and *in vitro* testing to inculcate skill provide local and national employability & entrepreneurial skills
CO2	Understand the mechanism of mass transfer understanding for global entrepreneurial skills
CO3	Understand the mechanism of cell – cell interaction and communications for global skill development
CO4	Learn about growth regulators and its role of in tissue engineering understanding for global entrepreneurial skills
CO5	Learn about stem cell research and its applications. Also understand the basic concept of organ transplantation and transplantation immunology knowledge for better employability in local and national industry

Course Code	MTB201T
Course Name	Microbiological Technology

COs	Description
CO1	Understand the basics of biotechnology, biochemical engineering and raw material pretreatments for global skill development
CO2	Know about microbial growth, product formation, and growth kinetics to inculcate skill provide local and national employability & entrepreneurial skills
CO3	Capable to design and optimize methods of media preparation and various sterilization procedures knowledge for better employability in local and national industry
CO4	Utilize the element balance method to design the stoichiometry of growth and product formation for better skilling of entrepreneurship & local and national employability.
CO5	Estimate parameters, validate model, and understand GLP and GMP understanding for global entrepreneurial skill

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MTB202T
Course Name	Enzyme and Protein Engineering

COs	Description
CO1	Understand the concept of structural and functional modification of protein and enzymes as well as their regulation understanding for global entrepreneurial skill
CO2	Understand the techniques of immobilization and kinetics involved in it for global skill development
CO3	Understand the techniques for protein synthesis and purification. For better global skill development
CO4	Learn the techniques for 3D structure analysis of protein and the interaction of protein to inculcate skill, provide local and national employability and entrepreneurship
CO5	Understand the process of drug discovery through molecular graphic techniques providing local and national employability

Course Code	MTB203T
Course Name	Recombinant DNA Technology

COs	Description
CO1	Know about different enzymes used in genetic engineering and vehicles for gene transfer understanding for global entrepreneurial skill Hypersensitivity, Autoimmunity
CO2	Understand the physical and chemical methods of gene transfer for better global skill development
CO3	Understand the technique of PCR and mutagenesis knowledge for better employability in local and national industry.
CO4	Understand various blotting techniques and vectors used for expression of gene for global skill development
CO5	Understand the application of Genetic engineering and construction of genetic libraries to inculcate skill provide local and national employability & entrepreneurial skills

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MTB204T
Course Name	Biophysical & Biochemical Techniques

COs	Description
CO1	Understand the colloids of biopolymer and their properties to inculcate skill provide employability & global entrepreneurial skills
CO2	Describe the theory and types of light and electron microscope for global skill development
CO3	Describe the principle and working of electrophoresis and immuno techniques understanding for global entrepreneurial skills
CO4	Describe the principle and application of spectroscopic methods and radioactive isotopes for global better skill development.
CO5	Explain the amino acid separation and sequencing techniques. Learn the theory of lyophilization and global application to biological system

Course Code	MTB205T
Course Name	Wastewater: Engineering

COs	Description
CO1	Understand the Selection or construction of appropriate treatment schemes to remove certain pollutants present in water or waste water for global skill development
CO2	Learn to characterize wastewater and the best available techniques (BAT) for treatment of wastewater for better global skill of entrepreneurship
CO3	Understand the role of microorganisms in wastewater treatment and calculate the amount of excess sludge, sludge volume, recycle ratio, and sludge age knowledge for better employability in local and national industry
CO4	Learn advanced unit operation, processes, and biologic treatment methods.CO5 Learn how to characterize source water and the best available technologies to inculcate skill provide local and national employability & entrepreneurial skills
CO5	Learn how to characterize source water, and the best available technologies for better global skill development

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MTB206T
Course Name	Computer-Aided Drug Design

COs	Description
CO1	Understand drug molecules and active site prediction in drug target to inculcate skill provide local and national employability & entrepreneurial skills
CO2	Understand the idea of drug discovery mechanism through pharmacokinetics which includes time course of drug absorption, distribution etc. for better global skill of entrepreneurship &employability.
CO3	Understand the concept of automated testing of drugs and properties of interaction & bonding in drugs for global skill development
CO4	Design potential drug molecule for docking understanding for global entrepreneurial skill
CO5	Work in drug designing software's like CADD and QSAR providing local and national employability

Course Code	MTB207T
Course Name	Metabolic Engineering

COs	Description
CO1	Understand the concept of cellular metabolism and enzyme regulation understanding for global entrepreneurial skill
CO2	Practice metabolic engineering and metabolic path analysis for better global skill development
CO3	Learn the concept of metabolic flux analysis to inculcate skill, provide local and national employability and entrepreneurship
CO4	Understand the application of various pathway manipulation for global skill development
CO5	Enhance the product yield and global utilization of different types of substrate. Providing employability

Course Code	MTB301
Course Name	Immunotechnology & Immunoinformatics

COs	Description
CO1	Learn various types and roles of the immune system, Cells, and Organs of the immune system, antigens, and factors affecting antigenicity

Sanjeev Bora
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	understanding for global entrepreneurial skill
CO2	Understand the structure and role of Antibodies, Types of antibodies, production and application of monoclonal antibodies, the role of cytokines and complement systems to inculcate skill provide local and national employability &entrepreneurial skills
CO3	Learn the antigen-antibody reactions-precipitation, agglutination, RIA, ELISA, Immunological tools, MHC, and antigen presentation for better global skills of entrepreneurship
CO4	Apply various tools of immuno-informatics, databases in immunology, T-cell and B-cell prediction methods and Reverse vaccinology for entrepreneurship & local and national employability
CO5	Learn QSAR, various descriptors used in QSAR, and principal component analysis in QSAR knowledge for better employability in local and national industry analysis.

Course Code	**MTB302**
Course Name	**Bioreactor Analysis and Design**
COs	**Description**
CO1	Understand the basic components of the bioreactor and its use in pharmaceuticals for global entrepreneurship &employability
CO2	Design principles of the batch, fed-batch, and continuous bioreactors and analyze their behavior (dynamic and steady-state) to inculcate skill provide local and national employability & entrepreneurial skills
CO3	Understand suitable process instrumentation for monitoring and control of bioreactors understanding for global entrepreneurial skill
CO4	Understand mass and heat transfer requirements for the fermentation system for global skill development
CO5	Identify suitable criteria for the scale-up of bioprocesses and characterize non-ideality in bioreactors for better global skill of entrepreneurship

Course Code	**MTB303**
Course Name	**Solid Waste Management**
COs	**Description**
CO1	Understand solid waste, its sources, and nature inculcate skill provide employability & global entrepreneurial skills
CO2	Learn about the solid waste characteristics, waste reduction, and treatment and disposal techniques for entrepreneurship & local and national employability
CO3	Understand about the energy from waste or fuels derived from waste for

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	global skill development
CO4	Understand the requirement for management, planning and knowledge about biomedical waste understanding for global entrepreneurial skill
CO5	Learn about industrial and urban solid waste management and also about its disposal methods knowledge for better employability in local and national industry

Course Code	MTB304
Course Name	IPR, Bioethics & Biosafety

COs	Description
CO1	Understand different types of Intellectual Properties (IPs), laws and agreements related to IPR for global skill development
CO2	Understand the importance and requirement of IPR and the role of convention related to IPR for better global skill of entrepreneurship
CO3	Understand the detailed information on patenting biological products as well as India's latest patent litigation cases for entrepreneurship & local and national employability
CO4	Understand the ethical issues in biotechnological products and NGOs for bioethics for global entrepreneurship &employability
CO5	Understand the importance and types of biosafety levels and handling of rDNA products and processes in industry and institutions etc understanding for global entrepreneurial skill

Course Code	MTB305
Course Name	Biomedical Instrumentation & Measurements

COs	Description
CO1	Understand the working, principle of biomedical instrumentation as well as calibration of medical devices for better global skill of entrepreneurship
CO2	Learn various applications of different types of analytic equipment for global skill development
CO3	Understand the principle and working of diagnostic equipment understanding for global entrepreneurial skill
CO4	Learn the patient monitoring system, principles and various types of biotelemetry to inculcate skill provide employability & local and national entrepreneurial skills.
CO5	Learn the audiometers and related measurements for entrepreneurship &

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	local and national employability

Course Code	MTB306
Course Name	Medical Biotechnology

COs	Description
CO1	Learn about the biochemical and pharmacological methods for clinical diagnostics in the case of molecular genetics related disorders for global skill development
CO2	Know about the genetic disease and their causes along with the significance of stem cell and gene therapy for their management etc understanding for global entrepreneurial skill
CO3	Learn about the cause and spread of pathogenic disease as epidemics with the role of hygiene, antibiotics and chemotherapy in disease control to inculcate skill provide local and national employability &entrepreneurship
CO4	Know the connection of the cell's molecular mechanism in relation to diseases and how transgenic proteins are produced to cure the diseases knowledge for better employability in local and national industry
CO5	Learn about the management of clinical data for better employability in local and national industry

Course Code	MTB307
Course Name	Computer Aided Drug Design

COs	Description
CO1	Understand bioinformatics databases, data bank, data format, and data retrieval from online sources for entrepreneurship & local and national employability
CO2	Apply algorithms and matrices to solve the biological problem for better global skill development
CO3	Understand the knowledge of protein structure visualization software, tools related to secondary and tertiary structure prediction for global skill development
CO4	Apply molecular modelling technique for protein modelling understanding for global entrepreneurial skill
CO5	Understand the drug stereochemistry, drug designing, and molecular modelling of new drug molecules for entrepreneurship & local and national employability

Sanjeev Bhargava
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MTB308
Course Name	Metabolic Engineering

COs	Description
CO1	Understand the concept of cellular metabolism and enzyme regulation understanding for global entrepreneurial skill
CO2	Practice metabolic engineering and metabolic path analysis for better global skill development
CO3	Learn the concept of metabolic flux analysis to inculcate skill, provide local and national employability and entrepreneurship
CO4	Understand the application of various pathway manipulation for global skill development
CO5	Enhance the product yield and utilization of different types of substrate providing local and national employability

Course Code	MTB309
Course Name	Manufacturing Process

COs	Description
CO1	Understand the concept of conventional manufacturing processes understanding for global entrepreneurial skill
CO2	Explain metal cutting for better global skill development
CO3	Learn the concept of rapid prototyping and rapid tooling Joining/Fastening processes to inculcate global skill, provide employability and entrepreneurship
CO4	Understand the application of various metal joining for global skill development
CO5	Enhance the unconventional machining processes providing local and national employability

Course Code	MTB310
Course Name	Secondary Microbes in Plants and Microbes

COs	Description
CO1	Understand about primary and secondary metabolism and their product for global skill development.
CO2	Understand about group of secondary metabolic enzymes and their activities for skill development, local and national employability and entrepreneurship development.
CO3	Understand about metabolic pathways and their structure metabolic

Sanjeev Bhatnagar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	network for global skill development.
CO4	Understand about secondary metabolites production in plants for global skill development and employability.
CO5	Understand about secondary metabolites from microbes for global skill development.

Course Code	MTB311
Course Name	Biosensor

COs	Description
CO1	Understand about introduction to biosensors and their generation for global skill development.
CO2	Understand about basic design and transduction of sensors for skill development, local and national employability and entrepreneurship development.
CO3	Understand about transduction and their types for global skill development.
CO4	Understand about application of biosensors for global skill development and employability.
CO5	Understand about application of nanomaterials in biosensors for global skill development.

Course Code	MTB312
Course Name	Food Service Management

COs	Description
CO1	Understand about catering industry and their processing methods for global skill development.
CO2	Understand about floor planning and layout for skill development, local and national employability and entrepreneurship development.
CO3	Understand about food preparation and menu planning for global skill development.
CO4	Understand about standardization of recipe and standard portion sizes for global skill development and employability.
CO5	Understand about management of finance tool and personal in food industry or unit for global skill development.

Sanjeev Dorawat
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – M. Sc. (Biotechnology)

Course Code	MSB101T
Course Name	Biochemistry

COs	Description
CO1	Understand in detail the structure and physicochemical properties and metabolism of carbohydrates for skill development.
CO2	Understand in detail the structure, type and classification of protein for technical skill development.
CO3	Understand the nomenclature and chemical properties of Fatty acids and Lipids along with their metabolic pathways like β oxidation for building the concepts that will help for better global and national employability in academics and laboratories.
CO4	Understand the structure of Purines and Pyrimidines and their metabolism, types of DNA and properties of RNA for skill development.
CO5	Understand the difference between the water-soluble and fat-soluble vitamins and their key role in metabolism for skill development.

Course Code	MSB102T
Course Name	Microbiology

COs	Description
CO1	Understand the historical concept of microbiology, various sterilization techniques, microbial nutrition, and microbial growth for skill development.
CO2	Learn about the structure and the classification of bacteria for skill development.
CO3	Learn about the structure and classification of the virus for skill development.
CO4	Understand the mechanism of sterilization, use and mode of action of various antibiotics for skill development, global and national employability and entrepreneurship development.
CO5	Understand the microbial ecology including interaction among soil microbes, symbiosis, and nitrogen fixation for skill development, better global employability in the field of research & academics.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSB103T
Course Name	Cell Biology

COs	Description
CO1	Understand Cell structure and functions for skill development.
CO2	Understand the cell junctions maintaining the homeostasis and critical cell processes for skill development.
CO3	Understand the different stages of the cell cycle and cell division for skill development.
CO4	Know the different cell signaling pathways for skill development, global and national employability and entrepreneurship development.
CO5	Understand cancer-related cell reproduction for skill development.

Course Code	MSB104T
Course Name	Bio Instrumentation

COs	Description
CO1	Understand the principle and working of microscope for skill development, employability and entrepreneurship development.
CO2	Understand the concept of ultracentrifugation and its application for skill development, employability and entrepreneurship development.
CO3	Acquire knowledge of the various applications of electrophoresis for skill development, employability and entrepreneurship development.
CO4	Explain the principle, instrumentation, and application of spectroscopic instruments for skill development, employability and entrepreneurship development.
CO5	Understand the various radioisotopic techniques and their application in biology and medicine for skill development, employability and entrepreneurship development.

Course Code	MSB105T
Course Name	Molecular Biology

COs	Description
CO1	Describe the structural components of Nuclear membrane, chromosomal structure, DNA packaging, C-value and Cot value, Mutations involving chromosomal and gene mutations, Salivary and Lamp brush chromosomes for skill development.
CO2	Describe the mechanism of bacterial replication, Enzymes involved in DNA replication, Telomeric replication, Recombination and its mechanism and types of DNA repair mechanisms for skill development

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and globalemployability.
CO3	Explain the structure of prokaryotic and eukaryotic RNA Polymerase, mechanism of transcription in prokaryotes and eukaryotes, significance of promoter sequences and RNA processing for skill development and employability.
CO4	Describe the molecular mechanisms of translation in prokaryotes and eukaryotes, regulation of translation, post-translational modifications of proteins, and mechanisms of regulation of gene expression in prokaryotes lac operon and trp operon, mechanisms of regulation of gene expression in eukaryotes, lytic cascades, and lysogenic repression for skill development.
CO5	Describe the genetic diseases-autosomal and sex-linked diseases, causes and genetics of cancer, the role of p53 and pRB in cancer, Tools in molecular biology- Fluorescent In-situ Hybridization (FISH), DNA microarrays for skill development, global and national employability.

Course Code	MSB201T
Course Name	Immunology & Immunotechnology
COs	**Description**
CO1	Outline the key mechanisms and cellular players of innate and adaptive immunity, as well as inflammation. Describe the characteristics and roles of different types of T cells & B cells in adoptive immune response for skill development, employability and entrepreneurship development.
CO2	Describe in details the properties of antigens, haptens and adjuvants. Explain the structure, properties and functions of antibodies for skill development and employability.
CO3	Outline key events and cellular players in antigen processing & presentation, pathways of complement protein activation, mechanisms that regulate immune responses and maintain tolerance for skill development and employability.
CO4	Apply basic techniques for identifying antigen-antibody interactions. Understand the principles vaccination & types of vaccines; production and application of monoclonal antibodies for skill development.
CO5	Understand the mechanisms of cell mediated cytotoxicity and immune response against infectious diseases. Also explain the basis of hypersensitivity, autoimmunity, transplantation, tumor immunology for skill development, employability, global and national entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSB202T
Course Name	Microbial Technology

COs	Description
CO1	Develop an understanding of fermentation and its types -solid and submerged fermentation for skill development, employability and entrepreneurship development.
CO2	Know the raw materials for industrial fermentation and the pretreatment process for skill development and employability.
CO3	Isolate and preserve the industrially important microbes for skill development, global and nationalemployability and entrepreneurship development.
CO4	Understand the metabolic pathways and their role in product formation for skill development.
CO5	Understand the techniques of production of globallyimportant products-ethanol, citric acid, penicillin, etc. for skill development, employability and entrepreneurship development.

Course Code	MSB203T
Course Name	Plant Biotechnology

COs	Description
CO1	Understand the method of culturing reproductive structures - anther, microspores, embryos, endosperm, ovule, and ovary cultures and methods to produce haploids for skill development and employability.
CO2	Understand the basics of plant tissue culture and application of plant tissue culture in crop improvement globally for skill development, employability and entrepreneurship development.
CO3	Understand the basic knowledge of genetic engineering of plants using severalglobal genetic engineering tools for skill development and employability.
CO4	Understand the ethics and government regulations that are there for the safe introduction of GMOs for skill development, employability and entrepreneurship development
CO5	Learn methods to conserve germplasm under In vitro. Production of Secondary metabolites production through cell culture for skill development, employability and entrepreneurship development

Sanjeev Grewal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSB204T
Course Name	Advanced Proteomics and Genomics

COs	Description
CO1	Understand the scope of proteomics, protein folding, gel electrophoresis, and post-translation modification for skill development.
CO2	Construct physical and genomic mapping, the role of SNPs and ESTs in gene identification for skill development.
CO3	Know global biomedical application of proteomics and principle and design of protein chip for skill development, employability and entrepreneurship development.
CO4	Produce multiple copies of genes using PCR, and develop the concept of DNA foot printing and fingerprinting for skill development, employability and entrepreneurship development.
CO5	Compare and predict gene, Principle, and construction of DNA microarray and tools used for gene manipulation for skill development, employability, global and national entrepreneurship development.

Course Code	MSB205T
Course Name	Enzymology and Enzyme Technology

COs	Description
CO1	Understand the concept of enzymes and their support groups, along with the different theories that support the working of enzymes, classification as well as how enzymes could be purified from different sources for skill development.
CO2	Understand the working mechanism of enzymes by different mathematical equations for skill development.
CO3	Understand the physical factors that affect the activity and catalysis of enzymes and how the working of enzymes is regulated (inhibitions) for skill development andglobalemployability.
CO4	Understand the structure and function of different enzymes involved in replication and other metabolic activities for skill development.
CO5	Understand the globally commercial applicability of enzymes, the process of immobilization, enzymes as biosensors, and their bioprocessing in enzyme reactors for skill development, employability and entrepreneurship development.

Sanjeev Bhawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSB301
Course Name	Animal Cell Culture

COs	Description
CO1	Understand the importance of sterility and good aseptic technique and minimal contamination for skill development, employability and entrepreneurship development.
CO2	Perform supportive tasks relevant to cell culture, including preparation of media, cryopreservation, and recovery. Apply practical skills to primary cell culture and sub-culture of animal cells, assessment of cell growth, and development of cell lines for skill development and employability.
CO3	Understand the principles of cell culture techniques; and implementation of the principle of bioreactor design and product recovery for skill development, employability and entrepreneurship development.
CO4	Understand the principles of cell-based assay and determine toxicity limits of cytotoxicity assay. Students will critically evaluate cell cultures constraints and possibilities as an in vitro model for skill development.
CO5	Describe the details about the requirement for mammalian expression system and students will learn the applications and futureglobalperspectives of animal cell culture for skill development, employability and entrepreneurship development.

Course Code	MSB302
Course Name	Biostatistics and Bioinformatics

COs	Description
CO1	Demonstrate knowledge of the properties of parametric, semi-parametric and nonparametric testing procedures in Biostatistics for skill development. Remember restate the principal concepts about biostatistics and collect data relating to variable which will be examined for skill development
CO2	Understand and be able to address ethical, regulatory and practical aspects of human subject research including human subject's protections for skill development. Be capable of self-directed learning of unfamiliar statistical methods and written and oral presentation of results/findings for skill development and employability.
CO3	Gain knowledge of various biological databases and sequence formats for skill development and employability.
CO4	Understand about multiple sequence alignment. Establish the phylogenetic relationship between DNA and protein sequence for skill development and employability.
CO5	Study various protein modelling and protein structure prediction methods for skill development and global employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSB303
Course Name	Genetic Engineering

COs	Description
CO1	Develop the concept of Genetic engineering and the role of restriction enzymes in genetics for skill development and employability.
CO2	Understand the cloning techniques, globally used cloning vectors like plasmid, cosmids, bacteriophages etc. for skill development.
CO3	Develop the concept of Genome sequencing, use of the molecular probe, and Polymerase Chain Reactions in genomics for skill development, employability and entrepreneurship development.
CO4	Isolate the gene and construct the genomic libraries for skill development.
CO5	Construct the molecular map and working of Microarray for skill development, employability and entrepreneurship development.

Course Code	MSB304
Course Name	Environmental Biotechnology

COs	Description
CO1	Understand the Structure and Functions of an Ecosystem and the scope of Environment Biotechnology in the Ecosystem for skill development and employability.
CO2	Understand the various global phenomenon & describe the existing and emerging technologies to manage them for skill development and employability.
CO3	Understands the emerging needs of Biofuels, Biofertilizers, and Biopesticides for skill development, employability and entrepreneurship development.
CO4	Understand bioremediation its globalapplication and its limitations skill development, employability and entrepreneurship development.
CO5	Understand the environmental issues including Primary, secondary, and tertiary wastewater and industrial effluents treatment skill development, employability and entrepreneurship development.

Course Code	MSB304 I
Course Name	Evolution

COs	Description
CO1	Understand about historical perspectives of evolution for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand about species concepts and species attributes for skill development, employability and entrepreneurship development.
CO3	Understand about Mendelian population and Mendelian genetics for skill development.
CO4	Understand about natural selection and their types for skill development.
CO5	Understand aboutglobalgeographic variation and concepts of variation for employability.

Course Code	MSB304 II
Course Name	Ecology

COs	Description
CO1	Understand the principles of ecology, species diversity and interactions for skill development.
CO2	Understand about ecosystem its structure and component for skill development, employability and entrepreneurship development.
CO3	Understand about biogeography and its types for skill development.
CO4	Understand about ecological imbalances and biosphere skill development.
CO5	Understand about global ecological applications and types of life supporting system for employability.

Course Code	MSB304 III
Course Name	Medical Bacteriology

COs	Description
CO1	Understand the Epidemiology, Epidemiological markers studied globallyand control of community infections for skill development.
CO2	Understand about gram positive cocci and bacilli for skill development, employability and entrepreneurship development.
CO3	Understand about acid fast bacteria and gram negative cocci for skill development.
CO4	Understand about gram negative bacilli for skill development.
CO5	Understand about entero-bacteriace family for employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – M. Sc. (Microbiology)

Course Code	MSB101T
Course Name	Biochemistry

COs	Description
CO1	Understand in detail the structure and physicochemical properties and metabolism of carbohydrates for skill development.
CO2	Understand in detail the structure, type and classification of protein for technical skill development.
CO3	Understand the nomenclature and chemical properties of Fatty acids and Lipids along with their metabolic pathways like β oxidation for building the concepts that will help for better global and national employability in academics and laboratories.
CO4	Understand the structure of Purines and Pyrimidines and their metabolism, types of DNA and properties of RNA for skill development.
CO5	Understand the difference between the water-soluble and fat-soluble vitamins and their key role in metabolism for skill development.

Course Code	MSB102T
Course Name	Microbiology

COs	Description
CO1	Understand the historical concept of microbiology, various sterilization techniques, microbial nutrition, and microbial growth for skill development and employability.
CO2	Learn about the structure and the classification of bacteria for skill development, employability and entrepreneurship development.
CO3	Learn about the structure and classification of the virus for skill development, global and national employability.
CO4	Understand the mechanism of sterilization, use and mode of action of various antibiotics for skill development, employability and global entrepreneurship development.
CO5	Understand the microbial ecology including interaction among soil microbes, symbiosis, and nitrogen fixation for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSB103T
Course Name	Cell Biology

COs	Description
CO1	Understand Cell structure and functions for skill development.
CO2	Understand the cell junctions maintaining the homeostasis and critical cell processes for skill development.
CO3	Understand the different stages of the cell cycle and cell division for skill development.
CO4	Know the different cell signaling pathways for skill development, global and national employability and entrepreneurship development.
CO5	Understand cancer-related cell reproduction for skill development.

Course Code	MSB104T
Course Name	Bio Instrumentation

COs	Description
CO1	Understand the principle and working of microscope for skill development, employability and entrepreneurship development.
CO2	Understand the concept of ultracentrifugation and its application for skill development, employability and entrepreneurship development.
CO3	Acquire knowledge of the various applications of electrophoresis for skill development, employability and entrepreneurship development.
CO4	Explain the principle, instrumentation, and application of spectroscopic instruments for skill development, employability and entrepreneurship development.
CO5	Understand the various radioisotopic techniques and their application in biology and medicine for skill development, employability and entrepreneurship development.

Course Code	MSB105T
Course Name	Molecular Biology

COs	Description
CO1	Describe the structural components of Nuclear membrane structure, DNA packaging, C-value and Cot value, Mutations involving chromosomal and gene mutations, Salivary and Lamp brush chromosomes for skill development.
CO2	Describe the mechanism of bacterial replication Enzymes involved in DNA replication, Telomeric replication, Recombination and its mechanism and types of DNA repair mechanisms for skill development

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and globalemployability.
CO3	Explain the structure of prokaryotic and eukaryotic RNA Polymerase mechanism of transcription in prokaryotes and eukaryotes, significance of promoter sequences and RNA processing for skill development and employability.
CO4	Describe the molecular mechanisms of translation in prokaryotes and eukaryotes regulation of translation, post-translational modifications of proteins, and mechanisms of regulation of gene expression in prokaryotes lac operon and trp operon, mechanisms of regulation of gene expression in eukaryotes, lytic cascades, and lysogenic repression for skill development.
CO5	Describe the genetic diseases-autosomal and sex-linked diseases, causes and genetics of cancer, the role of p53 and pRB in cancer, Tools in molecular biology- Fluorescent In-situ Hybridisation (FISH), DNA microarrays for skill development, global and nationalemployability.

Course Code	**MBM201T**
Course Name	**Industrial Microbiology**
COs	**Description**
CO1	Understand the history and developments of Industrial microbiology. Learn the techniques to culture and maintenance of microbes for skill development, employability and entrepreneurship development.
CO2	Describe the components and various types of bioreactor for skill development, globalemployability and entrepreneurship development.
CO3	Describe the methods, advantages and application of enzyme immobilization for skill development, employability and entrepreneurship development.
CO4	Learn the methods of downstream processing for skill development, employability and entrepreneurship development.
CO5	Understand the globalmicrobial production of vitamin, enzymes and amino acids for skill development, employability and entrepreneurship development.

Course Code	**MSB202T**
Course Name	**Microbial Technology**
COs	**Description**
CO1	Develop an understanding of fermentation and its types -solid and submerged fermentation for skill development, employability and entrepreneurship development.
CO2	Know the raw materials for industrial fermentation and the pretreatment

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	process for skill development and employability.
CO3	Isolate and preserve the industrially important microbes for skill development, global and nationalemployability and entrepreneurship development.
CO4	Understand the metabolic pathways and their role in product formation for skill development employability and global entrepreneurship development.
CO5	Understand the techniques of production of globallyimportant products-ethanol, citric acid, penicillin, etc. for skill development and employability.

Course Code	MBM203T
Course Name	Microbial Metabolism

COs	Description
CO1	Understand the basic concepts of primary metabolism used within cells to break down the molecules to generate the energy such as Embden-Meyerhof- Parnas (EMP) pathway and TCA cycle for skill development, employability and entrepreneurship development.
CO2	Understand the principles of cellular respiration in aerobic and anaerobic organisms familiarize the concept of ATP synthesis and electron flow, describe metabolism in chemo heterotrophic bacteria for skill development, employability and entrepreneurship development.
CO3	Understand thoroughly the process of photosynthesis in bacteria uptake and utilization of the inorganic or organic compounds required for growth and maintenance of a cellular steady-state (assimilation reactions) for skill development, employability and global entrepreneurship development.
CO4	Understand the flow of nitrogen into biosynthesis and catabolism of amino acids for skill development, employability and entrepreneurship development.
CO5	Define the biosynthesis and oxidation of fatty acids and ketone bodies. To understand the metabolism of nitrogenous and non-nitrogenous compounds in bacterial cells for skill development global and national employability.

Course Code	MSB204T
Course Name	Advanced Proteomics and Genomics

COs	Description
CO1	Understand the scope of proteomics, protein folding, gel electrophoresis, and post-translation modification for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Construct physical and genomic mapping, the role of SNPs and ESTs in gene identification for skill development.
CO3	Know biomedical application of proteomics and principle and design of protein chip for skill developmentt and global employability.
CO4	Produce multiple copies of genes using PCR, and develop the concept of DNA foot printing and fingerprinting for skill development.
CO5	Compare and predict gene, Principle, and construction of DNA microarray and tools used for gene manipulation for skill development, employability andglobal entrepreneurship development.

Course Code	MBM205T
Course Name	Environmental Microbiology
COs	**Description**
CO1	Understand the role of microorganisms as agents of environmental change for skill development employability and entrepreneurship development.
CO2	Recognize microorganisms as indicators of alteration of an ecosystem for skill development employability and entrepreneurship development.
CO3	Understands the global and nationalemerging needs of Biofuels Biofertilizers, and Biopesticides for skill development and employability.
CO4	Understand bioremediation, its application, and its limitations for skill development, employability and entrepreneurship development.
CO5	Understand the global and localenvironmental issues including Primary, Secondary, and tertiary wastewater and industrial effluents treatment for skill development and employability.

Course Code	MBM301
Course Name	Medical Microbiology
COs	**Description**
CO1	Describe the microflora of a healthy human host, host-microbe interaction, infection types and stages, Transmission of diseases, and tissue damage for skill development, employability and entrepreneurship development.
CO2	Explain the morphological characteristics, pathogenesis, and lab diagnosis of important bacterial pathogens like Klebsiella pneumonia; Proteus Vulgaris; Pseudomonas aeruginosa; Crypto sporodium, Vibrio cholerae; Streptococcus pneumonia, etc for skill development and employability.
CO3	Elaborate the morphological characteristics, pathogenesis, and Lab diagnosis of important fungal pathogens like Microsporum; Trichophyton; Histoplasma capsulatum; Blastomyces dermatitidis; Candida albicans, etc.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	for skill development and employability.
CO4	Describe the protozoan infections caused globally by Entamoeba histolytica; Giardia Lamblia; Plasmodium vivax; Leishmania donovani and helminthic infections like Taenia saginata; Taenia solium; Hymenolepisnana for skill development and employability.
CO5	Explain the morphological characteristics, pathogenesis, and Lab diagnosis of viral infections caused by Poxviruses; Herpesviruses; Adenoviruses; Poliovirus; Hepatitis viruses damage for skill development, employability and entrepreneurship development.

Course Code	MSB302
Course Name	**Biostatistics & Bioinformatics**

COs	Description
CO1	Demonstrate knowledge of the properties of parametric, semi-parametric and nonparametric testing procedures in Biostatistics for skill development. Remember restate the principal concepts about biostatistics and collect data relating to variable which will be examined for skill development
CO2	Understand and be able to address ethical, regulatory and practical aspects of human subject research including human subject's protections for skill development. Be capable of self-directed learning of unfamiliar statistical methods and written and oral presentation of results/findings for skill development and employability.
CO3	Gain knowledge of various biological databases and sequence formats for skill development and employability.
CO4	Understand about multiple sequence alignment. Establish the phylogenetic relationship between DNA and protein sequence for skill development and employability.
CO5	Study various protein modeling and protein structure prediction methodsused globally for skill development and employability.

Course Code	MBM302
Course Name	**Microbial Genetics**

COs	Description
CO1	Understand the importance of mutation analysis, can analyze mutations by complementation and recombination tests and can design a strategy to create gene replacement in bacteria, for skill development.
CO2	Compare and contrast generalized versus specialized transduction, knows how to construct genetic linkage maps using two-factor and three-factor

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	cross, is able to discuss the basis of natural competence in bacteria for skill development, employability and entrepreneurship development.
CO3	Understand the structure, replication, control, partitioning, and replication of explained plasmid for skill development and employability.
CO4	Construct a genetic map of the bacterial genome using the conjugation-based method for skill development, global employability and entrepreneurship development.
CO5	List the events in the lytic and lysogenic phases of the lambda phage life cycle and the regulatory factors and events involved for skill development and employability.

Course Code	MBM303
Course Name	Immunology

COs	Description
CO1	Understand the outline of the key mechanisms and cellular players of innate and adaptive immunity as well as inflammation. Describe the characteristics and roles of different types of T cells & B cells in the adaptive immune response for skill development.
CO2	Describe in detail the properties of antigens haptens, and adjuvants. Explain the structure, properties, and functions of antibodies for skill development, employability and entrepreneurship development.
CO3	Learn the outline of key events and cellular players in antigen processing & presentation, pathways of complement protein activation, mechanisms that regulate immune responses and maintain tolerance for skill development, employability and entrepreneurship development.
CO4	Apply basic techniques used globally for identifying antigen-antibody interactions. Understand the principles of vaccination & types of vaccines; production and application of monoclonal antibodies for skill development, employability and entrepreneurship development.
CO5	Understand the mechanisms of cell-mediated cytotoxicity and immune response against infectious diseases. Explain the basis of hypersensitivity, autoimmunity, transplantation tumour immunology for skill development.

Course Code	MBM301I
Course Name	Applied Biology

COs	Description
CO1	Understand about biochemistry and metabolism of biomolecules of skill development.
CO2	Understand about Molecular Biology and R-DNA Technology for skill

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development, employability and entrepreneurship development.
CO3	Understand about cell biology and cellular processes for skill development.
CO4	Understand about instruments used in biology for skill development.
CO5	Understand about history and principles of genetics for global employability.

Course Code	MBM301 II
Course Name	**Biomedical Waste Management**

COs	Description
CO1	Understand about Sources, Composition and characteristic of hazardous waste for skill development.
CO2	Understand about Characterization of medical waste for skill development, employability and entrepreneurship development.
CO3	Understand about treatment methods of biomedical wasteused globally for skill development.
CO4	Understand about electronic wastes and their management for skill development.
CO5	Understand about guidelines for management of environmental waste for employability.

Course Code	MBM301 III
Course Name	**Applied Medical Biochemistry**

COs	Description
CO1	Understand the concept of metabolism, biochemical abnormalities, Body fluids and acid-base balance for skill development
CO2	Understand the enzymes, properties of enzymes and isoenzymes used in diagnosis of metabolic disorders, clinical significance of enzymes, clinical assays for skill development.
CO3	Describe the hormones, its classification, mechanism of action with special reference to epinephrine and thyroid hormones (T3 and T4) for skill development
CO4	Understand the different types of diseases associated with carbohydrates and lipids, sugars as information molecules, lectins, lipoproteins, their role in physiological functions and their potential as drug targets in various infectious diseases to inculcate skills for better employability.
CO5	Explain the vitamins, definition, classification, requirement and recommended allowances, diseases due to/deficiency of water-soluble and fat-soluble vitamins to inculcate skills for better employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – M. Sc. (Food Technology)

Course Code	MSB101T
Course Name	Biochemistry

COs	Description
CO1	Understand in detail the structure and physicochemical properties and metabolism of carbohydrates for skill development.
CO2	Understand in detail the structure, type and classification of protein for technical skill development.
CO3	Understand the nomenclature and chemical properties of Fatty acids and Lipids along with their metabolic pathways like β oxidation for building the concepts that will help for better global and national employability in academics and laboratories.
CO4	Understand the structure of Purines and Pyrimidines and their metabolism, types of DNA and properties of RNA for skill development.
CO5	Understand the difference between the water-soluble and fat-soluble vitamins and their key role in metabolism for skill development.

Course Code	MSB102T
Course Name	Microbiology

COs	Description
CO1	Understand the historical concept of microbiology, various sterilization techniques, microbial nutrition, and microbial growth for skill development and employability.
CO2	Learn about the structure and the classification of bacteria for skill development, employability and entrepreneurship development.
CO3	Learn about the structure and classification of the virus for skill development, global and national employability.
CO4	Understand the mechanism of sterilization, use and mode of action of various antibiotics for skill development, employability and global entrepreneurship development.
CO5	Understand the microbial ecology including interaction among soil microbes, symbiosis, and nitrogen fixation for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSB104T
Course Name	Bio Instrumentation

COs	Description
CO1	Understand the principle and working of microscope for skill development, employability and entrepreneurship development.
CO2	Understand the concept of ultracentrifugation and its application for skill development, employability and entrepreneurship development.
CO3	Acquire knowledge of the various applications of electrophoresis for skill development, employability and entrepreneurship development.
CO4	Explain the principle, instrumentation, and application of spectroscopic instruments for skill development, employability and entrepreneurship development.
CO5	Understand the various radioisotopic techniques and their application in biology and medicine for skill development, employability and entrepreneurship development.

Course Code	MFT101T
Course Name	Fundamentals of Food Technology

COs	Description
CO1	Understand the history and evolution of food processing and learn the various branches of Food Science and Technology for skill development, employability and entrepreneurship development.
CO2	Understand the structure , composition, nutritional quality, and processing of different cereals and pulses for skill development, employability and global entrepreneurship development.
CO3	Enumerate the importance of different types of fats and oils; Rancidity and Refining of oils. The students will be able to learn the classification of fruits and vegetables and types of browning for skill development, employability and entrepreneurship development.
CO4	Understand the composition, classification, characteristics, and nutritive value of various flesh foods for skill development, employability and entrepreneurship development.
CO5	Understand the composition of milk and the global and nationaltechnology of manufacturing various products like butter, ghee, butter, ice cream and cheese. Acquire knowledge of milk constituents and steps involved in the processing of milk for skill development, employability and entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MFT102T
Course Name	Principles of Food Processing

COs	Description
CO1	Understand the historical development of food processing for skill development, employability and entrepreneurship development.
CO2	Understand the different processing and preservation methods for skill development, employability and entrepreneurship development.
CO3	Discuss various processing and preservation techniques for skill development, employability and entrepreneurship development.
CO4	Identify novel technologies in the processing of fleshy foods for skill development, employability and entrepreneurship development.
CO5	Understand theglobalFood Process Economics and Various stages in plant design for skill development, employability and entrepreneurship development.

Course Code	MFT201T
Course Name	Food Microbiology

COs	Description
CO1	Acquaint with historical developments and scope of food microbiology, Classification, and identification of microorganisms and different parameters of foods that affect microbial growth for skill development, employability and entrepreneurship development.
CO2	Understand the role and significance of microorganisms in various foods for skill development, employability and entrepreneurship development.
CO3	Understand the importance and global and national principles of food hygiene and sanitation. Also learn the rapid methods in detection of microorganisms for skill development, employability and entrepreneurship development.
CO4	Understand the different methods and principles of food preservation for skill development, employability and entrepreneurship development.
CO5	Predict the causative agent and pathogenesis of disease caused by food borne pathogens and their toxins for skill development and employability.

Course Code	MFT202T
Course Name	Food Fermentation

COs	Description
CO1	Understand the preparation and maintenance of bacterial, yeast, and mold cultures for food fermentation; preparation of Indian traditional sweet,

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	savory, and snack food products such as idli, dosa, and sweet meal for skill development, employability and entrepreneurship development.
CO2	Acquaint with knowledge of organic acids and amino acids preparation for skill development, employability and entrepreneurship development.
CO3	Understand the manufacturing and processing of meat and poultry products for skill development, employability and entrepreneurship development.
CO4	Understand the manufacturing and processing of fermented beverages, vegetables, and oriental fermented foods for skill development, employability and entrepreneurship development.
CO5	Understand the basics of production of severalgloballyimportant food processing aids such as baker's yeast, emulsifiers, enzymes, food color, flavor enhancers, etc for skill development, employability and entrepreneurship development.

Course Code	**MFT203T**
Course Name	**Food and Nutritional Chemistry**

COs	Description
CO1	Understand the structure, classification, chemical reactions, functional properties of sugars and polysaccharides in foods. Also understand the types of water in foods, the role, and importance of water activity in foods for skill development and employability.
CO2	Understand the classification, structure, sources, functions, physicochemical properties, and functional properties of proteins. Also learn the classification, use of lipids in foods, physical and chemical properties, effects of processing on functional properties, auto-oxidation, and rancidity of lipids for skill development, employability and entrepreneurship development.
CO3	Acquire in-depth knowledge about the classification, properties, Effect of processing on vitamins and minerals, enrichment, and fortification for skill development, employability and entrepreneurship development.
CO4	Understand the chemistry, classification, mode of action, specificity, enzymatic Browning, and their control, global aapplications of enzymes in the food industry. Also, identify natural food flavors and pigments in foods for skill development, employability and entrepreneurship development
CO5	Understand the requirements and role of nutrients in human health, Techniques of diet and health surveys, Formulation of diets and food products for specific needs for skill development, employability and entrepreneurship development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MFT204T
Course Name	Food Packaging Technology

COs	Description
CO1	Acquaint with the principles, methods, and materials used for safe packaging of foods for skill development, employability and entrepreneurship development.
CO2	Understand the properties of packaging material with their testing and evaluation methods for skill development, employability and entrepreneurship development.
CO3	Understand the barrier properties of packaging materials and will be able to predict the shelf life of food and select and design the packaging material based on its barrier properties for skill development, employability and entrepreneurship development.
CO4	Understand the different packaging systems used globallyfor different kinds of foods for skill development, employability and entrepreneurship development.
CO5	Understand the packaging equipment and machinery based on the properties of packaging material for skill development, employability and entrepreneurship development.

Course Code	MSB205T
Course Name	Enzymology and Enzyme Technology

COs	Description
CO1	Understand the concept of enzymes and their support groups, along with the different theories that support the working of enzymes, classification as well as how enzymes could be purified from different sources for skill development.
CO2	Understand the working mechanism of enzymes by different mathematical equations for skill development.
CO3	Understand the physical factors that affect the activity and catalysis of enzymes and how the working of enzymes is regulated (inhibitions) for skill development andglobalemployability.
CO4	Understand the structure and function of different enzymes involved in replication and other metabolic activities for skill development.
CO5	Understand the globally commercial applicability of enzymes, the process of immobilization, enzymes as biosensors, and their bioprocessing in enzyme reactors for skill development, employability and entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MFT301
Course Name	**Post Harvest Management of Fruits & Vegetables**

COs	Description
CO1	Understand the production status and post-harvest preservation methods of fruits and vegetables for skill development, employability and entrepreneurship development.
CO2	Understand the structure and composition of fruits and vegetables for skill development and employability.
CO3	Acquire knowledge on post-harvest management tools and handling methods of fruits and vegetables for skill development, employability and entrepreneurship development for skill development.
CO4	Understand the basic post-harvest biological, chemical, physiological, and metabolic processes and changes in fruits and vegetables for skill development.
CO5	Gain an overview of global cold chain management supply of fruits and vegetables for skill development, employability and entrepreneurship development for entrepreneurship & employability.

Course Code	MFT302
Course Name	**Food Quality Systems & Management**

COs	Description
CO1	Understand the principles and methods of sensory evaluation. Acquire in-depth knowledge about the Quality assessment of food materials.
CO2	Gain knowledge of the Quality Management System in India to understand the importance of FSSAI and to know about sampling procedures and plans for food products for skill development, employability and entrepreneurship development.
CO3	Understand National Food standards and Regulations, comprehend the need for hygiene and sanitation for ensuring food safety for skill development.
CO4	Understand the principle and importance of national and global standards like HACCP, ISO, and Food Codex for skill development.
CO5	Understand the concept of food adulteration and food safety. Gain an overview of IPR and patent for employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MFT303
Course Name	Food Packaging Technology

COs	Description
CO1	Acquaint with the principles, methods, and materials used for safe packaging of foods for skill development, employability and entrepreneurship development.
CO2	Understand the properties of packaging material with their testing and evaluation methods for skill development, employability and entrepreneurship development.
CO3	Understand the barrier properties of packaging materials and will be able to predict the shelf life of food and select and design the packaging material based on its barrier properties for skill development, employability and entrepreneurship development.
CO4	Understand the different packaging systems used globally for different kinds of foods for skill development, employability and entrepreneurship development.
CO5	Understand the packaging equipment and machinery based on the properties of packaging material for skill development, employability and entrepreneurship development.

Course Code	MFT304
Course Name	Food Engineering

COs	Description
CO1	Understand the concept of thermodynamics in food engineering for skill development.
CO2	Identify the chemical changes in food, types of reactions, and order of the reaction for skill development.
CO3	Develop the concept of aseptic operation of food processing and familiarize globally used techniques like pasteurization, blanching, and sterilization for skill development.
CO4	Understand the techniques of food preservation at low temperatures and freezing for skill development, employability and entrepreneurship development.
CO5	Understand the concept of heat transfer and working of instruments like heat exchanges for entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MFT304 I
Course Name	Food Microstructure and Texture

COs	Description
CO1	Understand about food microstructure and their examination for skill development.
CO2	Understand about fundamentals of structuring processes for skill development, employability and entrepreneurship development.
CO3	Understand about microstructures and their components skill development.
CO4	Understand about food structuring for skill development.
CO5	Understand about microstructure and mass transfer for global employability.

Course Code	MFT304 II
Course Name	Public Health Nutrition

COs	Description
CO1	Understand the Community nutrition as a field, public health nutrition, goals of nutrition programmefor employability in industry.
CO2	Gain knowledge about the direct nutritional assessment of human groupsfor employability in industry.
CO3	Understand the concept of Vital statistics, indicators and their use; health policy indicators, social and economic indicators used globallyfor employability in industry.
CO4	Understand the national nutrition programmes and policies and Programmes for improving nutritional status at national levelfor employability in industry.
CO5	Understand the Magnitude of nutritional problems in India.

Course Code	MFT304 III
Course Name	Food Quality Standard & Certification

COs	Description
CO1	Understand about food processing standards for skill development.
CO2	Understand about audits related to food quality standards for skill development, employability and entrepreneurship development.
CO3	Understand about good manufacturing practices of food used globally for skill development.
CO4	Understand about HACCP principles for skill development.
CO5	Understand about implementation of HACCP and audit conduction for employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

SCHOOL OF SOCIAL SCIENCES

PROGRAMME NAME – BACHELOR OF ARTS – SOCIOLOGY

Course Code	A070101T
Course Name	Introduction to Basic Concepts of Sociology

COs	Description
CO1	This paper will introduce students to new concepts of Sociology discipline for skill development.
CO2	These concepts will enhance the conceptual learning and understanding of the basic concepts used in Sociology for skill development for skill Development.
CO3	This paper will contribute in enriching the vocabulary and scientific temperament of the students for skill development for skill Development.
CO4	The course is designed to incorporate all the key concepts of sociology which would enable the learner to develop keen insights to distinguish between the commonsense knowledge and Sociological knowledge for skill development for skill Development.
CO5	Understand the Culture and Civilization , Pluralism , Multiculturalism , and Cultural Relativism for skill developmentfor skill Development.
CO6	Explain the meaning of Socio - Cultural Processes: Cooperation, Conflict, Competition, Acculturation, Assimilation and Integration for skill development for skill Development.
CO7	These concepts will enhance the conceptual learning and understanding of Social Structure, Status and Role, Norms, Folkways and Mores, Sanctions and Values for skill development for skill Development.
CO8	Understand the Social Stratification and Social Mobility for skill development for skill Development.

Course Code	A070201T
Course Name	Introduction to Basic Concepts of Sociology

COs	Description
CO1	This paper is designed in this manner, so that students are introduced to the concepts related to Indian Society at local and national level for skill Development.
CO2	They are made familiar with the Indian Society, its linkages and continuity with past and present for skill development at local and national level for skill Development.
CO3	It also gives insights to analyze contemporary Indian society at local and national level .This paper provides comprehensive understanding of Indian

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	society for skill Development at local and national level.
CO4	Understand the Tribal Communities in India ,Problems and Underdevelopment in Tribe for skill Development.
CO5	Understand the Basic Institutions of Indian society to fulfill national needs for skill Development.
CO6	Understand the Social Classes in India as Agrarian-Rural, Industrial-Urban:The Middle Class; Exclusion and Inclusion, Backward classes, Dalits,Women for skill Development.
CO7	Explain the Population , Demographic analysis, Population explosion, Demographic theories for skill development for skill Development.
CO8	Understand the Change and Transformation in Indian Society at local and national level for skill Development.

Course Code	A070202P
Course Name	**Writing skill development on topics of Contemporary Sociological Importance**

COs	Description
CO1	This is the practical paper introduced in the second semester of the certificate course in order to develop writing skills among the students at local and national levelof Sociology for skill Development.
CO2	This would enhance and inculcate the analytical skills among the students for skill Development.
CO3	The paper is designed to enrich the conceptual vocabulary of the students, such that they are equipped with the writing style in Sociology for skill Development.
CO4	This paper is presumably beneficial for the students who are interested in the field of Media, Journalism, Essay writer,Column writer, Psychology, Journalism at local and national level for skill development.

Course Code	BASC311
Course Name	**Indian Society: Issues and Problems**

COs	Description
CO1	Have an introduction to social problems, Structural ,Religious Problems. Get problems of weaker sections at local and national level for skill development.
CO2	Know Familial problems ,Intra and Inter-Generational Relations,Problems of Elderly for skill developmentfor skill Development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the Development Induced Displacement, Ecological Degradation, Consumerism, and Crisis of Values for skill development.
CO4	Understand the Concept of Social Organization, Disorganization , Crime and Delinquency, Cyber Crime and Corruption at local and national level for skill development.

Course Code BASC411
Course Name **Social Change and Social Control**

COs	Description
CO1	Explain Social Change: Meaning, Nature and Factors of Social Change for skill development.
CO2	Explain Theories of Social Change for skill development.
CO3	Understand the Social process: Industrialization, Urbanization, Modernization and Sanskritization, Westernization and Secularization at global lavel for skill development.
CO4	Understand the Definition, need, Importance of social control ,Theories of social control and agencies of social control for skill development.

Course Code BASC511
Course Name **Foundations of Sociological Thought**

COs	Description
CO1	Understand the sociological thoughts of August Comte and Spencer for skill developmentfor skill Development.
CO2	Understand the thoughts of Karl Marx and Durkheim about sociological principles for skill developmentfor skill Development.
CO3	Understand the sociological contribution of Max Weber and V. Pareto for skill developmentfor skill Development.
CO4	Develop an understanding of Functionalism with reference to R.K.Brown, R.K.Merton and Malinowski for skill development for skill Development.

Course Code BASC512
Course Name **The Study of Society**

COs	Description
CO1	Understand the Bases of Indian Social System viz. Verna, Ashram, Purushartha, doctrine of Karma and Sanskara for enhance skill development for skill Development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Describe the Caste in Contemporary India, Changes in Caste as a unit and Caste as a System , Caste, Class and Power for enhance skill development.
CO3	Define the nature of the institution of family and give a description of the types of family.Explain the difference in North and South Indian kinship and describe the marriage patterns in the Indian scenario at natinal level for enhance skill development.
CO4	Describe the Approaches to the Study of Indian Society:Dialectical and Indological, Civilization and Functional at natinal level for skill Development

Course Code **BASC513**
Course Name **Perspective on Indian Society**

COs	Description
CO1	Explain the ideas of G.S. Ghurye, Louis Dumont M.N. Srinivas and S. C.Dube. Discuss in brief about their methodology and contribution to Sociology of India for enhance skill development for skill Development.
CO2	Explain the ideas of D.P. Mukherjee, & A. R. Desai, Ramkrishan Mukherjee on Theoretical Perspective.Describe the ideas of Irawati Karve & A.M. Shah on Synthesis of Textual and Field Views for skill Development
CO3	Describe the ideas of N.K. Bose & Surajit Sinha on Civilizational Perspective and of B.R. Ambedkar& David Hardiman on Subaltern Perspective for skill Development .
CO4	Understand the Current Debates on Contextualization and Indigenization and explain the use of native categories in the analysis of Indian Society, at natinal level Text and Context, Sociology for India for skill Development

Course Code **BASC514**
Course Name **Sociological Thinkers**

COs	Description
CO1	Understand the efforts made by August Comte in developing the science of society, Sociology and his three major theories.And understand Industrial and French Revolution at global level for skill Development .
CO2	Explain Marx's contribution of dialectics and social change and how capitalism developed through the successive stages of primitive communism, ancient society and feudal society. Understand the concept of class and class conflict, Theory of Social Change and alienation as given by the Marx for skill Development.
CO3	Explain the theories given by Emile Durkheim on Social Facts, Suicide and

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	the Division of Labourfor skill Development.
CO4	Explain the central ideas of Max Weber, his argument in making Sociology a science for skill Development.

Course Code	**BASC611**
Course Name	**Pioneers of Indian Sociology**

COs	Description
CO1	Explain the theory of Social Structure and Social Change.Familiar with Radha Kamal Mukerjee, Andre Beteille, and Robert Redfield theory of Sociology for skill developmentfor skill Development.
CO2	Understand the G.S. Ghurye: Caste, Rural-Urban Community; Iravati Karve for skill development at national level for skill Development.
CO3	Understand the thought of Sankritization, Westernization, and Dominant Caste for skill developmentfor skill Development.
CO4	Understand the M.S.A. Rao: Social Movements in India; Yogendra Singh: Modernization of Indian Tradition for skill development at national level for skill Development.

Course Code	**BASC612**
Course Name	**Social Problems in India**

COs	Description
CO1	Have an introduction to social problems, Structural ,Religious Problems at national level for skill development .
CO2	Know Familial problems ,Intra and Inter-Generational Relations,Problems of Elderly at national level for skill development .
CO3	Understand the Development Induced Displacement, Ecological Degradation, Consumerism, and Crisis of Values for enhance skill development for skill development .
CO4	Understand the Concept of Social Organization, Disorganization , Crime and Delinquency, Cyber Crime and Corruption for skill development .

Course Code	**BASC613**
Course Name	**Social Stratification**

COs	Description
CO1	Students will learn about the socio-historical context of stratification theoretical concerns and problems and contemporary issues related to inequalities s and its forms at local level for skill development .
CO2	Inculcate in them a truly inter-disciplinary approach in the study of society especially stratification in all its manifestations at local level for skill development .

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understanding of stratification and theories would sensitize students to its various sociological aspects, providing ample scope for applied learning and application for skill development.
CO4	Examining forms of stratification, understanding the relevance of caste, race and ethnic identities in contemporary world for skill development.

Course Code **BASC614**
Course Name **Society and Religion**

COs	Description
CO1	Define Religion and differentiate between Religion and Dharmaa, explain the theo of origin of religion and outline the social functions of religion at local level for skill development.
CO2	Establish relationship between Rituals and Myths, Religion and Social Disorganization, Religion and Crime.Explain the Religious Organization namely Sect,Denomination, Cult, Religious Leadership for skill Development.
CO3	Establish relationship between Religion and Social Structure, Religion and Social Change, Religion and Economic System and Religion and Science for skill development.
CO4	Describe the genesis of major Religion of World namely Hinduism, Jainism, Buddhism, Judaism, Christianity and Islam for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – B.A. (BACHELOR OF ARTS) - EDUCATION

Course Code **E010101T**

Course Name **Conceptual Framework of Education**

COs	Description
CO1	Understand the meaning, nature, scope and aims of education for skill development.
CO2	Understand the functions of education for developing employability and Entrepreneur Skills.
CO3	Become aware about different agencies of education.
CO4	Become aware about Constitutional values of education knowledge for Skills.
CO5	Gain understanding about pre-primary education in India for Employability.
CO6	Gain understanding about primary and secondary education in India.
CO7	Explain the need of higher education.
CO8	Guide and role of governing/regulatory bodies of education system in India to mee national and global needs and for developing employability and entrepreneur skills.

Course Code	E010102P
Course Name	**Practical: Read the Preamble of Indian Constitution, understand and analyze its basic ideas of Justice, Equality, Liberty and Fraternity. Prepare a report and present what you have conceptualized.**

COs	Description
CO1	Develop a stronger orientation towards research.
CO2	Conceptualize the basic elements of Indian Constitution.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **E010201T**

Course Name **Development and Challenges of Indian Education System**

COs	Description
CO1	Understand the development of Ancient education system for entrepreneurship development.
CO2	Understand the development of Education in Medieval period for skill development.
CO3	Comprehend the development of Education in Colonial period
CO4	Comprehend the development of education in post-independent era.
CO5	Analyze the problems of pre-primary education in India.
CO6	Analyse the problems of elementary and secondary education in India for developing employability.
CO7	Analyse the problems of higher education in India.
CO8	Analyse the factors affecting Indian education.

Course Code **E010202P**

Course Name **Prepare a profile of any School (Class 6th-12th) Government / aided / Private.**

COs	Description
CO1	Develop a stronger orientation towards research.
CO2	Conceptualize the school profile preparation for skill development.

Sanjeev Agrawal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BAED 311**

Course Name **Educational Psychology**

COs	Description
CO1	To understand the Educational Psychology so as to develop employability.
CO2	Assist in defining and setting up Educational objectives and standards in terms of desirable behavior for skill development.
CO3	Provide a body of facts and principle which can be used in solving the problems of teaching.
CO4	Develop in those who teach, a sympathetic attitude towards children.

Course Code **BAED 411**

Course Name **Thought and Practices in Education**

COs	Description
CO1	Determines the aims of Education for skill development.
CO2	Confront the philosophical problems implicit in the experience of self, others and universe.
CO3	Develop habits of clear and critical thinking so as to develop employability.
CO4	Formulates their own methods of teaching so as to develop skills and employability.

Course Code **BAED 511**

Course Name **New Trends and Innovations in Education**

COs	Description
CO1	Focus on Educational innovation of teaching and learning theory and practice so as to meet national and global needs for developing Skills.
CO2	Apply a needed solid theoretical foundation based on purposeful, systematic, research and sound pedagogy so that employability can be

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	developed.
CO3	Produce the needed high-quality learning outcomes across the system.
CO4	To acquaint with competencies essential for the teaching profession for entrepreneur skills.

Course Code **BAED 611**

Course Name **Educational Administration**

COs	Description
CO1	Ensure adequate utilization of all resources.
CO2	Ensure professional ethics and professional development to meet local and national needs for developing entrepreneurship.
CO3	Mobilize the community.
CO4	Ensure qualitative improvement of education so that national and global needs can be fulfilled.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

PROGRAMME NAME – BACHELOR OF ARTS (ENGLISH LITERATURE)

Course Code **A040101T**

Course Name **English Prose and 'Computer & Writing Skills'**

COs	Description
CO1	Understand Indian English Writing as a new form of Indian culture and voice in which India converses regularly, contributions of various authors in the growth of Indian English Writing at national level to develop skills.
CO2	Have knowledge of elements like Plot, Characterization, Narrative Technique and Structure and types of Prose and Prose Style for inculcating skills.
CO3	Identify different Prose devices for skill development.
CO4	Understand the social, historical and political backgrounds of the short story writers like Anton Chekhov, Maupassant and O'Henry through the elaborate and allegorical descriptions in the prescribed text at national and global level to enhance their skills.
CO5	Have knowledge of the writings of M.R Anand, R.K. Narayan and Anita Desai and describe the literary terms related to Short Stories at national level for the development of their skills.
CO6	Understand the formal qualities of a text, intricacies of structure, stylistics and figurative elements found in the text, learn the core elements of structure such as exposition, complication and resolution or denouement, analyze the difference in the prose techniques of different writers like Addison, Lamb and Bacon, make use of word choices, word order, figurative language and imagery to convey meaning/emotion at national and global level to inculcate analytical skills.
CO7	Get a wide exposure of eminent writers like Kalam, Amartya Sen and Woolf, identify the content, language, style, tone and structure of the essays and comprehend the culture, author's biography and historical context of the prescribed prose works at national and global level for developing their skills.
CO8	Perform basic functions of a word processor; Excel spread sheet and Power Point presentation practically, do online communications like content writing and blogging and official communication by writing official letters/complaint letters and explore the creative genius in creating blogs and personal websites at national and global level for vocational purposes practically for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

Course Code **A040201T**

Course Name **Readings in English Poetry**

COs	Description
CO1	Understand the different forms of poetry to instill skills.
CO2	Comprehend different stanza form of poetry for skill development and employability.
CO3	Identify the devices used by the poet, the mood, the atmosphere, the voice, the stanzaic form, rhyme pattern and meters scheme at national and global level to enhance analytical skill.
CO4	Examine the difference between Shakespearean and Miltonic sonnet forms and Analyze the underlying meaning of a poem by using the elements of poetry at global level for enriching skills.
CO5	Reflect on didactic human values as virtually mirrored in Thomas Gray's poem and understand the concept of nature as stated by the romantic poets in literature and appreciate the simplicity and lucidity of expression of poets in romantic literature at global level for skill development and employability.
CO6	Be acquainted with the representative poets and their works of Victorian age, understand the literary terms used by the Victorian poets and analyze the existing conflict between faith and doubt in Victorian society to have employability skills.
CO7	Know the trends in 20th century poetry of Eliot, Yeats and Larkin and discuss the significance of the literary period of the text by analyzing the effects of the major events of that period globally for skill development and employability.
CO8	Understand Rhetoric & Prosody Practical Criticism for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BEL302**

Course Name **Drama**

COs	Description
CO1	Analysis and evaluate the growth of Drama, elements and forms of Drama for skill development.
CO2	Have knowledge of historical, socio-political and religious trends in the plays in the context of its author for skill development.
CO3	Explore how writers use the resources language as a creativity to explore the entire range of human experience through dramas as a literary form, themes and techniques, its, socio-political, economic, historical and religious background and to know its contemporary relevance at global level for skill development and employability.
CO4	Form skilled, knowledgeable and ethical interpreters of literary texts in English by nurturing their ability to understand drama and learn historical contexts, psycho-social aspects and discern the various cultural and moral values associated with the texts for skill development.
CO5	Conceptualize various types of drama through the prescribed texts, understand the structure of a play and the dramatic devices used in writing a play and analyse the effect it creates in the audience globally for skill development and employability.

Course Code **BEL402**

Course Name **Fiction**

COs	Description
CO1	Know the origin and development of the fiction to boost skills.
CO2	Understand different genres of fiction to enhance knowledge and skills.
CO3	Analyse literature: fiction using appropriate theoretical, historical and cultural apparatusat global level to enhance skills.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Know various cultures and construction of gender, nation and race throughout the historyat national and global level for skill development.
CO5	Learn human values and the behavioural patterns from great works of art and develops the ability to understand human race to inculcate skills and employability.

Course Code **BEL502**

Course Name **History of English Literature**

COs	Description
CO1	Display a working knowledge of the historical and cultural contexts of English literature from Classical to Middle Age through the prominent philosophers/writers for skill development.
CO2	Identify and describe General & Literary characteristics, themes, literary terms, different genres and prominent writers and their works from Renaissance to Seventeenth Century for skill development.
CO3	Identify and describe General & Literary characteristics, themes, literary terms, and different genres of 18th century and Romanticism through the works of prominent authors for skill development and employability.
CO4	Have an idea of growth of Victorian Literature, Pre-Raphaelite poetry, naughty Nineties and socio-political and economic condition of the age and to enhance LSRW skills through literature.
CO5	Know General & Literary characteristics, themes, literary terms and literary theories, different genres, growth of literature in 20th and 21st Century through the prominent authors at global level to boost up critical thinking and writing for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BEL502-I**

Course Name **Structure of Modern English-I**

COs	Description
CO1	Understand the broad view of International Phonetic Alphabet and human language to enrich communicative skills at global level.
CO2	Compare and contrast the conceptual understanding of Traditional Approaches to language study for inculcating analytical skills at local, national and global level.
CO3	Explore the issues specific to the phenomenon of Language Varieties at national and global level for skill development.
CO4	Familiar with basic assumptions of modern Linguistic skill development and employability at national level.
CO5	Enhance their language skills for getting employment.

Course Code **BEL502-II**

Course Name **Principles of Criticism**

COs	Description
CO1	Demonstrate a broad and coherent body of knowledge with depth in the underlying principles and concept for skill development.
CO2	Integrate knowledge of the diversity of cultures and peoples at national and international level to boost employability.
CO3	Apply critical thinking, independent judgment, intercultural sensitivity and regional, national and global perspectives to identify and solve problems in English Language and Literature for enhancing skills.
CO4	Demonstrate capacity for reflection, planning, ethical decision- making and inter-disciplinary team work in diverse contexts of community engagement at national and global level for employability.
CO5	Practice traditional modes of literary criticism for skill enhancement and employability.

Sanjeev Bhardwaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BEL502-III**

Course Name **Course Name: English Language and Culture**

COs	Description
CO1	Interpret a variety of cultural products in the target language from a critical perspective for skill development.
CO2	Use sources of information appropriately in the target language and in English for employability.
CO3	Apply wide-ranging knowledge of culture in speech and writing for skills enrichment and employability.
CO4	Engage in cross-cultural dialogue and experiences through participation in curricular, co- curricular, and/or study abroad programs to fulfil national and global needs for skill development and employability.
CO5	Explore the great diversity of world languages and develop an understanding of the genetic and geographical ties for employability globally.

Course Code **BEL602**

Course Name **Indian Writings in English**

COs	Description
CO1	Understand Indian English poetry, its themes and techniques, language, genres in the context of Indian Society to enrich skills.
CO2	Understand the need of wiping out social evils to dream of a healthy society for enhancing analytical skill.
CO3	Understood how well the Indian culture is reflected in Literature through translation to boost translation skills.
CO4	Have an understanding of social evils prevalent in the society and socio-cultural aspects of Literature at national level for research skills.

Sanjeev Bhaskar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Know Hind Swaraj and its relevance thoroughly and understand Gandhiji's point of view for better skills.

Course Code **BEL602-I**

Course Name **Structure of Modern English-II**

COs	Description
CO1	Enhance language skills and their sub-skills; grammar; vocabulary etc.
CO2	Speak and write correct English for developing skills and employability.
CO3	Paraphrase the paragraphs, writing the abstract and gist to enhance compositional skills.
CO4	Know the approaches to boost Second Language Teaching / Theories of Second Language Learning and acquisition at national and global level.
CO5	Have fundamental knowledge of Learner cantered Teaching methods, task based approaches and strategies to be master in second/foreign language and to use technology as a resource for Teaching Grammar/Vocabulary/Oral skills/Reading/Writing/Supplementary Materials for employability.

Course Code **BEL602-II**

Course Name **Literary Criticism**

COs	Description
CO1	Be familiar with new criticism and its use in doing research and analysing text.
CO2	Develop an understanding of the function and practice of traditional modes of literary criticism for enriching their analytical skills.
CO3	Analyse the different literary theories at global level for skill enhancement and employability.
CO4	Extend and deepen their understanding of a wide range of important European writers, thinkers, artists, movements, and genres at global level for

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability.
CO5	Critique and understand any literary text from the angle of different literary theories for enhancing their analytical and writing skills and employability.

Course Code	**BEL602-III**
Course Name	**World Short Stories**

COs	Description
CO1	Get basic knowledge of the development of short story in Literature at global level to enrich skills.
CO2	Write stories and short descriptive sketches for employability.
CO3	Read great short stories and participate in class discussions for enhancing skills.
CO4	Gain confidence in exploring and developing their creativity.
CO5	Extend and deepen their understanding of a wide range of important genres of Story-telling for employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

PROGRAMME NAME – B.A.(General) - General Hindi

Course Code BAGH-111
Course Name हिन्दी भाषा का विकासात्मक परिचय

COs	Description
CO1	हिंदी भाषा की उत्पत्ति के बारे में जानने तथा रोजगार के अवसर उपलब्ध कराना है।
CO2	काव्य भाषा के रूप में हिन्दी की बोलियों का विकास कराना है जो वैश्विक स्तर पर व्यक्तित्व विकास के पूरक होंगे।
CO3	राष्ट्र भाषा और राज भाषा के रूप में हिन्दी का विकास कराना है जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।
CO4	देवनागरी लिपि का नामकरण और वर्तमान संदर्भ में उसकी सार्थकता कराना है।

Course Code BAGH-211
Course Name हिन्दी का आधारभूत व्याकरण

COs	Description
CO1	व्याकरण के नियमों का ज्ञान, छात्रों में मौलिक और वाक्य –संरचना की योग्यता का विकास करना है।
CO2	व्याकरण ही भाषा को सरलता से अपेक्षित लक्ष्य तक पहुंचाता हैं जो वैश्विक स्तर पर व्यक्तित्व विकास के पूरक होंगे।
CO3	छात्रों में व्याकरण के द्वारा भाषा शुद्ध ,लिखने ,बोलने के कौशल का विकास होता है एवं उनको रोजगार के अवसर उपलब्ध कराना हैं ।
CO4	हिन्दी भाषा को शुद्ध रूप में लिखने और बोलने संबंधी नियमों का बोध कराता हैं जो वैश्विक स्तर पर व्यक्तित्व विकास करेगा।

Course Code BAGH-311
Course Name प्रयोजनमूलक हिन्दी का स्वरूप

COs	Description
CO1	प्रयोजन मूलक हिन्दी के द्वारा कार्यालयों में प्रयुक्त होने वाली हिन्दी भाषा का समग्र ज्ञान प्राप्त करने में सक्षम होंगें हैं तथा रोजगार के अवसर उपलब्ध कराना है।
CO2	केंद्र के कार्यालयों से लेकर दूतावासों तक में अधिकारी, कर्मचारी बनने के अवसर प्राप्त होता हैं।

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	मीडिया में लेखन के विभिन्न रूपों को समझना ।हिन्दी भाषा में अनुसंधान व विकास योजना, बनाना हैं।
CO4	अंग्रेजी से हिंदी में अनुवाद के बारे में जानने के लिए वे अनुवादक, दुभाषिया आदि बन सकते हैंजो वैश्विक स्तर पर व्यक्तित्व विकास करेगा।

Course Code **BAGH-411**
Course Name **हिन्दी की आधुनिक गद्य विधायें**

COs	Description
CO1	गद्य की विविध विधाओं में अंतर कर सकेंगे नवीन विधाओं का परिचय दे सकेंगे
CO2	गद्य की विविध विधाओं का स्वरूप स्पष्ट कर सकेंगे।
CO3	गद्य की विविध विधाओं में अंतर कर सकेंगे।जो विद्यार्थियों
CO4	भावों, एवं विचारों की स्वाभाविक ,वं सरल अभिव्यक्ति गद्य के द्वारा ही होती है जो वैश्विक स्तर पर व्यक्तित्व विकास करेगा।

REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

PROGRAMME NAME – BACHELOR OF ARTS (GENERAL ENGLISH)

Course Code **BEG112**

Course Name **GENERAL ENGLISH-I**

COs	Description
CO1	Analyse & evaluate essays critically for its structure and meaning using correct terminology for skill development.
CO2	Know the text, meaning from the context, the theme - futuristic education system vs current one, analyse critically the present versus future school system at national and global level and to develop skills (listening, speaking, reading, writing).
CO3	Differentiate among writers work and get the meaning from the context for skill development.
CO4	Use English grammar in their writing correctly and apply the rules of English grammar at local and national level for skill development and employability.
CO5	Use correct punctuation, write a sentence using Present, Past and Future Tense and to interchange the Voice (Active and Passive) and Narration (Direct and Indirect) for skill development and employability.

Course Code **BEG212**

Course Name **GENERAL ENGLISH-II**

COs	Description
CO1	Choose an appropriate critical approach to analyze given text and to demonstrate knowledge of the historical context of a work or author at national and global level for skill development.
CO2	Explain key plot points, analyse theme and apply them and morals to their own writing at local level for developing their skills.
CO3	Enable them to understand the passage by silent reading and express the ideas of the passage orally and in writing for skill development.
CO4	Write analytically and creatively to express ideas clearly and incisively in their writing in ways required both inside and outside of the academy for skill development and employability.
CO5	Write letters (formal & Informal) and applications for different reasons for skill development and employability.

Sanjeev Dogra

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BEG312
Course Name	GENERAL ENGLISH-III

COs	Description
CO1	Comprehend representative literary and cultural texts within a significant number of historical, geographical and cultural contexts at national and global level for skill development.
CO2	Apply critical and theoretical approaches to the reading and analysis of literary texts in multiple genres for skill development.
CO3	Develop the knowledge, skills and strategies to become proficient and independent readers to read with meaning for skill development.
CO4	Enrich their vocabulary and develop the ability to identify difficult sounds for skill development and employability.
CO5	Develop their reading and listening skills, recreate the text and expand the thoughts for skill development and employability.

Course Code	BEG412
Course Name	GENERAL ENGLISH-IV

COs	Description
CO1	Apply critical and theoretical approaches to the reading and analysis of literary texts in multiple genres at national and global level for skill development.
CO2	Comprehend representative literary and cultural texts within a significant number of historical, geographical, and cultural contexts and develop their intellectual, personal and professional abilities nationally and globally for skill development.
CO3	Analyse given text and to demonstrate knowledge of the historical context of a work or author for skill development.
CO4	Enhance English language skills by enriching their vocabulary and grammar rules for skill development and employability.
CO5	Transmit information, tell a story, give presentation and argue to learn at local and national level for skill development and employability.

Sanjeev Dawal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

PROGRAMME NAME –B.A. General - Hindi Literature

Course Code **A010101T**

Course Name **हिन्दी काव्य**

COs	Description
CO1	हिंदी साहित्य के अध्ययन से छात्र कवि, लेखक तथा हिंदी नाटक और सिनेमा में भी रोजगार की ओर प्राप्त करने में सक्षम होंगे और जो विश्व स्तर पर व्यक्तित्व विकास कराता हैं।
CO2	समाज को साहित्य से ज्ञान की प्राप्ति होती है। इससे विद्यार्थियों में लेखन एवं कौशल विकास की योग्यता का विकास करना है।
CO3	पद्य साहित्य के प्रति रुचि उत्पन्न करना है।
CO4	कृष्ण और राम भक्ति द्वारा चिंतन शक्ति का विकास करना है।
CO5	कबीरदासऔर जायसी के दोहों का रसास्वादन करानाऔर उनमें निहित गुरु के महत्वऔर सत्य से अवगत कराना है।
CO6	पद्य साहित्य के प्रतिजागरूक करके उनमें ज्ञान का प्रत्यारोपण करना है।
CO7	मातृभूमि के प्रति प्रेम की भावना व रचनात्मक शक्ति को विकसित करने में सहायक होंगे जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।
CO8	कविता भाव व रस ग्रहण करने की क्षमता का विकास करना है।

Course Code **A010201T**
Course Name **कार्यालयी हिन्दी और कम्प्यूटर**

COs	Description
CO1	हिन्दी के विद्यार्थियों को कार्यालय के कार्यों की मूलभूत जानकारी प्रदान करना ताकि वह कार्यालय के कार्यों को सुगमतापूर्वक कर सके जो विद्यार्थियों का कौशल विकास कराता हैं।
CO2	कार्यालय की कार्य विधि का कार्यालयों में जाकर प्रायोगिक ज्ञान प्राप्त करना हैं।
CO3	विभिन्न प्रकार के आधिकारिक पत्रों के बारे में जानकारी प्रदान करना हैं।
CO4	टिप्पणी का मुख्य कार्य विचाराधीन पत्रों से सम्बन्धितजानकारी प्रदान करना हैं।
CO5	कम्प्यूटर का मूलभूत ज्ञान देना तथा उन्हें कम्प्यूटर पर हिन्दी में कार्य करने में सक्षम बनाना हैं।
CO6	कम्प्यूटर से कार्यों में गति और एकाग्रता से समय और धन की बचत करने के काम आता हैं।
CO7	इंटरनेट के माध्यम से शिक्षा को सरल करके पढाया जा रहा हैं जो विश्व स्तर पर व्यक्तित्व विकास कराता हैं।
CO8	शोध से व्यावहारिक समस्याओं का समाधान होता है। शोध पूर्वाग्रहों के निदान और निवारण में सहायक है। जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

होंगे।

Course Code **BAHL311**
Course Name **हिन्दी कथा साहित्य**

COs	Description
CO1	उपन्यास में चरित्र–चित्रण के माध्यम से विद्यार्थियों को पात्रों के मनोभावों, परिस्थितियों तथा
CO2	कहानी द्वारा कल्पना–शक्ति तथा चिंतन–मननशक्ति, ग्राह्यात्मकता का विकास होता हैं।कहानी के द्वारा कौशल का विकास कराना है।
CO3	कथा साहित्य के प्रति जागरूक करके उनमें ज्ञान का प्रत्यारोपण करने में सहायक होता है।
CO4	कवि व लेखकों के प्रति रुचि उत्पन्न होना व उनसे प्रेरित होकर नैतिक मूल्यों का विकास होना है जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।

Course Code **BAHL411**

Course Name **आधुनिक हिन्दी काव्य**

COs	Description
CO1	हन्दी साहित्य के विभिन्न कालों के प्रतिनिधि कवियों की कविताओं के विषय में जानकारी देना एवं विद्यार्थियों में कौशल विकास का गुण वढाना काव्य का मुख्य उद्देश्य हैं।
CO2	काव्य पढ़ने के लिए प्रेरित करना और स्वयं काव्य लिखने के लिए प्रेरित होना हैं।
CO3	कल्पनाशीलता को बढ़ाना हैं। जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।
CO4	विद्यार्थियों को हिन्दी कविता के विकास कम से अवगत कराना हैं।

Course Code **BAHL511**

Course Name **हिन्दी काव्य एवं अधुनातन गद्य विधायें**

COs	Description
CO1	काव्य का एक विधा के रूप में परिचित होना और उसकी खासियतें जानना।
CO2	शुद्ध काव्य पढ़ने व लिखने की क्षमता का विकास करना। इससे विद्यार्थियों में लेखन एवं कौशल विकास की योग्यता का विकास करना है।
CO3	गद्य साहित्य के प्रति जागरूक करके उसमें ज्ञान का प्रत्यारोपण करना।
CO4	कवि व लेखकों के प्रति रुचि उत्पन्न होना व उनसे प्रेरित होकर नैतिक मूल्यों का विकास होना है। जो राष्ट्रीय स्तर पर एक स्वस्थ समाज के निर्माण में साहित्य के

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

महत्व को समझें।

Course Code **BAHL611**

Course Name **हिन्दी साहित्य का इतिहास तथा भारतीय काव्य शास्त्र**

COs	Description
CO1	हिन्दी साहित्य के विभिन्न कालों के प्रतिनिधि कवियों की कविताओं के विषय में जानकारी देना।
CO2	काव्य पढ़ने के लिए प्रेरित करना और स्वयं काव्य लिखने के लिए प्रेरित होना। जो विद्यार्थियों
CO3	हिन्दी गद्य की सभी विधाओं के लेखकों के महत्वपूर्ा प्रदेय से परिचित कराना ताकि विद्याथी इन सभी विधाओं से परिचित हो सकें।
CO4	कल्पनाशीलता को बढ़ाना है जो राष्ट्रीय स्तर पर एक स्वस्थ समाज के निर्माण में साहित्य के महत्व को समझें।

Sanjeev Agrawal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

PROGRAMME NAME – BACHELOR OF ARTS (ECONOMICS)

Course Code **A080101T**

Course Name **Principle of Micro Economics**

COs	Description
CO1	The students is familiarized and acquainted with basic concepts of microeconomics such as laws of demand and supply and elasticity etc. so that he/she can comprehend them & familiarize with day today happenings for skill development and employability.
CO2	The students learn and understand the concepts of consumer behaviour like cardinal utility and ordinal utility analysis and explain Indifference curve analysis for skill development and employability.
CO3	The students learn and understand the Theory of production- iso-quants, laws of returns to scales, law of variable proportion and analyze the behavioral patterns of different economic agents regarding profit, price, cost etc. for skill development, employability and entrepreneurship development.
CO4	The decision-making process in different market situations such as perfect competition, monopolistic competition and oligopoly markets for skill development, employability and entrepreneurship development at local level.
CO5	The students learn the decision-making process in monopoly competition employability and entrepreneurship development at local level.
CO6	The students learn the various theories related to consumer and producer and General equilibrium, economic efficiency and market failure locally for skill development and entrepreneurship development.
CO7	To deal with the advance theoretical issues and their practical applications of distribution theories for skill development and entrepreneurship development.
CO8	The students learn about international trade and related concepts for employability and entrepreneurship development globally.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

Course Code **A080201T**

Course Name **Principle of Macro Economics**

COs	Description
CO1	Develop the knowledge of basic concepts of Macroeconomics, scope and limitations for skill development
CO2	Define the meaning of National Income and its various concepts and methods related to its measurement for skill development, employability at national level.
CO3	Describe the concept related to consumption and investment functions and determination of GDP for skill development and entrepreneurship development.
CO4	Develop the knowledge of national income determination with fiscal policy and various theories related to money and monetary policy for skill development and employability.
CO5	Apply the knowledge to understand the aggregative economic analysis and Explain the IS - LM model for skill development, employability at local level.
CO6	Apply the knowledge to understand the aggregate demand and aggregate supply for skill development and entrepreneurship development.
CO7	Define the meaning of Inflation and explain its various types, causes, effects and measures to control it effectively for skill development and entrepreneurship development at national level.
CO8	Interprets macroeconomic issues such as balance of payment, foreign exchange rate and foreign trade for skill development, employability, entrepreneurship development and for fulfilling global needs.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BAE - 311**

Course Name **Macro Economics**

COs	Description
CO1	Define the meaning, nature, Scope and Importance of Macro Economics and explain the meaning of National Income and its various concepts and methods of measurement for skill development and entrepreneurship development at national and global level.
CO2	Describe the theory of Income General Equilibrium and Employment for employability and entrepreneurship development nationally.
CO3	Describe the Consumption and Investment Functions for skill development and entrepreneurship development.
CO4	Describe the concepts of trade cycles and inflation and their effects and control at national level for entrepreneurship development.

Course Code **BAE – 312**

Course Name **Economics of Health and Education**

COs	Description
CO1	The students learn and understand the concepts of measurement and trends for skill development.
CO2	The students learn and understand the theory of Institutional design for skill development.
CO3	The students learn of theories of discrimination and inequality for skill development
CO4	Apply the knowledge in analyzing the Environmental health for skill development at national level.

Course Code **BAE – 411**

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Name **Public Finance & International Trade**

COs	Description
CO1	Define the meaning, nature, Scope and Importance of Public Finance and Budget for skill development at national level.
CO2	Explain the financial activities of government concerning revenue, expenditure and debt Operations for skill development and entrepreneurship development at local and national level.
CO3	Explain the various issues in International trade and Global Institutions with the help of Sound economic theories for skill development, employability, entrepreneurship development and for fulfilling global needs.
CO4	Define the meaning of International trade and concept, Components, Importance, Balance of Trade vs Balance of Payments for skill development, employability and entrepreneurship development at global level.

Course Code **BAE – 412**

Course Name **Real Estate Economics and Finance**

COs	Description
CO1	The students learn and understand the concepts of Real Estate values for skill development at local level.
CO2	The students learn and understand the Real estate supply for skill development
CO3	The students learn of theories of Valuation and risk-assessment for skill development
CO4	Apply the knowledge in analyzing the Real estate price measurement for skill development at local and national level.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BAE – 511**

Course Name **Monetary Economics**

COs	Description
CO1	Define the meaning of money and explain its classification and functions for skill development.
CO2	Define the value of money and explain its measurement and determination for skill development and entrepreneurship development at national level.
CO3	Describe the Banking system of India for skill development and entrepreneurship development at local and national level.
CO4	Describe the Indian Money Market and Banking for employability and entrepreneurship development nationally.

Course Code **BAE – 512**

Course Name **Natural Resource Economics**

COs	Description
CO1	The students learn and understand the concepts of dynamic optimization for skill development at local and national level.
CO2	The students learn and understand the theory of Renewable resources for skill development.
CO3	The students learn of theories of non-renewable resources for skill development.
CO4	Apply the knowledge in analyzing the growth with exhaustible resources for skill development nationally.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BAE – 611**

Course Name **Development and Environmental Economics**

COs	Description
CO1	Explain the basic approaches and aspects of economic growth and economic development for skill development and entrepreneurship development at national level.
CO2	Describe the theories of Economic Growth and Development for skill development.
CO3	Explain the sectoral view of rural and agricultural development for skill development, employability.
CO4	Explain the features of environment and development of developing and developed countries for skill development globally.

Course Code **BAE – 612**

Course Name **Welfare Economics**

COs	Description
CO1	The students learn and understand the concepts of reasons for collective choice for skill development.
CO2	The students learn and understand the theory of public choice for skill development.
CO3	The students learn of theories of Collective decision making and voting rules for skill development at local level.
CO4	Apply the knowledge in analyzing the Fiscal policies and taxation for skill development at national level.

Sanjeev Dewal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

PROGRAMME NAME – B.A. (GEOGRAPHY)

Course Code **A110101T**

Course Name **Physical Geography Physical Geography**

COs	Description
CO1	The Earth geomorphic transition from beginning to present day.
CO2	Plate tectonics and related movements for fulfilling global needs.
CO3	Landforms carved by various agents of erosion nationally and globally.
CO4	Earth's climate and its factors that influence it nationally and globally.
CO5	Atmospheric circulation of the world for fulfilling global needs.
CO6	Air masses effect on the earth surface at local and national level.
CO7	Oceans system of the world nationally and globally.
CO8	Biogeography of the world for fulfilling global needs.

Course Code **A110102P**

Course Name **Elements of Map Reading and Interpretation**

COs	Description
CO1	The basic ideas of Map for fulfilling global needs.
CO2	About the Scales at local and national level.
CO3	Map Projections for fulfilling global needs.
CO4	Topographical Map for fulfilling global needs.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **A110201T**

Course Name **Human Geography**

COs	Description
CO1	The Concept and Nature, Meaning and Scope of Human Geography for fulfilling global needs.
CO2	The natural and Cultural Changes in and around the Human Environs and their interrelationship.
CO3	The Bhartiya Sanskriti Evam Paryavaran Chetna.
CO4	Human settlement in India for fulfilling global needs.
CO5	The primitive economics at local and national level.
CO6	The cultural regions of the world.
CO7	The world tribes nationally and globally.
CO8	The Indian Tribes: Bhatia's, Gaddis, Tharus, Bhil, Gond, Santhal,Nagas for fulfilling global needs.

Course Code **A110202P**

Course Name **Thematic, Weather and Geological Maps**

COs	Description
CO1	The basic ideas of Map and types of maps for fulfilling global needs.
CO2	About the Thematic Mapping Techniques at local and national level.
CO3	About the Weather Forecasting for fulfilling global needs.
CO4	The Construction of Geological Sections nationally and globally.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BAG113**

Course Name **Biogeography**

COs	Description
CO1	The Biosphere & bio-geography from beginning to present day.
CO2	Nature, scope and components for fulfilling global needs
CO3	Biosphere changed by various agents of erosion at local and national level.
CO4	Earth's climate and its factors that influence at local and national level.
CO5	Atmospheric circulation of the world nationally and globally.
CO6	Air masses effect on the earth surface at local and national level.
CO7	Oceans system of the world for fulfilling global needs.
CO8	Biogeography of the world for fulfilling global needs.

Course Code **BAG213**

Course Name **Medical Geography**

COs	Description
CO1	Students will demonstrate the ability to analyze and interpret for fulfilling global needs.
CO2	To draw conclusion about role of geography in origin and spread of major disease at local and national level.
CO3	Students can assess the role of health care planning for fulfilling global needs.
CO4	To know about Primary health care; Inequalities in h ealth care services in India at local and national level.

Sanjeev Anand
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BAG311**

Course Name **Economic Geography**

COs	Description
CO1	To recognize the significance of geographic concepts for understanding socio-economic processes and outcomes for fulfilling global needs.
CO2	Appraise the different ways in which time and space interact and constrain each other with regards to economic activities and articulate how economic processes can be broken down into changes over time and variations across space nationally and globally.
CO3	Assess how society and economic actors organize themselves in space, the factors driving these complex spatial patterns, and the implications these spatial configurations have for the socioeconomic well-being of affected groups and societies for fulfilling global needs.
CO4	Appreciate the complexity of economic development processes taking place across the world and how these are influenced by space. Relate course content to current economic, social, political events and identify some of the geographical trends in economic processes and likely outcomes for societies nationally and globally.

Course Code **BAG313**

Course Name **Transportation Geography**

COs	Description
CO1	The student will be able to assess the role location and place in development and distribution of industries for fulfilling global needs.
CO2	To understand the linkages of industrial corridors and site specific problems facing by different industrial regions at local and national level.
CO3	The Student will be able to understand the problems of Industrial regions in India and world nationally and globally.
CO4	To understand the environmental degradation caused by Industries for fulfilling global needs.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BAG411**

Course Name **Geography of India**

COs	Description
CO1	To understand the wider aspects of Geography of India at local and national level.
CO2	To understand resources and their conservation in present scenario for fulfilling global needs.
CO3	To understand Agricultural productivity and ecological implications and Locational factors of industries in India at local and national level.
CO4	To understand population density, problems and policies in plains. Culture of Indian society and cultural regions, Settlement problems and town planning in Plains at local and national level.

Course Code **BAG413**

Course Name **Geographical Study of Plains**

COs	Description
CO1	To understand the wider aspects of Geography of plains for fulfilling global needs.
CO2	To understand resources and their conservation in present scenario at local and national level.
CO3	To understand Agricultural productivity and ecological implications and Locational factors of industries in plains for fulfilling global needs.
CO4	To understand population density, problems and policies in India. culture of Indian society and cultural regions , Settlement problems and town planning in India at local and national level.

Course Code **BAG511**

Course Name **Evolution of Geographical Thought**

COs	Description
CO1	To understand the concept of Geography and classification of sciences for

Sanjeev Dawar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	fulfilling global needs.
CO2	To develop the knowledge about Systematic geography & systematic sciences at local and national level.
CO3	To Understand Geography From ancient period to Renaissance period for fulfilling global needs.
CO4	To enhance ideas of students about Thought of German, French, American and British School at local and national level.

Course Code **BAG513**

Course Name **Military Geography**

COs	Description
CO1	The contribution of the discipline of Military geography for fulfilling global needs.
CO2	Connect theory with practice of Military geography at local and national level.
CO3	Critically analyze contemporary Military geography from a geographical perspective.
CO4	To know the development of Military geography for fulfilling global needs.

Course Code **BAG514**

Course Name **Palaeogeography**

COs	Description
CO1	The Earth geomorphic transition from beginning to present day for fulfilling global needs.
CO2	Plate tectonics and related movements at local and national level.
CO3	Landforms carved by various agents of erosion at local and national level.
CO4	Earth's climate and its factors that influence it for fulfilling global needs.
CO5	Atmospheric circulation of the world at local and national level.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO6	Air masses effect on the earth surface at local and national level.
CO7	Oceans system of the world at local and national level.
CO8	Biogeography of the world for fulfilling global needs.

Course Code **BAG611**

Course Name **Environmental Geography & Disaster Management**

COs	Description
CO1	Students will be able to know the Concepts and approaches of environment, various aspects of ecological development for fulfilling global needs.
CO2	To know about environmental problems and degradation at local and national level.
CO3	To know their management generates the enthusiasm for protection, Planning, preservation and sustainable management of environment at local and national level.
CO4	To know about environmental education and legislation for fulfilling global needs.

Course Code **BAG613**

Course Name **Hazards of Geography**

COs	Description
CO1	Students will be able to know the Concepts and approaches of hazards, various aspects of hazards development at local and national level.
CO2	To know about hazards problems and degradation for fulfilling global needs.
CO3	To know their management generates the enthusiasm for protection, Planning, preservation and sustainable management of environment at local and national level.
CO4	To know about environmental education and legislation for fulfilling global needs.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

Course Code **BAG614**

Course Name **Geography of Desert**

COs	Description
CO1	Students will be able to know the Concepts and approaches of desert, various aspects of ecological development for fulfilling global needs.
CO2	To know about desert problems and degradation at local and national level.
CO3	To know their management generates the enthusiasm for protection of desert
CO4	To know about desert education and legislation for fulfilling global needs.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

PROGRAMME NAME – BACHELOR OF ARTS -HISTORY

Course Code A050101T

Course Name **Ancient and Early Medieval India (Till 1206 A.D.)**

COs	Description
CO1	The present course will be useful in providing local and national historical knowledge to the students, about skill development and employability.
CO2	It has been constructed in such a way that a student will not only gain knowledge of ancient civilizations of India, but historical development can be understood easily. Students will be familiar with the national, political and cultural development of ancient India, for entrepreneurship.
CO3	The local and national art, culture and philosophy of religion of ancient India have been included in the syllabus, for better knowledge for entrepreneurship & employability
CO4	Developing the logical ability of students to do a local and rational analysis of historical events and develop students' research aptitude, knowledge for better employability.
CO5	This section studies the political situation in North India. Students can gain knowledge of how local political decentralization arose in North India after death of Harsha and which historical circumstances proved helpful in the origin of Rajputs,. for better knowledge for entrepreneurship & employability
CO6	It also includes the history of the local dynasties of Kashmir, Punjab and Sindh. This section gives a historical account of new political conditions and conflicts in India after 1000 AD., knowledge for better employability
CO7	Students can gain historical knowledge of political and strategic weakness of India through local political conflicts. for employability.
CO8	In this paper, a student will get knowledge of the nature of Muslim attacks and the Struggle of Rajputs,. for better knowledge for entrepreneurship & employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

Course Code A050201T

Course Name **History of Medieval India (1206 A.D - 1757 A.D)**

COs	Description
CO1	:This topic is designed to develop the understanding of India with the advent of Turks, Timurs, Afghans and subsequently the establishment of Mughal rule in some local parts of India, for better knowledge for employability
CO2	The Consolidation of Tugluqs and Lodies, for better knowledge for employability.
CO3	The Mughal's Rule in Some parts of India, their local land Revenue system, relation with Rajput and religious policy, for better knowledge and employability.
CO4	The Consolidation of Mughal Empire from Akbar to Shahjahan and the local Resistance of Maharana Pratap, for better knowledge and employability
CO5	The reign of Aurangzeb and the role of his local Deeccan and Rajput policy to decline of Mughal Empire, for better knowledge for entrepreneurship & employability
CO6	To study other Contemporary local and national power of India, Maratha under Shivaji and their Administration and concept of Hindu pad-Padshahi and reign of later Mughal, for skill development and employability.
CO7	Expansion and Development of different national aspect of Arts- Architecture and Painting in Mughal Period, for skill development and employability.
CO8	Foundation and Development of Sufiism in India, Bhakti Movement and Re- Strengthening in North India, for better knowledge for employability & entrepreneurship.

Sanjeev Bhatnagar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

PROGRAMME NAME – B. A. (GEN) HOME SCIENCE

Course Code **A130101T**

Course Name **Fundamentals of Nutrition and Human Development**

COs	Description
CO1	To Acquient the students with tradition Home Science and Contribution of Indian Home Science for Skill development & employability.
CO2	Identify the biological and environmental factors to fulfill global needs affecting human development for Skill development & employability.
CO3	Acquaint students with practical knowledge of nutrient rich foods for Skill development & employability.
CO4	Students will get familiar with different methods of cooking Skill development & employability and to meet local needs.
CO5	Explain the need and importance of studying human growth and development across life span for better skill of entrepreneurship.
CO6	To explain the pregnancy period and child birth stage for better skill of development & fulfill the local needs.
CO7	Learn about the characteristics, needs and developmental tasks of infancy for better skill of entrepreneurship.
CO8	Learn about the characteristics, needs and developmental tasks of early childhood years for better Skill development & entrepreneurship.

Sanjeev Bhargava
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **A130102P**

Course Name **Introduction to Clothing and Textiles & Family Resource Management (Theory)**

COs	Description
CO1	To Explain the student how to prepare different type of food and dishes for better skill development.
CO2	Students will get familiar with different methods of cooking for Skill development & employability.
CO3	To introduce the students with different types of Salad decoration and fruit cutting for better skill of entrepreneurship.
CO4	Acquaint students with practical knowledge of nutrient rich foods for better skill of entrepreneurship.

Course Code **A130201T**

Course Name **Introduction to Clothing and Textiles & Family Resource Management (Theory)**

COs	Description
CO1	Learn about scope of textile and clothing for skill development to meet local needs.
CO2	Understanding why fabrics are different skill development and employability.
CO3	Learn how fabrics can be manufactured for Skill Development.
CO4	Understand basic clothing concepts and garment making for better skill of entrepreneurship for develop national needs.
CO5	Learn the family resource management as a whole for

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	entrepreneurship & employability.
CO6	Understand the Decision making and use of resources throughout the Family life cycle to develop skill .
CO7	Gain knowledge about Time, Money & Energy as a Resource to develop skill .
CO8	Appreciate Household Equipments for work simplification. for Skill development & employability.

Course Code **A130202P**

Course Name **Clothing and Textiles**

COs	Description
CO1	Ability to identify fibers and fabrics for better skill of entrepreneurship.
CO2	Understanding why fabrics are different for entrepreneurship & employability.
CO3	Learning basic Sewing skills to develop skill .
CO4	Learn how garments are stitched for Skill development & employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BAHS311**

Course Name **Fundamentals of food and nutrition**

COs	Description
CO1	Understand the basic principles of food preservation for skill development.
CO2	Learn the various preservation techniques and their applications for Skill development & employability.
CO3	Understand the physiological changes, special needs and health concern of people at Different stages of life for Skill development & employability.
CO4	Understand the relationship of nutrition to physical, psychological growth and Development Development to fulfill national level and ageing for Skill development & entrepreneurship.
CO5	Acquire the ability to modify the normal diet to suit individual needs in specific disease Conditions and Recognize signs of food spoilage and recognize safe receiving storing & handing raw and prepared foods for Skill development & employability at local needs.

Course Code **BAHS351**

Course Name **Practical (Home Science)**

COs	Description
CO1	Acquire the ability to modify the normal diet to suit individual needs in specific disease conditions for better skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the basic principles of food preservation for Skill development & entrepreneurship.
CO3	Understand the physiological changes, special needs and health concern of people at different stages of life for Skill development & employability.
CO4	Understand the relationship of nutrition to physical, psychological growth and development and ageing for Skill development & entrepreneurship.

Course Code **BAHS411**

Course Name **Child Development**

COs	Description
CO1	Develop and understand the need and importance of early childhood education for skill development and local needs.
CO2	Develop and understand curricular planning for Skill development & employability.
CO3	Learn various skills required for conducting developmentally appropriate program for children for Skill development & employability.
CO4	Gain insight into the organization and management of at national needs a preschool center for Skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BAHS451**

Course Name **Practical (Home Science)**

COs	Description
CO1	To develop and understand the need and importance of early childhood education for Skill development.
CO2	To learn various skills required for conducting developmentally appropriate program for children for Skill development & employability.

Course Code **BAHS511**

Course Name **Introduction to textiles and Clothing**

COs	Description
CO1	Acquaint with the different textiles and their performances for Skill development & employability.
CO2	Impart knowledge on different textile finishes for Skill development to local need.
CO3	Acquaint with proper notion regarding choice of fabric for Skill development & employability.
CO4	Develop skills in clothing construction for Skill development & entrepreneurship to fulfill local needs.

Sanjeev Dawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BAHS551**

Course Name **Practical (Home Science)**

COs	Description
CO1	The learner will acquire knowledge of various dyes used on textile fibers for Skill development & employability.
CO2	The learner will learn the procedure of dyeing different textile materials for Skill development.
CO3	To learn different styles and methods of printing for Skill development & entrepreneurship.

Course Code **BAHS611**

Course Name **Extension and Communication**

COs	Description
CO1	Learned how to develop knowledge and decision making ability in agriculture for Skill development in agriculture to meet local needs.
CO2	Learned how to increase crop yield through extension education for Skill development & employability for develop to local needs.
CO3	Learned about schemes offered by the government through dissemination programs for Skill development .
CO4	Learned to develop the qualities of self reliance in women through diffusion education for Skill development & employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BAHS651**

Course Name **Practical (Home Science)**

COs	Description
CO1	Learned to spread new and useful techniques for agriculture through flash cards for Skill development .
CO2	Understood the concept of spread education for Skill development .
CO3	Through the play of puppets, the youth and adult understood the development of agriculture and rural areas for Skill development & employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

PROGRAMME NAME – BACHELOR OF ART (POLITICAL SCIENCE)

Course Code **A060101T**

Course Name **Indian National Movement & Constitution of India**

COs	Description
CO1	Analyze the Indian Political Tradition Dharama, Dandaniti, Matsayanayay, Gansamgha and skill development and employability.
CO2	Analyze the Gandhian Movements such as the Khilafat, Non Cooperation, Civil disobedience movements, the Swadeshi movement and skill development and employability.
CO3	Indian National Movement & Constitution is indispensable for a student to make a sense of Indian National Political System and skill development and employability.
CO4	Understand the National Fundamental Rights, Fundamental Duties and skill development and employability.
CO5	Difference between fundamental rights and directive principle of skill development and employability.
CO6	Understand the National Powers & Functions of President, Prime Minster, Speaker, Lok Sabha & Rajya Sabha and skill development and employability.
CO7	Analysis National Judiciary: Composition and skill development and employability.
CO8	Understand the Local/ National Centre-State Relations and skill development and employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **A060102P**

Course Name **Awareness of Rights &Laws**

COs	Description
CO1	This paper intends to arm the student with basic digital and legal. Local and global awareness where by the student can leverage this in the job market and skill development and employability.
CO2	The student aware of his basic legal and National rights which would help him to stand up and help others and skill development and employability.
CO3	Student Understand Unity in Diversity, Universal/ global Human Rights and skill development and employability.
CO4	The student aware of Govt. Policies Right To Information, Lokpal and skill development and employability.

Course Code **A060201T**

Course Name **Political Theory & Concepts**

COs	Description
CO1	To understanding the local and Political theory is integral and indispensable for a comprehensive and critical study of political science of skill development and employability.
CO2	Analyzing what is local Politics and explaining the approaches to the Study of Political Science –Normative, Behavioral, Post Behavioral to skill development and employability.
CO3	The course is designed to train a student in the national foundational issues of political theory, which is relevant for any in depth study to skill development and employability.
CO4	Explaining the Concept of local State Sovereignty: Pluralistic Theories to skill development and employability.
CO5	Assessing the theories of State (Origin, Nature, Functions): Contract, Idealist, Liberal and Neo-Liberal Theories. Understanding basic concepts of Liberty, Equality, Rights, Law and Justice to skill development and

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability.
CO6	Analyzing the changing concept of national Sovereignty in the context of Globalization to skill development and employability.
CO7	Classification of local Democratic Theories to skill development and employability.
CO8	Understand of national Constitution, Constitutionalism Democracy, Totalitarianism, Secularism, Decentralization to skill development and employability.

Course Code **BAPS311**

Course Name **COMPARATIVE GOVERNMENT**

COs	Description
CO1	Exploring the Constitution of global United Kingdom & general features. the executive – the Crown, Prime Minister and cabinet; the legislature: House of Lords, House Commons, speaker and Committees; Party System in UK and skill development and employability.
CO2	Exploring the Constitution of global & USA and its salient features; the executive: President; Legislature: Senate. House of Representative; Speaker; Judiciary: the composition and role of the Supreme Court; Bill of Rights; Party System and skill development and employability.
CO3	Exploring the Constitution of global & Switzerland & its main features and skill development and employability.
CO4	Exploring the Constitution of global France Making a comparative analysis of the following institutions of UK, USA Switzerland and France Legislature, Executive and party systems and skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BAPS411**

Course Name **PUBLIC ADMINISTRATION**

COs	Description
CO1	To understand the nature, scope and evolution of Public Administration; Private and Public Administration; Principles of National and Socialist Management to skill development and employability.
CO2	To understand the working of global organization Hierarchy; Span of Control; Delegation of Authority; of the Union Government and State Government to skill development and employability.
CO3	To understand the working local Process of The Chief Executive; Line, Staff and Auxiliary Agencies; The Department; Public Corporations; Independent Regulatory Commissions; Bureaucracy to skill development and employability.
CO4	To understand the concept of local/Personnel Administration: Recruitment, Training and Promotion; Financial administration; budget, audit. The role of Public Administration in the Modern State and skill development and employability.

Course Code **BAPS511**

Course Name **NATIONAL MOVEMENT AND CONSTITUTIONAL DEVELOPMENT**

COs	Description
CO1	Explore the global and growth of Nationalism, origin of the Congress. And assessing the roles of the Forward block, Congress Socialist Party, Communist Party & other movements to skill development and employability.
CO2	Discussing the local and roots of the Indian Constitution and about the Constittution of India as Fundamental rights and duties to skill development and employability.
CO3	To provide the knowledge of the students about the National post of the President, Prime Minister, Council of Ministers theirs powers and functions to skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	To provide the knowledge of the students about National and the State Government, Legislature & Executive, Parliamentary Democracy in India. Panchayati Raj System in India to skill development and employability.

Course Code **BAPS512**

Course Name **ETHICS AND POLITICS**

COs	Description
CO1	To provide the knowledge of National , The Nature of Ethical Reasoning: The Domain of Ethics. Rationality and objectivity in Ethics Understanding for Skill Development and Employability.
CO2	Discussing the reason of local issues Poverty and Hunger: Hunger, Homelessness and Freedom. Hunger and Capabilities. International obligation to remove poverty Understanding for Skill Development and Employability.
CO3	To provide the knowledge of the students about local and global Corruption: Public ethics and Private Morality. Corruption as the Intrusion of Inappropriate Principles. Corruption in Public Life Understanding for Skill Development and Employability.
CO4	To discuss about Secularism, Tolerance and Minority Rights- Traditions of Tolerance in India. Values of global Secularism. Secularism and Minority rights. Secularism and Legal pluralism Understanding for Skill Development and Employability.

Course Code **BAPS513**

Course Name **THEMES IN INDIAN POLITICAL THOUGHT**

COs	Description
CO1	To provide the knowledge about the global Perspectives: Classical and Shramanic, Islamic and Syncretic, Contemporary Theories: Liberal, Marxist, Gandhian, Post colonial, Hindutva. Understanding for Skill

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Development and Employability.
CO2	To discuss about the local State: Monarchical, Colonial and Post Colonial. Conception and Forms of Community: Community in pre-modern and modern times, Understanding for Skill Development and Employability.
CO3	To introduce about the Critical Perspectives on local Indian Society: Shramanic, Syncretist, Reformist, Socialits, Gandhian. Understanding for Skill Development and Employability.
CO4	To understand the views of different national and global thinkers The Nation in Indian Political Thought: Cultural and Religious Nationalism, Economic Nationalism Understanding for Skill Development and Employability.

Course Code **BAPS514**

Course Name **DEBATES IN POLITICAL THEORY**

COs	Description
CO1	To create the view about the local and global Debates will relate to concepts: Disagreements and Debates in Political Theory. Normative judgement in a Political Context. The Political Context- Understanding Power Understanding for Skill Development and Employability.
CO2	To understand the views on national Debates on freedom; Ancient vs. Modern Liberty (Constant), Freedom as autonomy (Kant, Mill), Negative vs. Positive Liberty Understanding for Skill Development and Employability.
CO3	To discuss about the Debates on Equality: Value of Equality (Bernard Williams), Equality of Opportunity (Rawls), Equality of What? (Welfare, Resources, Capability) Understanding for Skill Development and Employability.
CO4	To create the concept on national Debates on Rights: Moral vs. Legal conceptions, Choice and Interest theories, Conflicts between rights, Rights as Trumps, Civil Disobedience and Satyagraha Understanding for Skill Development and Employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BAPS611**

Course Name **INTERNATIONAL RELATIONS**

COs	Description
CO1	Demonstrate basic understanding of scientific methods of inquiry of national and international relations and International theory of skill development and employability.
CO2	Understand how national and international relations, power Foreign Policy. Influence societies of skill development and employability.
CO3	Demonstrate understanding of national and Cold War, Détente, Non-Aligned Movement of skill development and employability.
CO4	Demonstrate basic understanding of national and International Law the United Nations, foundational theories; basic concepts like Globalization in contemporary world of skill development and employability.

Course Code **BAPS612**

Course Name **ADMINISTRATIVE THEORY**

COs	Description
CO1	To introduced the Theories and Approaches to the Study of local Public Administration, Evolution of the Discipline of Public Administration for development of skill Development and Employability.
CO2	To discuss the Contextual national Public Administration- Ecological Approach: Fred Riggs, Rational Decision-Making for development of skill Development and Employability.
CO3	To discuss the Contemporary Developments- local New Public Administration, Non-Weberian , perspectives, Value questions for development of skill Development and Employability.
CO4	To introduce the global New Public Management- Good Governance and Development, Feminist Perspectives on Public Administration for development of skill Development and Employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BAPS613**

Course Name **POLITICS IN INDIA**

COs	Description
CO1	To provide the knowledge of Approaches to Indian Politics: Historical, cultural, legal and political economy perspectives national State in India for development of skill Development and Employability.
CO2	To discuss about the local Class, Caste, Tribe and Gender: The changing nature of class dominance in India for development of skill Development and Employability.
CO3	Development of Process: Concept, strategies, policies, and critiques. Poverty alleviation programmes. Globalisation and impact on the weaker sections for development of skill Development and Employability.
CO4	To discuss about the Elections: local Caste, class, religion, gender and region in electoral politics. Election Commission and electoral reforms for development of skill Development and Employability.

Course Code **BAPS614**

Course Name **THEORIES OF INTERNATIONAL RELATIONS**

COs	Description
CO1	To provide the knowledge about local Evolution of the Discipline. The Great Debates. State of the Art for development of skill Development and Employability.
CO2	To discuss the Realism: Its Variants and Complements: Global Structural Realism. Indian Tradition: Kautilya's Realpolitique for development of skill Development and Employability.
CO3	To introduced the Alternative Approaches in national and International Relation for development of skill Development and Employability.
CO4	To discuss about the Feminism. Neo-Marxism. Ethics in IR. Problematic of the 'International for development of skill Development and Employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – B.A.(GENERAL) SANSKRIT

Course Code A020101T
Course Name संस्कृत पद्य साहित्य एवं व्याकरण

COs	Description
CO1	विद्यार्थी संस्कृत साहित्य का सामान्य परिचय प्राप्त कर काव्य के विभिन्न वेदों से परिचित हो सकेंगे।
CO2	संस्कृत पद्य साहित्य की सुगीतात्मकता का सौंदर्य बोध कर सकेंगे।
CO3	उनमें काव्य में प्रयुक्त रस ,छंद ,अलंकारों को समझने की क्षमता विकसित होगी।
CO4	पद्य में निहित शक्तियों एवं सुभाषित वाक्य के माध्यम से उनके नैतिक एवं चारित्रिक उन्नयन होगा।
CO5	विद्यार्थियों के शब्दकोश में वृद्धि होने के साथ–साथ में संस्कृत श्लोकों के शुद्ध और स्वर उच्चारण के कौशल में निपुण बनेंगे। इससे विद्यार्थियों में लेखन एवं कौशल विकास की योग्यता का विकास करना है।
CO6	संस्कृत व्याकरण का सामान्य ज्ञान प्राप्त कर उसकी वैज्ञानिकता से सुपरचित हो सकेंगे।
CO7	संस्कृत वर्णन के शुद्ध उच्चारण कौशल का विकास होगा जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।
CO8	स्वर एवं व्यंजन के मूल भेद को समझ कर पृथक अर्थावगमन की क्षमता उत्पन्न होगी

Course Code A020201T
Course Name संस्कृत गद्य साहित्य, अनुवाद एवं संगणक. अनुप्रयोग

COs	Description
CO1	विद्यार्थी संस्कृत गद्य साहित्य; का सामान्य ज्ञान प्राप्त कर गद्य काव्य के भेदों से परिचित हो सकेंगे।
CO2	संबंधित साहित्य के माध्यम से उनका नैतिक ,एवं चारित्रिक उत्कर्ष होगे।
CO3	राष्ट्रभक्ति की भावना प्रबल होगी तथा उत्तम नागरिक बनेंगे जो स्थानीय और राष्ट्रीय स्तर पर एक स्वस्थ समाज के निर्माण में साहित्य के महत्व को समझें।
CO4	संस्कृत गद्य के धाराप्रवाह एवं "शुद्ध वाचन का कौशल विकसित होगा।
CO5	अनुवाद कौशल में वृद्धि होगी। इससे विद्यार्थियों में लेखन एवं कौशल विकास की योग्यता का विकास करना है।
CO6	संस्कृत भाषा और साहित्य के नित–नूतन अन्वेषण को खोज पाने तथा उससे स्व–ज्ञान कोष में वृद्धि कर पाने योग्य होंगे।जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।
CO7	विद्यार्थी संगणक का सामान्य ज्ञान प्राप्त कर, अधिगम क्षमता में वृद्वि हेतु इसका उपयोग कर सकने में सक्षम होंगे। संगणक के प्रयोग के माध्यम से संस्कृत ज्ञान के प्रचार आदान–प्रदान

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	करने में कुशल बनेगे।
CO8	E-content,एवं डिजिटल लाइब्रेरी का उपभोग कर पाने में समर्थ होंगे। संगणक के प्रयोग के माध्यम से संस्कृत ज्ञान के प्रचार आदान–प्रदान करने में कुशल बनेगे।

PROGRAMME NAME – MASTER OF ARTS (ECONOMICS)

Course Code **ECOCC101**

Course Name **Micro Economic Analysis-I**

COs	Description
CO1	The students learn and understand the concepts of consumer behavior like utility analysis and basic concept of Micro Economics like law of demand and supply for skill development at local level.
CO2	The students learn and understand the theory of production for skill development, employability and entrepreneurship development.
CO3	The students learn decision-making process in different market situations such as perfect competition and monopoly markets for skill development, employability and entrepreneurship development at local and national level.
CO4	Apply the knowledge in analyzing the demand, the price and the need of market while introducing a product in monopolistic competition for skill development, employability and entrepreneurship development at local and national level.

Course Code **ECOCC102**

Course Name **Macro-Economic Analysis I**

COs	Description
CO1	Define the meaning of National Income and its various concepts and methods related to its measurement for skill development at national level.
CO2	Describe the theories of Effective demand, Income and Employment for skill development, employability and entrepreneurship development at

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	national level.
CO3	Describe the theories related to Consumption and Investment Functions nationally for skill development and entrepreneurship development.
CO4	Understand simple concepts related with money and appreciate the potential importance of monetary phenomenon in the economy for skill development and entrepreneurship development.

Course Code ECOCC103

Course Name **Indian Economic Policy**

COs	Description
CO1	Define the meaning of Growth, Structure and Features of the Indian Economy for skill development at national level.
CO2	Explain the objectives and Strategy of Planning in India for skill development, employability and entrepreneurship development.
CO3	Describe the knowledge of the basic demographic features, aspects and basic problems of Indian Economy for skill development at national level.
CO4	Describe the knowledge of social infrastructure of Indian Economy nationally for skill development.

Course Code ECOCC104

Course Name **History of Economic Thoughts**

COs	Description
CO1	To introduce the students about Indian Economic Thinkers related to early period and their valuable contribution in the field of Economics for skill development at national level and global level.
CO2	To introduce the students about Indian Economic Thinkers related to classical period and their valuable contribution in the field of Economics for skill development at national level and global level.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	The classical, the marginalize revolution and its application to the theories of general and partial equilibrium for skill development
CO4	Describe the students about the role of Professor Marshall, Pigou and Schumpeter in Economics for skill development

Course Code **ECOCC105**

Course Name **Demography**

COs	Description
CO1	Describe the distribution of the population using various demographic characteristics and explain the various demographic concepts and formulas for skill development at local and national level.
CO2	Describe the population growth, economic development and estimate the rate of change in the population for skill development.
CO3	Explain the concept of migration and urbanization in India for skill development, employability and entrepreneurship development at national level.
CO4	To introduce the students about demographic features and population policy of India for skill development

Course Code **ECOCC106**

Course Name **Statistical Methods for Economic Analysis**

COs	Description
CO1	Define the meaning, importance and constructions of index number for skill development.
CO2	Define the meaning, importance and constructions of correlation and regression for skill development.
CO3	Describe the basic concept of sampling-random and non-random sampling for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Describe the theoretical frequency of distribution for skill development.

Course Code ECOCC107

Course Name **Industrial Economics**

COs	Description
CO1	Describe the importance of Industrialization in the Developed and Developing Economies and explain the various problems related to Industrialization for skill development, employability and entrepreneurship development at local and national level.
CO2	Describe the market structure and product pricing for skill development, employability and entrepreneurship development.
CO3	Provide a thorough knowledge about the market and firm performance for skill development and entrepreneurship development.
CO4	Provide a thorough knowledge about the economics of industry in a cogent and analytical manner and Indian industrial growth and pattern for skill development and entrepreneurship development at local and national level.

Course Code ECOCC201

Course Name **Micro Economic Analysis -II**

COs	Description
CO1	The students learn decision-making process in different market situations such as Collusive oligopoly competition for skill development and entrepreneurship development at local and national level.
CO2	The students learn decision-making process in different market situations such as non-collusive oligopoly competition for skill development and entrepreneurship development at local and national level.
CO3	Explain the students about factor pricing and income distribution for skill development and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Describe the welfare economics and general equilibrium in closed and open systems for skill development.

Course Code **ECOCC202**

Course Name **Macro-Economic Analysis -II**

COs	Description
CO1	Apply the knowledge to understand the aggregative economic analysis and Explain the IS - LM model for skill development, employability and entrepreneurship development at national level.
CO2	Describe in detail the post-Keynesian approaches to demand for money for skill development
CO3	Define the meaning of Inflation and explain its various types, causes, effects and measures to control it effectively for skill development, employability, entrepreneurship development and fulfilling the national needs.
CO4	Describe the different theories of Trade Cycles and analyze the various fluctuations occurring in Trade Cycles nationally for skill development, employability and entrepreneurship development.

Course Code **ECOCC203**

Course Name **Public Finance -I**

COs	Description
CO1	Define the meaning, nature, Scope and Importance of public finance and role of Government sector and private sector in economic activities for skill development, employability and entrepreneurship development at national level.
CO2	Explain the Government financial activities concerning Public Expenditure for skill development and entrepreneurship development at local and national level.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Explain the Government financial activities concerning Public Revenue and taxation for skill development and entrepreneurship development at local and national level.
CO4	Explain the Government financial activities concerning Public Debt locally and nationally for skill development and entrepreneurship development.

Course Code **ECOCC204**

Course Name **Economics of Growth and Development -I**

COs	Description
CO1	Demonstrate an understanding of economic growth theory, development and policy implications for skill development at national and global level.
CO2	Describe the Social and Institutional Aspects of Development for skill development, employability and entrepreneurship development.
CO3	Describe the sectoral aspects of development as agricultural and industrial development for skill development and entrepreneurship development at local and national level.
CO4	Describe the macroeconomic policies, trade and economic development nationally for skill development and entrepreneurship development.

Course Code **ECOCC205**

Course Name **Financial Institutions and Markets**

COs	Description
CO1	Describe the structure of financial system and regulatory financial institutions as RBI, SEBI etc... for skill development, employability, entrepreneurship development and for fulfilling the national needs.
CO2	Describe the Non-Bank Financial Institutions and their impact on India's economic development for skill development, employability and entrepreneurship development at local and national level.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Explain the students the role of UTI, mutual funds, Insurance companies and IRDA nationally for skill development, employability and entrepreneurship development.
CO4	Describe the foreign exchange market, exchange rates systems and recent developments in foreign exchange market for skill development and entrepreneurship development at the level of global.

Course Code **ECOCC206**

Course Name **Gender Economics**

COs	Description
CO1	Explain the Importance and concepts of women studies and describe the social security and social protection for women for skill development
CO2	Explain the students about Women in Decision Making and Conceptualization of Women's Work for skill development employability and entrepreneurship development.
CO3	Describe the foreign exchange market, exchange rates systems and recent developments in foreign exchange market for skill development and entrepreneurship development at the level of global.
CO4	Explain the basic social security and social protection for women in the society for skill development, employability and entrepreneurship development.

Course Code **ECOCC207**

Course Name **Rural Development**

COs	Description
CO1	Explain the various aspects related to rural development and rural economy for skill development and entrepreneurship development at national level.
CO2	Explain the various measures of rural development for skill development at local and national level.
CO3	Describe the paradigms of rural development for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Describe the various determinants of rural development for skill development at local and national level.

Course Code **MAE 311**

Course Name **Public Finance-I**

COs	Description
CO1	Define the meaning, nature, Scope and Importance of public finance and role of Government sector and private sector in economic activities at national level for skill development, employability and entrepreneurship development.
CO2	Explain the Government financial activities concerning Public Expenditure for skill development, employability and entrepreneurship development at national level
CO3	Explain the Government financial activities concerning Public Revenue and taxation for skill development and entrepreneurship development at national level.
CO4	Explain the Government financial activities concerning Public Debt for skill development and entrepreneurship development at national level.

Course Code **MAE 312**

Course Name **Economics of Growth and Development-I**

COs	Description
CO1	Demonstrate an understanding of economic growth theory, development and policy implications for skill development at local and national level.
CO2	Describe the Social and Institutional Aspects of Development at local and national level for skill development.
CO3	Describe the sectoral aspects of development as agricultural and industrial development for skill development, employability and entrepreneurship development at local and national level.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Describe the macroeconomic policies, trade and economic development for skill development and entrepreneurship development.

Course Code **MAE 313**

Course Name **International Economics-I**

COs	Description
CO1	Describe the concept of International trade and classical theory of International trade nationally and globally for skill development, employability and entrepreneurship development.
CO2	Describe the modern theories of International trade for skill development, employability and entrepreneurship development at global level.
CO3	Explain the concept of exchange rate and exchange control for skill development, employability and entrepreneurship development at national level.
CO4	Describe the concept, components, importance of Balance of Trade and differentiate between Balance of Trade and Balance of Payments for skill development and entrepreneurship development.\ at national level.

Course Code **MAE 314 (I)**

Course Name **Economics of Insurance**

COs	Description
CO1	Develop the knowledge of the Economic Security for skill development, employability and entrepreneurship development at local level.
CO2	Describe the knowledge of risk and risk management for skill development and entrepreneurship development.
CO3	Develop the knowledge of the essentials of life, health and general insurance for skill development at local level.
CO4	Develop the knowledge of the planning for wealth accumulation and retirement needs for skill development and entrepreneurship development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **MAE 314 (II)**

Course Name **Statistical Methods for Economic analysis**

COs	Description
CO1	Define the meaning, importance and constructions of index number for skill development.
CO2	Define the meaning, importance and constructions of correlation and regression for skill development.
CO3	Describe the basic concept of sampling-random and non-random sampling for skill development.
CO4	Describe the theoretical frequency of distribution for skill development.

Course Code **MAE 314 (III)**

Course Name **Economics of Infrastructure**

COs	Description
CO1	Describe the issues involved in development of infrastructure in economic development for skill development, employability and entrepreneurship development at local and national level.
CO2	Explain the infrastructure of transport and communication for skill development and entrepreneurship development at local and national level.
CO3	Explain the energy and electricity, gas and water supply in the process of economic development locally for skill development and entrepreneurship development.
CO4	Describe the primacy of energy in the process of economic development for skill development and entrepreneurship development.

Sanjeev Bajaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **MAE 314 (IV)**

Course Name **Labour Economics**

COs	Description
CO1	Describe the characteristics and role of labour and labour market in economic development of the country nationally for skill development, employability and entrepreneurship development.
CO2	Describe the various wages determination and methods of wage payment for skill development, employability and entrepreneurship development.
CO3	Explain the concept of industrial relations and trade unions for skill development, employability and entrepreneurship development at local level.
CO4	Define the meaning of social security, social assistance, social insurance and labour policy for skill development, employability and entrepreneurship development at local and national level.

Course Code **MAE 314 (V)**

Course Name **Law and Economics**

COs	Description
CO1	The students learn and understand the concepts of Efficiency criteria for skill development.
CO2	The students learn and understand the theory of Contract Law for skill development.
CO3	The students learn of theories of Property Law and Eminent Domain for skill development.
CO4	Apply the knowledge in analyzing the topic of Civil Liability and Criminal Law for skill development at national level.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **MAE 314 (VI)**

Course Name **Public Economics II**

COs	Description
CO1	The students learn and understand the concepts of Optimal Taxation for skill development at national level.
CO2	The students learn and understand the theories of Land Markets for skill development.
CO3	The students learn of theories of Public Goods and Public Procurement for skill development
CO4	Apply the knowledge in analyzing the concept of Public versus Private Organization for skill development at local and national level.

Course Code **MAE 314 (VII)**

Course Name **Economics of Innovation**

COs	Description
CO1	The students learn and understand the concepts of incentives and management of innovation for skill development
CO2	The students learn and understand the theory of Patents and R&D for skill development at national level.
CO3	The students learn of theories of diffusion of innovation for skill development
CO4	Apply the knowledge in analyzing the Innovation and public policy for skill development

Sanjeev Bhawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **MAE 411**

Course Name **Public Finance-II**

COs	Description
CO1	Explain the fiscal federalism in India, federal finance and finance commission for skill development at national level.
CO2	Explain the Indian Government financial activities concerning Public Expenditure for skill development and entrepreneurship development at national level.
CO3	Explain the Indian Government financial activities concerning Public Revenue and taxation to fulfill the national requirements for skill development and entrepreneurship development
CO4	Explain the Indian Government financial activities concerning Public Debt for skill development and entrepreneurship development at national level.

Course Code **MAE 412**

Course Name **Economics of Growth and Development-II**

COs	Description
CO1	Develop the knowledge of the theories of development for skill development
CO2	Describe the knowledge of the partial theories of growth and development for skill development
CO3	Describe the knowledge of the partial theories of growth and development for skill development
CO4	Develop the knowledge of the growth models for skill development

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **MAE 413**

Course Name **International Economics – II**

COs	Description
CO1	Describe the concept of tariffs, its types and effects for skill development at national level.
CO2	Describe the concept of non-tariff barrier (NTB) and Quotas for skill development and entrepreneurship development at national level.
CO3	Explain the types and reasons for economic integration and develop the knowledge of the theory of custom union and European Union for skill development and entrepreneurship development at national and global level.
CO4	Develop the knowledge of the India's trade policy and working and regulations of MNCs in India for skill development and entrepreneurship development at national level.

Course Code **MAE414 (I)**

Course Name **Econometrics**

COs	Description
CO1	Develop the knowledge of the two variable linear regression models for skill development,
CO2	Describe the knowledge of multiple regression models for skill development.
CO3	Develop the knowledge of the problems in OLS estimation for skill development.
CO4	Develop the knowledge of the lag models and summary variables for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **MAE414 (II)**

Course Name **International Finance**

COs	Description
CO1	Develop the knowledge of International Financial Environment for skill development, employability and entrepreneurship development at global level.
CO2	Describe the knowledge of Foreign Exchange Market at global level for skill development and entrepreneurship development.
CO3	Develop the knowledge of the Debt Management for skill development and entrepreneurship development.
CO4	Develop the knowledge of the Financial Crisis globally for skill development, employability and entrepreneurship development.

Course Code **MAE414 (III)**

Course Name **Agricultural Economics**

COs	Description
CO1	Develop the knowledge of the introduction of agricultural economics and agricultural inputs for skill development and employability at local and national level.
CO2	Describe the knowledge of agricultural production and supply function for skill development and employability.
CO3	Develop the knowledge of the agricultural prices and agricultural taxation for skill development, employability and entrepreneurship development at national level.
CO4	Develop the knowledge of the farm size, productivity and agriculture and external sector for skill development, employability and entrepreneurship development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

Course Code **MAE414 (IV)**

Course Name **DISSERTATION**

COs	Description
CO1	Describe a relevant area of career development, career coaching, coaching or work-related learning studies.
CO2	Identify research methods.
CO3	Develop responses on the basis of the evaluation and analysis undertake.
CO4	Apply knowledge and understanding in relation to the agreed area of study.

PROGRAMME NAME – B.A.-B.ED

Course Code	A010101T
Course Name	हिन्दी काव्य

COs	Description
CO1	हिन्दीकाव्य के प्रतिनिधि कवियों की कविताओं के विषय मेंजानकारीदेनातथाकाव्य के संक्षिप्तइतिहास की जानकारीदेकरविद्यार्थियों काकौशलविकासहिन्दीकविता के विकासक्रम से अवगतकराना।
CO2	आधुनिककाल की साहित्यिकप्रवृत्तियोंको समझना।
CO3	आदिकालमेंसामाजिक–सांस्कृतिकऔरराजनीतिकस्थिति की विशेषताओंको समझना।
CO4	सूरदासऔरतुलसीदास की कृष्णलीलाकाव्य औररामभक्तिकाव्य को उनके दर्शन के साथजोडकर उनके महत्वऔरआधार केकौशलविकासकोसमझना।
CO5	संत कबीर के प्रगतिशीलस्वरूपऔरउनकीरचनाओं का वर्णनकरना।
CO6	बिहारी के लेखन की सामग्रीऔरकौशल का सामाजिकसंदर्भमेंवर्णनकरना।
CO7	जीवन दर्शन के साथ–साथ 'छायावादी' लेखकों की कविताओं का वर्णनकरना।
CO8	शोध से व्यावहारिकसमस्याओं का समाधानहोताहै। शोध पूर्वाग्रहो के

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	निदानऔरनिवारण मे सहायकहै।

Course Code	**A020101T**
Course Name	**संस्कृत पद्य साहित्य एवं व्याकरण**

Cos	Description
CO1	विद्यार्थीसंस्कृत साहित्य का सामान्य परिचय प्राप्तकरकाव्य के विभिन्नवेदों से परिचितहोसकेंगे।जोविद्यार्थियोंका कौशलविकासकराताहैं।
CO2	संस्कृत पद्य साहित्य की सुगीतात्मकता का सौंदर्यबोधकरसकेंगे।
CO3	उनमेंकाव्य मेंप्रयुक्तरस ,छंद ,अलंकारोंको समझने की क्षमताविकसितहोगी।
CO4	पद्य मेंनिहित शक्तियों एवंसुभाषितवाक्य के माध्यम से उनके नैतिक एवंचारित्रिक उन्नयनहोगा।
CO5	विद्यार्थियों के शब्दकोशमेंवृद्धि होने के साथ–साथमेंसंस्कृत श्लोकों के शुद्ध और स्वर उच्चारण के कौशलमेंनिपुणबनेंगे।
CO6	संस्कृत व्याकरण का सामान्य ज्ञानप्राप्तकरउसकीवैज्ञानिकता से सुपरचितहोसकेंगे।जोविद्यार्थियोंका कौशलविकासकराताहैं।
CO7	संस्कृत वर्णन के शुद्ध उच्चारणकौशल का विकासहोगा।
CO8	स्वर एवंव्यंजन के मूलभेदको समझकरपृथकअर्थावगमन की क्षमताउत्पन्नहोगी।स्वर, व्यंजन एवं संधि का विशिष्टज्ञान एवं उनके अनुप्रयोग का कौशलविकसितहोगा।

Course Code **A040101T**

Course Name **English Prose and 'Computer & Writing Skills'**

Cos	Description
CO1	Understand Indian English Writing as a new form of Indian culture and voice in which India converses regularly, contributions of various authors in the growth of Indian English Writing.
CO2	Have knowledge of elements like Plot, Characterization, Narrative Technique and Structure and types of Prose and Prose Style.
CO3	Identify different Prose devices for skill development, entrepreneurship and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the social, historical and political backgrounds of the short story writers like Anton Chekhov, Maupassant and O'Henry through the elaborate and allegorical descriptions in the prescribed text.
CO5	Have knowledge of the writings of M.R Anand, R.K. Narayan and Anita Desai and describe the literary terms related to Short Stories.
CO6	Understand the formal qualities of a text, intricacies of structure, stylistics and figurative elements found in thetext, learn the core elements of structure such as exposition, complication and resolution ordenouement, analyze the difference in the prose techniques of different writers like Addison, Lamb and Bacon, make use of word choices, word order, figurative language and imagery to convey meaning/emotion for skill development and employability.
CO7	Geta wide exposure of eminent writers like Kalam, Amartya Sen and Woolf, identify the content, language, style, tone and structure of the essays and comprehend the culture, author's biography and historical context of the prescribed prose works.
CO8	Perform basic functions of a word processor; Excel spread sheet and Power Point presentation practically, do online communications like content writing and blogging and official communication by writing official letters/complaint letters and explore the creativegeniusincreatingblogsandpersonalwebsitesforvocationalpurposes practically.

Course Code **A050101T**

Course Name **Ancient and Early Medieval India (Till 1206 A.D.)**

Cos	Description
CO1	The present course will be useful in providing historical knowledge to the students for skilldevelopment and employability.
CO2	It has been constructed in such a way that a student will not only gain knowledge of ancient civilizations of India, but historical development can be understood easily. Students will be familiar with the political and cultural development of ancient India for entrepreneurship development.
CO3	The art, culture and philosophy of religion of ancient India have been included in the syllabusfor developing skills, employability and entrepreneurial skill.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Developing the logical ability of students to do a rational analysis of historical events and develop students' research aptitude. knowledge better for employability.
CO5	This section studies the political situation in North India. Students can gain knowledge of how political decentralization arose in North India after death of Harsha and which historical circumstances proved helpful in the origin of Rajputs. For better knowledge for employability and entrepreneurial skill
CO6	It also includes the history of the dynasties of Kashmir, Punjab and Sindh. This section gives a historical account of new political conditions and conflicts in India after 1000 AD. knowledge better for employability.
CO7	Students can gain historical knowledge of political and strategic weakness of India through political conflicts. for employability.
CO8	In this paper, a student will get knowledge of the nature of Muslim attacks and the struggle of Rajputsfor developing skills, employability and entrepreneurial skill.

Course Code **A060101T**

Course Name **Indian National Movement & Constitution of India**

Cos	Description
CO1	Analyze the Indian Political Tradition Dharama, Dandaniti,Matsayanayay,Gansamgha forskill development and employability.
CO2	Analyze the Gandhian Movements such as the Khilafat, Non Cooperation, Civil disobedience movements, the Swadeshi movementforskill development and employability.
CO3	Indian National Movement & Constitution is indispensable for a student to make a sense of Indian Political System forskill development and employability.
CO4	Understand the Fundamental Rights, Fundamental Duties
CO5	Difference between fundamental rights and directive principle forskill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO6	Understand the Powers & Functions of President, Prime Minster, Speaker, Lok Sabha & Rajya Sabha forskill development and employability.
CO7	Analysis Judiciary: Composition
CO8	Understand the Centre-State Relations

Course Code	**A060102P**
Course Name	**Awareness of Rights &Laws**

Cos	Description
CO1	This paper intends to arm the student with basic digital and legal awareness where by the student can leverage this in the job market forskill development and employability.
CO2	The student aware of his basic legal rights which would help him to stand up and help others forskill development and employability.
CO3	Student Understand Unity In Diversity, Universal Human Rights forskill development and employability.
CO4	The student aware of Govt. Policies Right To Information, Lokpal forskill development and employability.

Course Code	**A070101T**
Course Name	**Introduction to Basic Concepts of Sociology**

Cos	Description
CO1	This paper will introduce students to new concepts of Sociology discipline for skill development
CO2	These concepts will enhance the conceptual learning and understanding of the basic concepts used in Sociology for skill development.
CO3	This paper will contribute in enriching the vocabulary and scientific temperament of the students for skill development
CO4	The course is designed to incorporate all the key concepts of sociology

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	which would enable the learner to develop keen insights to distinguish between the commonsense knowledge and Sociological knowledge for skill development
CO5	Understand the Culture and Civilization, Pluralism, Multiculturalism, and Cultural Relativism for skill development
CO6	Explain the meaning ofSocio-Cultural Processes: Cooperation, Conflict, Competition, Acculturation, Assimilation and Integration for skill development
CO7	These concepts will enhance the conceptual learning and understanding of Social Structure, Status and Role, Norms, Folkways and Mores, Sanctions and Values for skill development
CO8	Understand the Social Stratification and Social Mobility for skill development

Course Code **A080101T**

Course Name **Principle of Micro Economics**

Cos	Description
CO1	The students is familiarized and acquainted with basic concepts of microeconomics such as laws of demand and supply and elasticity etc so that he/she can comprehend them &familiarize with day today happeningsforskill development and employability.
CO2	utility and ordinal utility analysis and explain Indifference curve analysisfor skill development and employability.
CO3	The students learn and understand the Theory of production- iso-quants, laws of returns to scales, law of variable proportion and analyze the behavioral patterns of different economic agents regarding profit, price, cost etc forskill development and employability.
CO4	The decision-making process in different market situations such as perfect competition, monopolistic competition and oligopoly marketsfor skill development employabilityandenterpreneurship.
CO5	The students learn the decision-making process in monopoly competitionfor employabilityandenterpreneurship development.

Sanjeev Bhardwaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO6	The students learn the various theories related to consumer and producer and General equilibrium, economic efficiency and market failurefor skill developmentandenterpreneurship development.
CO7	To deal with the advance theoretical issues and their practical applications of distribution theoriesfor skill developmentandenterpreneurship development.
CO8	The students learn about international trade and related concepts for employability and entrepreneurship development.

Course Code **A110101T**

Course Name **Physical Geography**

Cos	Description
CO1	The Earth geomorphic transition from beginning to present day for skill development and employability.
CO2	Plate tectonics and related movements.
CO3	Landforms carved by various agents of erosion.
CO4	Earth's climate and its factors that influence it.
CO5	Atmospheric circulation of the world for skill development and entrepreneurship.
CO6	Air masses affect on the earth surface.
CO7	Oceans system of the world.
CO8	Biogeography of the world.

Course Code **A110102P**

Course Name **Elements of Map Reading and Interpretation**

Cos	Description
CO1	Understand the basic idea of Map, Scale and Topographic sheets to develop skills.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **A130101T**

Course Name **Fundamentals of Nutrition and Human Development**

Cos	Description
CO1	To Acquient the students with tradition Home Science and Contribution of Indian Home Sciencefor skill development.
CO2	Identify the biological and environmental factors affecting human development forskill development and employability.
CO3	Acquaint students with practical knowledge of nutrient rich foods forskill development and employability.
CO4	Students will get familiar with different methods of cooking forskill development.
CO5	Explain the need and importance of studying human growth and development across life span forskill development and employability.
CO6	To explain the pregnancy period and child birth stagefor skill development.
CO7	Learn about the characteristics, needs and developmental tasks of infancyfor skill development and employability
CO8	Learn about the characteristics, needs and developmental tasks of early childhood yearsfor skill development and employability

Course Code **A130102P**

Course Name **Cooking skills and healthy recipe development**

Cos	Description
CO1	To Explain the student how to prepare different type of food and dishes
CO2	Students will get familiar with different methods of cooking.
CO3	To introduce the students with different types of Salad decoration and fruit cutting forskill development and employability.
CO4	Acquaint students with practical knowledge of nutrient rich foods.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **A270101T**

Course Name **Basics of Mass Communication and Journalism**

Cos	Description
CO1	Preparethestudentstounderstandconcept of communicationfor skill development.
CO2	StudentswillgetfamiliarwithIndian references to communicationfor skill development.
CO3	Acquaintstudentswithknowledgeof various models of communicationfor skill development.
CO4	Acquaintstudentswithknowledgeof various theories of communication. for skill development.
CO5	Know about the JournalismasaProfession;Types ofJournalism. OriginandDevelopmentofMedia:Newspaper,Radio,TelevisionandDigitalMedia for skill development.
CO6	Know the role of PioneerJournalistsofIndia for skill development.
CO7	DutiesandresponsibilitiesofaJournalist; ValuesandEthicsofJournalism. for skill development.
CO8	PressCouncilofIndia,PrasarBharatiBoard,RNI,CommitteesforJournalism. for skill development.

Course Code **A270102P**

Course Name **Computerfor MassMedia**

Cos	Description
CO1	Studentswillgetfamiliarwithbrief history of computerfor skill development.
CO2	AcquaintstudentswithpracticalknowledgeofbasicsofMS Wordfor skill development.
CO3	Students will get familiar with Excel and PowerPointfor skill development.
CO4	Students will get familiar with internet surfing, content searching, fact checking for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **E030102T**

Course Name **Pedagogy of Social Sciences -1**

Cos	Description
CO1	Develop an understanding of the nature, branches and scope of social sciencefor skill development.
CO2	Understand and explain relation between knowelege and curriculum in social sciencesfor skill development and employability.
CO3	Develop understanding of generating and communicating knowledge in social science for skilldevelopment, employability.
CO4	Enhance skills of preparing and teaching social science so that local needs could be meet and also for skilldevelopment, employability.

Course Code **E030102T**

Course Name **Pedagogy of Language -1**

Cos	Description
CO1	Understand the meaning, characteristics and importance of languages in human life for skill development.
CO2	Understand the principles and methods of teaching languages to develop skills and employability.
CO3	Understand language diversity and policies of language for developing skills and employability.
CO4	Develop understanding of language development, culture and society so as to develop skills and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **E030101T**

Course Name **Development of Education in India**

Cos	Description
CO1	Develop understanding of Indian ethos and its educational importance for skill development.
CO2	Understand the characteristics, features, strengths, and weaknesses of education in ancient, medieval India and British period for skill development, employability and entrepreneurship.
CO3	Understand the contribution of various major committees and commissions on education in Independent India for skill development, employability and entrepreneurship.
CO4	Develop an understanding of the issues and challenges faced by contemporary education in India for skill development, employability and entrepreneurship.

Course Code **Z010101T**

Course Name **Food, Nutrition and Hygiene**

Cos	Description
CO1	To learn the basic concept of the Food and Nutrition for skill development, employability and entrepreneurship.
CO2	To study the nutritive requirement during special conditions like pregnancy and lactation for skill development, employability and entrepreneurship.
CO3	To learn meal planning,100 days Nutrition Concept for skill development, employability and entrepreneurship.
CO4	To study common health issues in the society and special requirement of food during common illness for skill development, employability and entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

Course Code **A010201T**

Course Name **कार्यालयी हिन्दी और कम्प्यूटर**

Cos	Description
CO1	हिन्दी काव्य के प्रतिनिधि कवियों की कविताओं के विषय में जानकारी देना तथा काव्य के संक्षिप्त इतिहास की जानकारी देकर विद्यार्थियों को हिन्दी कविता के विकास क्रम से अवगत कराना।
CO2	आधुनिक काल की साहित्यिक प्रवृत्तियों को समझना।
CO3	आदिकाल में सामाजिक–सांस्कृतिक और राजनीतिक स्थिति की विशेषताओं को समझना।
CO4	सूरदास और तुलसीदास की कृष्णलीला काव्य और रामभक्ति काव्य को उनके दर्शन के साथ जोडकर उनके महत्व और आधार को समझना।
CO5	संत कबीर के प्रगतिशील स्वरूप और उनकी रचनाओं का वर्णन करना।
CO6	बिहारी के लेखन की सामग्री और कौशल का सामाजिक संदर्भ में वर्णन करना।
CO7	जीवन दर्शन के साथ–साथ 'छायावादी' लेखकों की कविताओं का वर्णन करना।
CO8	शोध से व्यावहारिक समस्याओं का समाधान होता है। शोध पूर्वाग्रहो के निदान और निवारण मे सहायक है। कौशल विकास

Course Code **A020201T**

Course Name **संस्कृत गद्य साहित्य, अनुवाद एवं संगणक अनुप्रयोग अधिगम उपलब्धि**

Cos	Description
CO1	विद्यार्थीसंस्कृत गद्य साहित्य; का सामान्य ज्ञानप्राप्तकर गद्य काव्य के भेदों से परिचितहोसकेंगे।
CO2	संबंधितसाहित्य के माध्यम से उनकानैतिक,एवंचारित्रिक उत्कर्षहोगे।
CO3	राष्ट्रभक्ति की भावनाप्रबलहोगीतथाउत्तमनागरिकबनेंगे।
CO4	अनुवादकौशलमेंवृद्धि होगी।
CO5	संस्कृत गद्य के धाराप्रवाह एवंशुद्ध वाचन का कौशलविकसितहोगा।

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO6	विद्यार्थीसंगणक का सामान्य ज्ञानप्राप्तकर, अधिगम क्षमतामेंवृद्धि हेतुइसकाउपयोगकरसकनेमें सक्षमहोंगे।
CO7	E-contentएवंडिजिटललाइब्रेरी का उपभोगकरपानेमेंसमर्थहोंगे।
CO8	संस्कृतभाषाऔरसाहित्य के नित–नूतनअन्वेषणको खोजपानेतथाउससेस्व–ज्ञानकोषमेंवृद्धि करपाने योग्य होंगे।

Course Code	**A040201T**
Course Name	**Readings in English Poetry**

Cos	Description
CO1	Understand the different forms of poetryto instill skills.
CO2	Comprehend different stanza form of poetryfor skill development and employability.
CO3	Identify the devices used by the poet, the mood, the atmosphere, the voice, the stanzaic form, rhyme pattern and meters schemeto enhance analytical skill.
CO4	Examine the difference between Shakespearean and Miltonic sonnet forms and Analyze the underlying meaning of a poem by using the elements of poetryfor enriching skills.
CO5	Reflect on didactic human values as virtually mirrored in Thomas Gray's poem, and understand the concept of nature as stated by the romantic poets in literature and appreciate the simplicity and lucidity of expression of poets in romantic literaturefor skill development and employability.
CO6	Be acquainted with the representative poets and their works of Victorian age, understand the literary terms used by the Victorian poets and analyze the existing conflict between faith and doubt in Victorian society to have employability skills.
CO7	Know the trends in 20th century poetry of Eliot, Yeats and Larkin and discuss the significance of the literary period of the text by analyzing the effects of the major events of that periodfor skill development and employability.
CO8	Understand Rhetoric & Prosody Practical Criticismfor skill development.

Sanjeev Bora
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **A050201T**

Course Name **History of Medieval India (1206 A.D - 1757 A.D)**

Cos	Description
CO1	This paper is designed to develop the understanding of India with the advent of Turks, Taimoor's, Afghans and subsequently the establishment of Mughal rule in some parts of Indiafor skill development and employability.
CO2	The Consolidation of Tughluq's and Lodhi's.
CO3	The Mughal's Rule in Some parts of India, their land Revenue system, relation with Rajput and religious policyfor skill development and entrepreneurship.
CO4	The Consolidation of Mughal Empire from Akbar to Shahjahan and the Resistance of Maharana Pratap.
CO5	The reign of Aurangzeb and the role of his Raccau and Rajput policy to decline of Mughal empire.
CO6	To study other Contemporary power pf India, Maratha under Shivaji and their Administration and concept of Hindu pad-Padshahi and reign of later Mughal.
CO7	Explanation and Development of different aspect of Arts- Architecture and Painting in Mughal Period.
CO8	Foundation anddevelopment of skill and knowledge regarding Sufiism in India, Bhakti Movement and Re-strengthening in North India.

Course Code **A060201T**

Course Name **Political Theory & Concepts**

Cos	Description
CO1	Understanding Political theory is integral and indispensable for a comprehensive and critical study of political scienceand skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Analyzing what is Politics and explaining the approaches to the Study of Political Science – Normative, Behavioral, Post Behavioral and skill development and employability.
CO3	The course is designed to train a student in the foundational issues of political theory, which is relevant for any in depth study and skill development and employability.
CO4	Explaining the Concept of State Sovereignty: Pluralistic Theories and skill development and employability.
CO5	Assessing the theories of State (Origin, Nature, Functions): Contract, Idealist, Liberal and Neo-Liberal Theories. Understanding basic concepts of Liberty, Equality, Rights, Law and Justice and skill development and employability.
CO6	Analyzing the changing concept of Sovereignty in the context of Globalization.
CO7	Classification of Democratic Theories and skill development and employability.
CO8	Understand of Constitution, Constitutionalism Democracy, Totalitarianism, Secularism, Decentralization and skill development and employability.

Course Code **A070201T**

Course Name **Society in India: Structure, Organization &Change.**

Cos	Description
CO1	This paper is designed in this manner, so that students are introduced to the concepts related to Indian Society for skill Development.
CO2	They are made familiar with the Indian Society, its linkages and continuity with past and present for skill Development.
CO3	It also gives insights to analyze contemporary Indian society. This paper provides comprehensive understanding of Indian societyfor skill Development.
CO4	Understand theTribal Communities in India,Problems and Under development in Tribefor skill Development.
CO5	Understand theBasic Institutions of Indian societyfor skill Development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO6	Understand theSocial Classes in India as Agrarian-Rural, Industrial-Urban: The Middle Class; Exclusion and Inclusion, Backward classes, Dalits, Women.
CO7	The Middle Class; Exclusion and Inclusion, Backward classes, Dalits, Women.
CO8	Understand theChange and Transformation in Indian Societyfor skill Development.

Course Code **A080201T**

Course Name **Principles of Macro Economics**

Cos	Description
CO1	Develop the knowledge of basic concepts of Macroeconomics, scope and limitations for skill development.
CO2	Define the meaning of National Income and its various concepts and methods related to its measurement for skill development, employability
CO3	Describe the concept related to consumption and investment functions and determination of GDPfor skill development and entrepreneurship development.
CO4	Develop the knowledge of national income determination with fiscal policy and various theories related to money and monetary policy for skill development and employability.
CO5	Apply the knowledge to understand the aggregative economic analysis and Explain the IS - LM model for skill development, employability and entrepreneurship development.
CO6	Apply the knowledge to understand the aggregate demand and aggregate supply for skill development and entrepreneurship development.
CO7	Define the meaning of Inflation and explain its various types, causes, effects and measures to control it effectively for skill development and entrepreneurship development.

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO8	Interprets macroeconomic issues such as balance of payment, foreign exchange rate and foreign tradefor skill development, employability and entrepreneurship development.

Course Code **A110201T**

Course Name **Human Geography**

Cos	Description
CO1	To understand the Concept and Nature, Meaning and Scope of Human Geography
CO2	To understand the natural and Cultural Changes in and around the Human Environmentand their interrelationship.
CO3	To understand the BhartiyaSanskritiEvamParyavaranChetna.
CO4	To understand human settlement in India.
CO5	To understand primitive economics.
CO6	To understand cultural regions of the world.
CO7	Tounderstand world tribes.
CO8	To understandIndian Tribes: Bhatia's, Gaddis, Tharus, Bhil, Gond, Santhal,Nagas.

Course Code **A110202P**

Course Name **Thematic, Weather and Geological Maps**

Cos	Description
CO1	Understand the basic idea of Map, Scale and Topographic sheets

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **A130201T**

Course Name **Introduction to Clothing and Textiles & Family Resource Management (Theory)**

Cos	Description
CO1	Learn about scope of textile and clothing for skill development.
CO2	Understanding why fabrics are different for skill development and employability.
CO3	Learn how fabrics can be manufactured for skill development.
CO4	Understand basic clothing concepts and garment making to develop skills and employability.
CO5	Learn the family resource management as a whole
CO6	Understand the Decision making and use of resources throughout the Family life cycle for developing employability and entrepreneurship.
CO7	Gain knowledge about Time, Money & Energy as a Resource for skill development.
CO8	Appreciate Household Equipments for work simplification for skill development and employability.

Course Code **A130202P**

Course Name **Clothing and Textiles**

Cos	Description
CO1	Ability to identify fibers and fabrics.
CO2	Understanding why fabrics are different.
CO3	Learning basic Sewing skills.
CO4	Learn how garments are stitched.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code A270201T

Course Name Reporting and Editing (Theory)

Cos	Description
CO1	LearnaboutVarioustypesofnews, elements & structurefor the development of skills and knowledge.
CO2	Understandingconcepts of beat Reportingandits Importance
CO3	LearnChallengesof specialized area of reporting
CO4	Understanding the different types of news papers& structure and functions of news room.
CO5	UnderstandEditingmethodstoolsandsymbols.
CO6	Understanding of the method & importance of proof readingfor the development of skills and knowledge
CO7	To understand Art of Translation in Media for the development of skills and employability
CO8	To understand the roles & responsibilities of Reporter, Proof reader & Editor

Course Code A270202P

Course Name Media Related Software (Practical)

Cos	Description
CO1	Ability to handle media related software
CO2	Able to edit audio-visual content
CO3	Able to Prepare Graphics
CO4	Able to Visual Effect software, graphic designing software

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **E030201T**

Course Name **Philosophical and Sociological Foundations of Education**

Cos	Description
CO1	Develop understanding of concept and branches of philosophy for skill development
CO2	Gain knowledge of educational implications of western and Indian schools of philosophy for skill development
CO3	Discuss the contributions of prominent educational thinkers to education for skill development
CO4	Describe sociological perspectives of education for skill development

Course Code **E030202P**

Course Name **Engaging with Pedagogies-1**

Cos	Description
CO1	Analyze the secondary school curriculum from various perspective
CO2	Design and develop unit and lesson plans
CO3	Design and identify relevant audio-visual materials for classroom teaching
CO4	Design and develop achievement tests related to their subjects.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

Course Code Z010101T
Course Code BABED321
Course Name Health and Hygiene
Course Name LEARNING AND TEACHING

Cos	Description
CO1	Develop understanding about learning and factors that effects learning to develop skills, employability and entrepreneurship.
CO2	Learn the skills to handle emergency child birth, Basic sex education help young people navigate their questions responsibly and with confidence and Sexual desire is a healthy and entrepreneurship.
CO3	It's a deep, powerful instinct at the core of our survival as a species. Help to understanding natural changes of adolescence.
CO4	Develop understanding of teaching, modalities of teaching and instruction and role of teacher to develop skills ,employability and entrepreneurship.

Course Code BABED322

Course Name ASSESSMENT FOR LEARNING

Cos	Description
CO1	Understand the concept of Assessment, testing, evaluation and measurement. for skill development, employability entrepreneurship
CO2	Understanding various approaches to assessment and practical strategies for implementing Assessment for Learning in the context of holistic development.
CO3	Understand construction of various assessment tools and their characteristics for skill development, employability entrepreneurship
CO4	Apply various statistical techniques to analyze the data regarding students' various aspects in the classroom. for skill development, employability and entrepreneurship

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BABED323**

Course Name **YOGA EDUCATION, SELF UNDERSTANDING AND DEVELOPMENT**

Cos	Description
CO1	Understand yoga, its historical background and various streams of it for developing skills and employability.
CO2	Understanding yogic text for developing skills and employability.
CO3	Understanding health and the role of yoga in attaining positive health for developing skills and employability.
CO4	Role of Yoga in Personality development and Stress Management for developing skills, employability and entrepreneurship.

Course Code **BABED331**

Course Name **हिन्दी कथा साहित्य**

Cos	Description
CO1	उपन्यास में चरित्र–चित्रण के माध्यम से विद्यार्थियों को पात्रों के मनोभावों, परिस्थितियों तथा भावनाओं से क्रमबद्धतापूर्ण जोड़ने का प्रयास किया जाता है।
CO2	कहानी द्वारा कल्पना–शक्ति तथा चिंतन–मननशक्ति, ग्राह्यात्मकता का विकास होता हैं।कहानी के द्वारा कौशल का विकास कराना है।
CO3	कथा साहित्य के प्रति जागरूक करके उनमें ज्ञान का प्रत्यारोपण करने में सहायक होता है।
CO4	कवि व लेखकों के प्रति रुचि उत्पन्न होना व उनसे प्रेरित होकर नैतिक मूल्यों का विकास होना।

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code BABED332

Course Name DRAMA

Cos	Description
CO1	Analysis and evaluate the growth of Drama, elements and forms of Drama for skill development.
CO2	Have knowledge of historical, socio-political and religious trends in the plays in the context of its author for skill development.
CO3	Explore how writers use the resources language as a creativity to explore the entire range of human experience through dramas as a literary form, themes and techniques, its socio-political, economic, historical and religious background and to know its contemporary relevance for skill development and employability.
CO4	Form skilled, knowledgeable and ethical interpreters of literary texts in English by nurturing their ability to understand drama and learn historical contexts, psycho-social aspects and discern the various cultural and moral values associated with the texts for skill development
CO5	Conceptualize various types of drama through the prescribed texts, understand the structure of a play and the dramatic devices used in writing a play and analyze the effect it creates in the audience for skill development and employability.

Course Code BABED332

Course Name DRAMA

Cos	Description
CO1	Analysis and evaluate the growth of Drama, elements and forms of Drama for skill development.
CO2	Have knowledge of historical, socio-political and religious trends in the plays in the context of its author for skill development.
CO3	Explore how writers use the resources language as a creativity to explore the entire range of human experience through dramas as a literary form, themes and techniques, its socio-political, economic, historical and religious background and to know its contemporary relevance for skill development and employability.
CO4	Form skilled, knowledgeable and ethical interpreters of literary texts in

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	English by nurturing their ability to understand drama and learn historical contexts, psycho-social aspects and discern the various cultural and moral values associated with the texts for skill development
CO5	Conceptualize various types of drama through the prescribed texts, understand the structure of a play and the dramatic devices used in writing a play and analyze the effect it creates in the audience for skill development and employability.

Course Code **BABED333**

Course Name **MACRO ECONOMICS**

Cos	Description
CO1	Define the meaning of National Income and its various concepts and methods of measurement. for skill development, employability and entrepreneurship
CO2	Describe the theory of Income and Employment. for employability and entrepreneurship
CO3	Describe the Consumption and Investment Functions for skill development, employability and entrepreneurship development.
CO4	Apply the knowledge to understand the aggregative economic analysis and the functional relationship betweenthelargeaggregates for entrepreneurship development.
CO5	Define the meaning of National Income and its various concepts and methods of measurement. for skill development, employability and entrepreneurship

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

Course Code BABED334

Course Name ECONOMIC GEOGRAPHY

Cos	Description
CO1	Significance of geographic concepts for understanding socio-economic processes and outcomesfor skill development, employability
CO2	Appraise the different ways in which time and space interact and constrain each other with regards to economic activities and articulate how economic processes can be broken down into changes over time and variations across spacefor skill development, employability
CO3	Assess how society and economic actors organize themselves in space, the factors driving these complex spatial patterns, and the implications these spatial configurations have for the socioeconomic well-being of affected groups and societies to develop skills and employability
CO4	Appreciate the complexity of economic development processes taking place across the world and how these are influenced by space. Relate course content to current economic, social, and political events, and identify some of the geographical trends in economic processes and likely outcomes for societiesfor skill development, employability

Course Code BABED351

Course Name PRACTICAL (GEOGRAPHY)

Cos	Description
CO1	Different types of cartographic tools and techniques such as maps, graphscharts and able to do field survey.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BABED335
Course Name	COMPARATIVE GOVERNMENT

Cos	Description
CO1	Exploring the Constitution of UK: salient features; the executive – the Crown, PrimeMinister and cabinet; the legislature: House of Lords, House Commons, speaker and Committees; Party System in UK. skill development and employability.
CO2	Know Familial problems ,Intra and Inter-Generational Relations,Problems of Elderlyfor skill Development.
CO3	Understand the Development Induced Displacement, Ecological Degradation,Consumerism, and Crisis of Values for skill Development.
CO4	Understand the Concept of Social Organization , Disorganization , Crime and Delinquency,Cyber Crime and Corruption for skill Development.

Course Code BABED336

Course Name INDIAN SOCIETY: ISSUES AND PROBLEMS

Cos	Description
CO1	Have an introduction to social problems, Structural ,Religious Problems. Get problemsof weaker sections for skill Development.
CO2	Know Familial problems ,Intra and Inter-Generational Relations,Problems of Elderlyfor skill Development.
CO3	Understand the Development Induced Displacement, Ecological Degradation,Consumerism, and Crisis of Values for skill Development.
CO4	Understand the Concept of Social Organization, Disorganization , Crime and Delinquency,Cyber Crime and Corruption for skill Development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

Course Code BABED337

Course Name FUNDAMENTALS OF FOOD AND NUTRITION

Cos	Description
CO1	Develop understanding about food and nutrients and nutrients required by body for skill development and employability.
CO2	Familiarize students with basic food and different nutrients provided by food stuffs for skill development .
CO3	Develop understanding about various cooking methods and how they effect nutrients for better skill development and employability.
CO4	Familiarize students about importance of different nutrients in different stages of life for skill development and employability.

Course Code BABED352

Course Name PRACTICAL (HOME SCIENCE)

Cos	Description
CO1	Acquire the ability to modify the normal diet to suit individual needs in specific disease conditions
CO2	Understand the basic principles of food preservation.
CO3	Learn the various preservation techniques and their applications
CO4	Understand the physiological changes, special needs and health concern of people at different stages of life
CO5	Understand the relationship of nutrition to physical, psychological growth and development and ageing
CO6	Acquire the ability to modify the normal diet to suit individual needs in specific disease conditions
CO7	Recognize signs of food spoilage.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO8	Recognize safe receiving storing & handing raw and prepared foods

Course Code **BABED421**

Course Name **CONTEMPORARY INDIA AND EDUCATION**

Cos	Description
CO1	Increase reliance on social mobilization to promote basic education.
CO2	Emphasize on pre-primary education for skill development.
CO3	Introduce the minimum level of learning in school for development of knowledge and skills.
CO4	Adopt the child centered, activity based approach for development of entrepreneurship and employability.

Course Code **BABED422**

Course Name **ROLE OF ICT IN EDUCATION**

Cos	Description
CO1	Have a basic familiarity with computers.
CO2	Understand & appreciate ICT as effective learning tools for learners.
CO3	Understand ICT as an enormous functional support to teachers for gaining knowledge and skills

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BABED423**

Course Name **LANGUAGE ACROSS THE CURRICULUM**

Cos	Description
CO1	Explain the meaning of 'Language across the Curriculum'.
CO2	Identify the attributes of a lesson with the goal of 'Language across the Curriculum'.
CO3	Justify the importance of 'Language across the Curriculum' in the total context of the curriculumfor development of skills and knowledge.
CO4	Enlist the advantages of considering and applying the idea of 'Language across the Curriculum' in the school/college context.
CO5	State the aims of 'Language across the Curriculum' approach.

Course Code **BABED431**

Course Name **आधुनिक हिन्दी काव्य**

Cos	Description
CO1	हिन्दी साहित्य के विभिन्न कालों के प्रतिनिधि कवियों की कविताओं के विषय में जानकारी देनाएवं विद्यार्थियों में कौशल विकास का गुण वढाना काव्य का मुख्य उद्देश्य हैं।
CO2	काव्य पढ़ने के लिए प्रेरित करना और स्वयं काव्य लिखने के लिए प्रेरित होना।
CO3	कल्पनाशीलता को बढ़ाना ।
CO4	विद्यार्थियों को हिन्दी कविता के विकास कम से अवगत कराना।

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BABED432**

Course Name **FICTION**

Cos	Description
CO1	Analyze literature and fiction using appropriate theoretical, historical, and cultural aspectsto enhance skills.
CO2	Know various cultures and construction of gender, nation and race throughout the historyfor skill development.
CO3	Learn human values and the behavioral patterns from great works of art, and develops the ability to understand human race to inculcate skills and employability.
CO4	Analyze literature and fiction using appropriate theoretical, historical, and cultural aspectsto enhance skills.

Course Code **BABED433**

Course Name **PUBLIC FINANCE & INTERNATIONAL TRADE**

Cos	Description
CO1	Define the meaning, nature, Scope and Importance of Public Finance and Budget for skill development.
CO2	Explain the financial activities of government concerning revenue, expenditure and debt Operations for skill development and entrepreneurship development.
CO3	Explain the various issues in International trade and Global Institutions with the help of Sound economic theories for skill development, employability and entrepreneurship development.
CO4	Define the meaning of International trade and concept, Components, Importance, Balance of Trade vs Balance of Payments for skill development, employability and entrepreneurship development.

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

Course Code **BABED434**

Course Name **GEOGRAPHY OF INDIA**

Cos	Description
CO1	Identify and explain the Indian Geographical Environment, from global to local scales, for the development of skills and employability.
CO2	Apply geographical knowledge to everyday living and knowledge of global issues to a unique scientific problem, for the development of skills and employability.
CO3	Show an awareness and responsibility for the environment and India for the development of skills and employability.
CO4	Evaluate the impacts of human activities on natural environments special reference to India. for the development of skills and employability.

Course Code **BABED451**

Course Name **PRACTICAL (GEOGRAPHY)**

Cos	Description
CO1	Demonstrate knowledge of the foundations and theories of geographic information systems (GIS) and use the tools and methods of GIS. Students will demonstrate their knowledge of physical geography and the methods and techniques for observing, measuring, recording and reporting on geographic phenomena. Students will demonstrate their competence to work individually and as a team to develop and present a client-driven GIS solution. Student will be familiar with modern techniques in Geography. Students will be prepared to apply their skills in professional careers.

Sanjeev Agrawal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BABED435**

Course Name **PUBLIC ADMINISTRATION**

Cos	Description
CO1	Explain the nature, scope and evolution of Public Administration; Private andPublic Administration; Principles of Socialist Managementskill development and employability.
CO2	Discuss the Public Policy Making and methods of Implementation. Analyz the major Concepts in Public Administration skill development and employability.
CO3	CO3: Analyze the Administrative Processes: decision making; communication and control; leadership; co-ordination. Study the Organization of the Union Government and State Government.Examine the Institutions of Local Self Government in India skill development and employability.
CO4	CO4: Assess the relationship between the Citizen and Administration: Lokpal and Lokayukt skill development and employability..

Course Code **BABED436**

Course Name **SOCIAL CHANGE AND SOCIAL CONTROL**

Cos	Description
CO1	Explain how social inequality is a product of social structures, social institutions, and culture for skill development.
CO2	Explain how social structures, institutions, and culture enable or constrain social equity and social changefor skill development.
CO3	Apply a disciplinary or interdisciplinary framework to explain how social change occursfor skill development.
CO4	Design and implement efforts that encourage social change for increased

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

social equityfor skill development .

Course Code **BABED437:**

Course Name **CHILD DEVELOPMENT**

Cos	Description
CO1	Develop and understand the need and importance of early childhood education for skill development.
CO2	Develop and understand curricular planning for Skill development & employability.
CO3	Learn various skills required for conducting developmentally appropriate program for Children for skill development & employability.
CO4	Gain insight into the organization and management of a preschool center for developing skills.

Course Code **BABED452:**

Course Name **PRACTICAL (HOME SCIENCE)**

Cos	Description
CO1	To develop and understand the need and importance of early childhood education.
CO2	To learn various skills required for conducting developmentally appropriate program for children

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BABED521**

Course Name **GENDER, SCHOOL AND SOCIETY**

COs	Description
CO1	Understand meaning of gender and the issues related to gender in education in Indian society. for skill development
CO2	Examine the issues and concerns related to universalisation of Secondary Education. for skill development
CO3	Understanding different agencies of society in gender bias. for skill development
CO4	Comprehend some of the key concepts of gender studies which encourage critical thinking. for skill development

Course Code **BABED522**

Course Name **हिन्दी का शिक्षणशास्त्र–I**

COs	Description
CO1	भाषाअर्जनकीप्रक्रियाएवंप्रकृतिकाउल्लेखकरसकेंगे। मातृभाषाकीमूलअवधारणास्पष्टकरसकेंगे।
CO2	भाषाकेज्ञानात्मक, सौंदर्यबोधात्मक, सृजनात्मक, अभिरुचियात्मक, तथाअभिवृतात्मककौशलोकावर्णनकरसकेंगे। हिंदी भाषा केभाषिकतत्वोंकाबोधकरसकेंगे।
CO3	भाषाकौशलोकाविकासकरसकेंगे। विभिन्नविधाओसेअवगतहोसकेंगेतथातदानुसारपाठयोजनाकानिर्माणकरसकेंगे।हिंदी शिक्षणमेंसहायकसामग्रीकेमहत्वएवंउपयोगकाविवेचनकरसकेंगे

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BABED523**

Course Name **PEDAGOGY OF ENGLISH- I**

COs	Description
CO1	Develop an understanding of language and nature of English language for skill development, employability and entrepreneurship
CO2	Develop understanding of English as second language and its place in school curriculum for skill development, employability and entrepreneurship.
CO3	Know about various methods and approaches of teaching English at upper primary level for skill development, employability and entrepreneurship.

Course Code **BABED525**

Course Name **PEDAGOGY OF SOCIAL SCIENCE- I**

COs	Description
CO1	Understand the concept and value of Social Sciences as an individual integrated orinterdisciplinary area for skill development, employability entrepreneurship
CO2	Developing curriculum of social science for skill development, employability entrepreneurship
CO3	Develop skill of using different teaching methods and techniques of teaching Social Science for skill development, employability entrepreneurship

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BABED553**

Course Name **PRACTICUM: SCHOOL ATTACHMENT PROGRAMME-I**

COs	Description
CO1	Develop a comprehensive and critical understanding on diversities, disabilities, marginalization and inclusive educationto meet their local needs and also for skilldevelopment, employability entrepreneurship.
CO2	Understand obstacles to learning due to discriminatory practices with respect to curriculum, teaching approaches, school organization, and various social and cultural factorsfor skilldevelopment, employability entrepreneurship and thus satisfying their local nad national needs.
CO3	Implicit and explicit structures in our schools that act as a hindrance in including all studentsfor skilldevelopment, employability and entrepreneurship.
CO4	Deliver pedagogies, curricula and assessments suitable to various inequalities, diversities and disabilities in Indian classroomfor skill development, employability entrepreneurship.
CO5	Develop an understanding of Technicality of Teaching rolesfor skill development, employability and entrepreneurship
CO6	Curriculum Analysis helped in planning for classesfor skilldevelopment, employability entrepreneurship
CO7	Involveand interact with the school activities and were accountable for the samefor skilldevelopment, employability entrepreneurship.
CO8	Understand the psycho-social needs of childrenfor skilldevelopment, employability entrepreneurship.

Course Code **BABED531**

Course Name **हिन्दी काव्य एवं अधुनातन गद्य विधायें**

COs	Description
CO1	काव्य का एकविधा के रूपमेंपरिचितहोनाऔरउसकी खासियतेंजानना।

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	शुद्ध काव्य पढ़ने व लिखने की क्षमता का विकासकरना।इससेविद्यार्थियोंमेंलेखन एवंकौशलविकास की योग्यता का विकासकरनाहै।
CO3	गद्य साहित्य के प्रतिजागरूककरकेउसमेंज्ञान का प्रत्यारोपणकरना।
CO4	कवि व लेखकों के प्रति रुचि उत्पन्नहोना व उनसेप्रेरितहोकरनैतिकमूल्यों का विकासहोना।

Course Code **BABED532**

Course Name **HISTORY OF ENGLISH LITERATURE**

COs	Description
CO1	Display a working knowledge of the historical and cultural contexts of English literature from Classical to Middle Age through the prominent philosophers/writers for skill development.
CO2	Identify and describe General & Literary characteristics, themes, literary terms, different genres and prominent writers and their works from Renaissance to Seventeenth Century for skill development.
CO3	Identify and describe General & Literary characteristics, themes, literary terms, and different genres of 18 th century and Romanticism through the works of prominent authors for skill development and employability.
CO4	Have an idea of growth of Victorian Literature, Pre-Raphaelite poetry, naughty Nineties and socio-political and economic condition of the age and to Enhance LSRW skills through literature.
CO5	Know General & Literary characteristics, themes, literary terms, and literary theories, different genres, growth of literature in 20 th and 21 st Century through the prominent authors and boost up critical thinking and writing for skill development and employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BABED533**

Course Name **MONETARY ECONOMICS**

COs	Description
CO1	Define the meaning of money and explain its classification and functions for skill development.
CO2	Define the value of money and explain its measurement and determinationfor skill development and entrepreneurship development for skill development and entrepreneurship development.
CO3	Describe the Banking system of Indiafor skill development, employability and entrepreneurship development for skill development andentrepreneurship development.
CO4	Describe the Indian Money Market and Bankingfor skill development, employability and entrepreneurship development for employability and entrepreneurship development.

Course Code **BABED534**

Course Name **EVALUTION OF GEOGRAPHICAL THOUGHT**

COs	Description
CO1	Students will be able to comprehend, correlateand connect geographical ideas and concepts with historical as well as contemporary context for skill development

Course Code **BABED551**

Course Name **PRACTICAL (GEOGRAPHY)**

COs	Description
CO1	To identify, describe, create, construct and prepare different cartographic features such as maps, scales, relief and will be adept of conduct survey for

Sanjeev Saxena
REGISTRAR
IFTM UNIVERSITY
MORADABAD

skill development

Course Code **BABED535**

Course Name **NATIONAL MOVEMENT AND CONSTUTIONAL DEVELOPMENT**

COs	Description
CO1	Explain the formation of the Congress in 1885 and Trace the Bengal Partition and the Swadeshi movement and thus developing skillsand employability.
CO2	Discuss the roots of communalism- Savarkar and Hindu Nationalism and Jinnah and the two nation theory forskill development and employability.
CO3	Describe the movements against caste and untouchability, Ambedkar's views on Social Justic and the depressed classesforskill development and employability.
CO4	Analys the Working Class and Peasant movements under colonial rule and estimate the contribution of the August 1942 movement, the INA and the naval uprisingforskill development and employability.

Course Code **BABED536**

Course Name **FOUNDATIONS OF SOCIOLOGICAL THOUGHT**

COs	Description
CO1	Assess Social and Sociological Theories; Phenomenon and Perspectives; Influence of Industrial and French Revolution on Sociological thought and contributions of August Comtefor skill development.
CO2	Describe the contributions of Herbert Spencer, Vilfredo Pareto and Thorstein Veblenfor skill development.
CO3	Analyse Life & Major Works of Karl Marxfor skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Explain contributions of Emile Durkheim. Elaborate on contributions of Max Weberfor skill development.

Course Code **BABED537**

Course Name **INTRODUCTION TO TEXTILES AND CLOTHING**

COs	Description
CO1	Know Cultivation, Properties and uses of Natural Fibers andManmade fibersfor skill development and employabitity.
CO2	Gain knowledge of Blend and Union fabricsfor skill development and employabitity.
CO3	Understand preprocessing finishesfor skill development.
CO4	Develop the scenes of assurance for quality of textile material among studentsfor skill development and employabitity.

Course Code **BABED552**

Course Name **PRACTICAL (HOME SCIENCE)**

COs	Description
CO1	The learner will acquire knowledge of various dyes used on textile fibers.
CO2	The learner will learn the procedure of dyeing different textile materials for developing skills and employability.
CO3	CO3: To learn different styles and methods of printingfor enhancing skillsand providing employabitity.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BABED621**

Course Name **CREATING AN INCLUSIVE SCHOOL**

COs	Description
CO1	Identity specific identities that exist beyond the superficial .Examples of this would be cultural background, socio-economic status, country of origin.
CO2	Discuss possible impacts of a person self-defined identity on his/her learning or on his/her ability to teach diverse students.
CO3	Recognize examples of unconscious bias, both in themselves and in others.

Course Code **BABED622**

Course Name **हिन्दी का शिक्षणशास्त्र–II**

COs	Description
CO1	भाषाअर्जनकीप्रक्रियाएवंप्रकृतिकाउल्लेखकरसकेंगे।
CO2	मातृभाषाकीमूलअवधारणास्पष्टकरसकेंगे।
CO3	भाषाकेज्ञानात्मक, सौंदर्यबोधात्मक, सृजनात्मक, अभिरुचियात्मक, तथाअभिवृतात्मककौशलोकावर्णनकरसकेंगे।
CO4	हिंदी भाषा केभाषिकतत्वोंकाबोधकरसकेंगे।
CO5	भाषाकौशलोकाविकासकरसकेंगे।
CO6	विभिन्नविधाओसेअवगतहोसकेंगेतथातदानुसारपाठयोजनाकानिर्माणकरसकेंगे।
CO7	हिंदीशिक्षणमेंसहायकसामग्रीकेमहत्वएवंउपयोगकाविवेचनकरसकेंगे

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BABED623**

Course Name **PEDAGOGY OF ENGLISH- II**

COs	Description
CO1	Develop an understanding of the aims of teaching English at the upper primary level for development of skills and knowledge.
CO2	Enlist the learning outcomes of teaching English at upper primary level.
CO3	Identify various kinds of learners (slow, average and bright) in a class of English teaching.
CO4	Develop an understanding of the importance of classroom management in a class of English teaching for generate employment.
CO5	Know about various methods and approaches of teaching English at upper primary level.
CO6	Know about various methods of evaluation for different skills of English language.
CO7	Know about various online resources for teaching English and thus satisfying national and global needs.
CO8	Comprehend the need and importance of remedial teaching in English at upper primary level.

Course Code **BABED624**

Course Name **PEDAGOGY OF HOME SCIENCE-II**

Cos	Description
CO1	Develop an understanding of nature and methods of teaching of Home Science.
CO2	Understand the role and importance of home science teacher.
CO3	Know the place of Home Science and curriculum.
CO4	Develop the skill of making lesson interesting.
CO5	Critically evaluate the existing curriculum so that local needs can be satisfied and give suggestions for the improvement.
CO6	Develop the skill of making lesson plan based on experiential learning.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO7	State the principles governing curriculum construction and develop skills of the same and thus developing employability.

Course Code **BABED625**

Course Name **PEDAGOGY OF SOCIAL SCIENCE-II**

COs	Description
CO1	Understand the concept and value of Social Sciences as an individual integrated or interdisciplinary area for skill development.
CO2	Develop an eco-friendly relationship for saving the natural resources and preservation of nature.
CO3	Develop awareness towards social concerns and social issues.
CO4	Acquire the basic knowledge of objectives and skills to be developed by teaching social science for generate the employability in education sector and meet local and national needs.
CO5	Develop skills of making teaching learning process experiential and joyful.

Course Code **BABED653**

Course Name **PRACTICUM: SCHOOL ATTACHMENT PROGRAMME-II**

COs	Description
CO1	Develop a comprehensive and critical understanding on diversities, disabilities, marginalization and inclusive education.
CO2	Understand obstacles to learning due to discriminatory practices with respect to curriculum, teaching approaches, school organization, and various social and cultural factors.
CO3	Implicit and explicit structures in our schools that act as a hindrance in including all students.
CO4	Deliver pedagogies, curricula and assessments suitable to various inequalities, diversities and disabilities in Indian classroom for developing skills and employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	Develop an understanding of Technicality of Teaching roles.
CO6	Curriculum Analysis helped in planning for classes to develop skills.
CO7	Involveand interact with the school activities and were accountable for the same.
CO8	Understand the psycho-social needs of children.

Course Code **BABED631**

Course Name **हिन्दी साहित्य का इतिहास तथा भारतीय काव्य शास्त्र**

Cos	क्मेबतपचजपवद
CO1	हिन्दी साहित्य के विभिन्नकालों के प्रतिनिधि कवियों की कविताओं के वि'ाय मेंजानकारीदेना।
CO2	काव्य पढ़ने के लिए प्रेरितकरनाऔरस्वयंकाव्य लिखने के लिए प्रेरितहोना।जोविद्यार्थियोंकोरोजगार के अवसरउपलब्ध करानाहै।
CO3	हिन्दी गद्य की सभीविधाओं के लेखकों के महत्वपू.ाप्रदेय से परिचितकरानाताकिविद्यार्थीइनसभीविधाओं से परिचितहोसकें।
CO4	कल्पनाशीलता को बढ़ाना।

Course Code **BABED632**

Course Name **INDIAN WRITING IN ENGLISH**

COs	Description
CO1	Understand Indian English poetry, its themes and techniques, language, genres in the context of Indian Societyto enrich skills.
CO2	Understand the need of wiping out social evils to dream of a healthy societyfor enhancing analytical skill.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understood how well the Indian culture is reflected in Literature through translationto boost translation skills.
CO4	Have an understanding of social evils prevalent in the society and socio-cultural aspects of Literaturefor research skills.
CO5	Know Hind Swaraj and its relevance thoroughly and understand Gandhiji's point of viewfor better skills.

Course Code **BABED633**

Course Name **DEVELOPMENT AND ENVIRONMENTAL ECONOMICS**

COs	Description
CO1	Explain the basic approaches and aspects of economic growth and economic developmentfor skill development and entrepreneurship development.
CO2	Describe the theories of Economic Growth and Developmentfor skill development,
CO3	Explain the sectoral view of rural and agricultural developmentfor skill development, employability.
CO4	Explain the features of environment and development of developing and developed countriesfor skill development.

Course Code **BABED634**

Course Name **ENVIRONMENTAL GEOGRAPHY**

COs	Description
CO1	The Concept Environment, appraisal and conservation of Environment and Natural Resources.
CO2	The Problems and causes of environmental degradation, Deforestation.
CO3	Environmental management.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	About global warming, Bio-diversity and its conservation, sustainable development.

Course Code **BABED651**

Course Name **PRACTICAL (GEOGRAPHY)**

COs	Description
CO1	The significance of field work in geographical studies. Understand the meaning of field and identifying the case study.
CO2	Know about different types of field techniques. Develop an idea about research problems.

Course Code **BABED635**

Course Name **INTERNATIONAL RELATIONS**

COs	Description
CO1	Explaining scope and subject matter of International Relations as an autonomous academic discipline for development of skill Development and Employability
CO2	Approaches and methods to study the discipline through Political realism, Pluralism and Worlds system's Model for development of skill Development and Employability
CO3	Examining the issues of Underdevelopment, Terrorism, Regionalism and Integration that characterizes the Post Second World War order for development of skill Development and Employability
CO4	Studying the developments in third world countries in post world war II era like NAM: Relevance, ASEAN, SAFTA and SAARC, OPEC, OAU, West Asia-Palestine problem after Cold War for development of skill Development and Employability

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BABED636**

Course Name **PIONEERS OF INDIAN SOCIOLOGY**

COs	Description
CO1	Explain the theory of Social Structure and Social Change.
CO2	Familiar with Radha Kamal Mukerjee, Andre Beteille, and Robert Redfield theory of Sociologyfor skill development.
CO3	Understand the thought of Modernization of Indian Tradition, Social change in Indiafor skill development.
CO4	Understand the thought of Sankritization, Westernization, and Dominant Caste.

Course Code **BABED 637**

Course Name **EXTENSION AND COMMUNICATION**

COs	Description
CO1	Learned how to develop knowledge and decision making ability for Skill development in agriculture.
CO2	Learned how to increase crop yield through extension education for skill development and employability.
CO3	Learned about schemes offered by the government through dissemination programs
CO4	Learned to develop the qualities of self reliance in women through diffusion education forskill development and employability.

Course Code **BABED652**

Course Name **PRACTICAL (HOME SCIENCE)**

COs	Description
CO1	Learned to spread new and useful techniques for agriculture through flash

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	cards.
CO2	Understood the concept of spread education.
CO3	Through the play of puppets, the youth and adult understood the development of agriculture and rural areas.

Course Code **BABED721**

Course Name **HEALTH AND PHYSICAL EDUCATION**

Cos	Description
CO1	Develop understanding about health, its significanceand scenario of health education in Indiafor Skill development.
CO2	Developing understanding about the health issues due to tech-aids for skill development.
CO3	Familiarize students of good health can be achievedfor skill development.
CO4	Develop understanding about the concept of first aid- its principles and uses.

Course Code **BABED751**

Course Name **PRACTICUM: INTERNSHIP IN SCHOOL SUBJECT: HINDI**

Cos	Description
CO1	Develop a comprehensive and critical understanding on diversities, disabilities, marginalization and inclusive education.
CO2	Understand obstacles to learning due to discriminatory practices with respect to curriculum, teaching approaches, school organization, and various social and cultural factors.
CO3	Implicit and explicit structures in our schools that act as a hindrance in including all students.

Sanjeev Agarwal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Deliver pedagogies, curricula and assessments suitable to various inequalities, diversities and disabilities in Indian classroom.
CO5	Develop an understanding of Technicality of Teaching roles.
CO6	Curriculum Analysis helped in planning for classes.
CO7	Involve and interact with the school activities and were accountable for the same.
CO8	Understand the psycho-social needs of children.

Course Code **BABED75**

Course Name **PRACTICUM: INTERNSHIP IN SCHOOL SUBJECT:ENGLISH**

Cos	Description
CO1	Develop a comprehensive and critical understanding on diversities, disabilities, marginalization and inclusive education.
CO2	Understand obstacles to learning due to discriminatory practices with respect to curriculum, teaching approaches, school organization, and various social and cultural factors.
CO3	Implicit and explicit structures in our schools that act as a hindrance in including all students.
CO4	Deliver pedagogies, curricula and assessments suitable to various inequalities, diversities and disabilities in Indian classroom.
CO5	Develop an understanding of Technicality of Teaching roles.
CO6	Curriculum Analysis helped in planning for classes.
CO7	Involve and interact with the school activities and were accountable for the same.
CO8	Understand the psycho-social needs of children.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code **BABED753**

Course Name **PRACTICUM: INTERNSHIP IN SCHOOL SUBJECT: HOME SCIENCE**

Cos	Description
CO1	Develop a comprehensive and critical understanding on diversities, disabilities, marginalization and inclusive education.
CO2	Understand obstacles to learning due to discriminatory practices with respect to curriculum, teaching approaches, school organization, and various social and cultural factors.
CO3	Implicit and explicit structures in our schools that act as a hindrance in including all students.
CO4	Deliver pedagogies, curricula and assessments suitable to various inequalities, diversities and disabilities in Indian classroom.
CO5	Develop an understanding of Technicality of Teaching roles.
CO6	Curriculum Analysis helped in planning for classes.
CO7	Involve and interact with the school activities and were accountable for the same.
CO8	Understand the psycho-social needs of children.

Course Code **BABED754**

Course Name **PRACTICUM: INTERNSHIP IN SCHOOL SUBJECT: SOCIAL SCIENCE**

Cos	Description
CO1	Develop a comprehensive and critical understanding on diversities, disabilities, marginalization and inclusive education.
CO2	Understand obstacles to learning due to discriminatory practices with respect to curriculum, teaching approaches, school organization, and various social and cultural factors.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Implicit and explicit structures in our schools that act as a hindrance in including all students.
CO4	Deliver pedagogies, curricula and assessments suitable to various inequalities, diversities and disabilities in Indian classroom.
CO5	Develop an understanding of Technicality of Teaching roles.
CO6	Curriculum Analysis helped in planning for classes.
CO7	Involve and interact with the school activities and were accountable for the same.
CO8	Understand the psycho-social needs of children.

Course Code **BABED821**

Course Name **EDUCATIONAL ADMINISTRATION AND MANAGEMENT**

Cos	Description
CO1	Ensure adequate utilization of all resources.
CO2	Ensure professional ethics, and develop skills, entrepreneurship and professional development and satisfying national and global needs.
CO3	Mobilize the community.
CO4	Ensure qualitative improvement of educationfor skill development and fulfill national and global needs.

Course Code **BABED822**

Course Name **GUIDANCE AND COUNSELLING IN SCHOOLS**

Cos	Description
CO1	Understand the needs to address the children with diversities in classroom for skill development.
CO2	Identify the causes for classifying various diversities.Acquainted about the

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	policies and programs for inclusive children for skill development.
CO3	Differentiate between disability and inclusion.Specify the implementation of inclusion to normalize the children with diversities.
CO4	Apply supportive services to children the diversities in mainstream and provide them guidance and counselling for better skills and adjustment in society.Apply software on assistive devices in inclusive schools.

Course Code **BABED851**

Course Name **PRACTICUM:READING AND REFLECTING ON TEXT**

Cos	Description
CO1	To develop study – habits develop skill of reading & writing of summarization. note-taking. To develop the reading capacity. the creative ability, logical ability, analytical power, thinking skill and reading skill. To develop the methods and approaches about reading.
CO2	To know the measurement and evaluation of reading. the co-relation among different subject. To know the diagnostic and remedial of reading.To be motivated to writing on different topic and to be aware of difficulties or Reading and writing, the interest and discussion in small groups by in reading and writing.
CO3	To learn to care for books, reading and writing work done in classroom. Best qualities can develop in student teacher due to best reading and writing.
CO4	Be motivated to bring essential changes in their lifestyle because of best type of reading and writing.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

Course Code **UDM**

Course Name **Disaster Management**

Cos	Description
CO1	Awareness towards road safety, fire extinguishers, chemical safety and disaster management. Use of first aid in different situations – sinking, heart attack, heat stroke, snake and insect bite. Understand cyber security and issues related to it. for better skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – B. ED

Course Code	BEdTC111;
Course Name	Childhood and Growing Up

COs	Description
CO1	Understand concept and process of childhood development for the development of skills and further employability.
CO2	Develop understanding about theories of childhood development and their significance for skill development and employability.
CO3	Aware about childhood and adolescence in developing of skills and employability.
CO4	Gain knowledge about the functions of family, school and community for the skill development in terms of family, school and community thus aiding in developing employability.
CO5	Understand concept and process of childhood development for the development of skills and further employability.

Course Code	BEdTC112:
Course Name	Contemporary India & Education

Cos	Description
CO1	Understand and develop skills of education system of ancient India for develop employability.
CO2	Develop understanding about role of education for transformation for development of skills and employability and thus fulfilling national and global needs.
CO3	Gain understanding and develop skills about policy frameworks for public education for employability development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Highlight issues and concerns in education and develop skills to solve the and develop employability so as to satisfy national needs.

Course Code	**BEdTC113**
Course Name	**Language across the Curriculum**

Cos	Description
CO1	Explain the relationship between language and society in educational perspectives and develop skills and employability and thus fulfilling national needs.
CO2	Identify the attributes of language development and acquisition so as to develop skills and employability.
CO3	Understand concept, importance and strategies of classroom discourse and to develop skills and employability.
CO4	Develop understanding of listening, reading and speaking for skill development and employability.
CO5	Explain the relationship between language and society in educational perspectives and develop skills and employability and thus fulfilling nationl needs.

Course Code	**BEdTC114**
Course Name	**Understanding Discipline & Subjects**

Cos	Description
CO1	Explain the concept and develop skills and subsequently employability of disciplinary knowledge
CO2	Understand and develop skills leading to employability regarding syllabus and content in disciplinary areas
CO3	Develop understanding about notion of disciplinary doctrine so as to

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	develop skills and employability.
CO4	Gain understanding and develop skills about designing of discipline and subject so as to develop employability.
CO5	Explain the concept and develop skills and subsequently employability of disciplinary knowledge.

Course Code	**EPCI**
Course Name	**Reading and Reflecting on Texts**
Cos	**Description**
CO1	Develop study–habits, reading capacity and note-taking of reading & writing, summarization for developing skills and employability.
CO2	Develop the creative ability, logical ability, analytical power, thinking skill and reading skill for development of skills and employability.
CO3	Know the measurement and evaluation of reading as well as know the diagnostic and remedial of reading for skill development and employability.
CO4	Understand the co-relation among different subject for skill development and employability.
CO5	Develop the interest in reading and writing and motivated to write on different topic for skill development and employability.
CO6	Be motivate for discussion in small groups by reading and writing for skill development and employability.
CO7	earn to use reading and writing work done in classroom for development of skills and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BEdTC-211
Course Name	हिन्दी शिक्षण–पार्ट–1

Cos	Description
CO1	भाषा का स्वरूप, प्रकृत्ति एवं हिन्दी भाषा के कौशल और रोजगार परक को विकसित करना।
CO2	हिन्दी का भाषाविज्ञानकौशल और रोजगार परक तथा उपयोगिता को विकसित करना।
CO3	भाषायी कौशल–शिक्षण, उद्देश्य एवं प्रक्रियाकौशल और रोजगार परक को विकसित करना।

Course Code	BEdTC-212
Course Name	Pedagogy of English- Part-1

Cos	Description
CO1	Develop understanding about principle and nature of English language leading to skill development and employability.
CO2	Understand of the role of English as second language in Indian context so to develop skills and employability.
CO3	Develop skills of methods of teaching English as a second language thus developing employability.

Sanjeev Dawar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BEdTC-213
Course Name	संस्कृत शिक्षण- I

Cos	Description
CO1	भाषा–स्वरूप, प्रकृति एवं महत्व कौशल और रोजगार परक को विकसित करना।
CO2	CO-2:संस्कृत में भाषागत कौशल एवं शिक्षण उद्देश्य के कौशल को विकसित करना।
CO3	CO-3:संस्कृत साहित्य की विधाऐं एवं उनका शिक्षण कौशल और रोजगार

Course Code	BEdTC-214
Course Name	Pedagogy of Commerce- Part-1

Cos	Description
CO1	Acquire knowledge of concept, need and objectives of teaching commerce at different levels for developing of skills and consequently developing employability and entrepreneurship.
CO2	Understand principles and developing skills of approaches of curriculum construction in commerce
CO3	Develop skills of teaching commerce and thus developing employability and entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BEdTC-215
Course Name	Course Name: Pedagogy of Computer Science- Part-1

Cos	Description
CO1	Acquire knowledge of Fundamentals of Computer to develop skills of computer so as to develop employability and entrepreneurship.
CO2	Understand and develop skills of different computer-based teaching strategies thus fulfilling needs at national and global level.
CO3	Develop skills of preparing lesson plans and using teaching aids so as to develop employability and entrepreneurship.

Course Code	BEdTC-216
Course Name	Pedagogy of Home Science- Part-1

COs	Description
CO1	Develop understanding and skills of concept and objectives of teaching home science for employability.
CO2	Gain understanding and developing skills of pedagogic analysis of home science thus generating employability.
CO3	Develop skills of teaching home sciences and use of teaching aid thus developing employability.

Course Code	BEdTC-217
Course Name	Pedagogy of Social Science-Part-1

COs	Description
CO1	Develop understanding and skills of nature and scope of social sciences.
CO2	Gain knowledge and developing skills about curriculum of social sciences so that local needs can be fulfilled.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Develop ideas and skills on principles, maxims, methods and techniques of teaching social science.

Course Code	**BEdTC-218**
Course Name	**Pedagogy of Physical Science- Part-1**

COs	Description
CO1	Understand the nature and characteristics of science and developing skills for the same and consequently developing employability.
CO2	Gain understanding and develop skills about aims and objectives of teaching physical science to develop employability.
CO3	Develop skills and employability of teaching physical sciences and use of teaching aids

Course Code	**BEdTC219**
Course Name	**Pedagogy of Biological Science-Part-1**

COs	Description
CO1	Understand concept and importance of biological science and develop skills and employability of same.
CO2	Develop understanding and skills about objectives of teaching biological sciences to develop employability.
CO3	Develop skills of teaching biological science to develop employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BEdTC220
Course Name	Pedagogy of Mathematics

COs	Description
CO1	Understand and developing skills of concept of mathematics and contributions of mathematicians to develop employability.
CO2	Develop understanding and skills of methodology for mathematics teaching to develop employability.
CO3	Develop skills of preparing lesson plan and use of teaching aids in Mathematics to develop employability to meet local needs.

Course Code	BEdTC-221
Course Name	Learning and Teaching

COs	Description
CO1	Understand the nature, process and skill development of factors of learning to develop employability and entrepreneurship.
CO2	Develop understanding and skills of approaches to learning to develop employability.
CO3	Gain understanding and develop skills of intelligence, personality and learning styles to develop employability and entrepreneurship.
CO4	Know and developing skills basic components, steps, and levels of teaching to develop employability and entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BEdTC-222
Course Name	Assessment for Learning

COs	Description
CO1	Understand concept and difference and develop skills of assessment and evaluation to develop employability and entrepreneurship.
CO2	Develop understanding and skills of different approaches to assessment
CO3	Develop skills to use different assessment tools to develop employability and entrepreneurship.
CO4	Gain understanding and develop skills about elementary statistics

Course Code	BEdTC-223
Course Name	Knowledge and Curriculum- Part-1

Cos	Description
CO1	Acquaint with knowledge and develop skills of generation and child centred education to develop employability and entrepreneurship.
CO2	Develop understanding and skills of significance of curriculum in Indian context to meet local and national needs.
CO3	Gain idea and develop skills of curriculum determinants and development to develop employability and entrepreneurship so as to meet local needs.

Course Code	BEdTC311
Course Name	हिन्दी शिक्षण–भाग-II

Cos	Description
CO1	हिन्दीसाहित्य की विधाऐं एवंउनकेशिक्षण के माध्यम से कौशल और

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	रोजगार परक को विकसित कर सकेंगें ।
CO2	हिन्दीमें दक्षता एंव कौशलऔर रोजगार परक विकसित करने वाले घटक को समझने योग्य होगे।
CO3	परीक्षण एवंमूल्यांकनके माध्यम से कौशल और रोजगार परक विकसित कर सकेंगें ।

Course Code	**BEdTC312**
Course Name	**Pedagogy of English -Part-II**

Cos	**Description**
CO1	Understand teaching and lesson planning of various aspects of English for skills development and employability.
CO2	Gain deeper understanding of audio, visual and technological aids for development of skills and employability.
CO3	Comprehend testing and evaluation in English for skill development and employability.

Course Code	**BEdTC-313**
Course Name	**संस्कृत शिक्षण–भाग-II**

Cos	**Description**
CO1	संस्कृतपाठ्यक्रम एवंपाठ्य पुस्तक से सम्बन्धित कौशल और रोजगार परक को विकसित कर सकेंगे।
CO2	संस्कृतभाषामेंमूल्यांकन का कौशल और रोजगार परक को विकसित ।
CO3	संस्कृतशिक्षणमें दक्षता एंव कौशल और रोजगार परक के प्रभावी घटकको समझकर विकसित कर सकेगे।

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	**BEdTC314**
Course Name	**Pedagogy of Commerce -Part-II**

Cos	Description
CO1	Understand teaching of commerce and develop micro teaching skills for skill development and employability.
CO2	Develop understanding about field trips in commerce teaching for skill development and employability.
CO3	Gain understanding of assessment and evaluation in commerce teachingfor skill development and employability.

Course Code	**BEdTC315**
Course Name	**Pedagogy of Computer Science- Part-II**

Cos	Description
CO1	Develop understanding of unit planning, and use of teaching aids in computer science for skill development and employability.
CO2	Gain knowledge of basic processes in computer science for development of skill and employability.
CO3	Comprehend evaluation processes in computer science for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BEdTC316
Course Name	Pedagogy of Home Science-Part-II

Cos	Description
CO1	Develop deeper understanding of home science curriculum for skill development and employability.
CO2	Comprehend use of equipment of teaching home science for skill development and employability.
CO3	Understand evaluation process in home science for development of skills and employability.

Course Code	BEdTC317
Course Name	Pedagogy of Social Science-Part-II

Cos	Description
CO1	Deeper understanding and develop skillsof teaching aids in the teaching of social science for developing employability.
CO2	Developing skills of developing of lesson planning in social science for developing employability.
CO3	Development of skill to comprehend mode of transaction and evaluation in social science for employability development.

Course Code	BEdTC318
Course Name	Pedagogy of Physical Science-Part-II

Cos	Description
CO1	Understand the curriculum and instructional material development in physical science for skill development and employability to meet local needs.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Gain deeper understanding of content analysis and lesson planning in physical science to for skill development and employability.
CO3	Comprehend evaluation skills in physical science teaching for skill development and employability.

Course Code	BEdTC319
Course Name	Pedagogy of Biological Science-Part-II

Cos	Description
CO1	Develop skills of curriculum and resource utilization in biological science for developing employability.
CO2	Gain knowledge and skills enhancement of using teaching aids of biological science for skill development and employability.
CO3	Comprehend and developing skills of evaluation process in biological science and developing employability.

Course Code	BEdTC320
Course Name	Pedagogy of Mathematics-Part-II

Cos	Description
CO1	Analyse the use of mathematics as game creation and allied skills development and employability.
CO2	Develop skills of deeper understanding of curriculum development of mathematics to meet local and national needs for developing employability
CO3	Gain deeper knowledge of development of skills of evaluation strategy in mathematics for developing employability.

Sanjeev Bhardwaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BEdPC321, BEdPC322
Course Name	**Engagement with the Field , School Internship and Practice Teaching Assessment**

Cos	Description
CO1	Develop a comprehensive and critical understanding on diversities, disabilities, marginalization and inclusive education so as to satisfy their local needs.
CO2	Understand obstacles to learning due to discriminatory practices with respect to curriculum, teaching approaches, school organization, and various social and cultural factors.
CO3	Implicit and explicit structures in our schools that act as a hindrance in including all students.
CO4	Deliver pedagogies, curricula and assessments suitable to various inequalities, diversities and disabilities in Indian classroom to meet
CO5	Develop an understanding of Technicality of Teaching roles.
CO6	Curriculum Analysis helped in planning for classes.
CO7	Involve and interact with the school activities and were accountable for the same.
CO8	Understand the psycho-social needs of children.

Course Code	BEdTC411
Course Name	**Gender, School and Society**

Cos	Description
CO1	Understand key and develop skills of gender issues and its basic concepts
CO2	Develop understanding and skills of gender inequality in the schools
CO3	Comprehend theories and develop skills on gender and education in Indian context

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BEdTC412
Course Name	Knowledge and Curriculum Part- II

Cos	Description
CO1	Explain role of school as a site and develop skills of curriculum engagement
CO2	Gain deeper understanding and developing skillsof curriculum implementation and renewal so as to meet local and national needs.
CO3	Comprehend and develop the skills of sociological approach to education in Indian context

Course Code	BEdTC413
Course Name	Creating an Inclusive School

Cos	Description
CO1	Develop understanding and skills of concept, historical perspective and policies of inclusive education so as to develop employability.
CO2	Analyze characteristics and develop skills to deal different children with diverse needs to develop employability and thus fulfill local needs.
CO3	Develop knowledge and skills about inclusive instructional strategies so to develop employability

Course Code	BEdTC414
Course Name	Educational Administration and Management

Cos	Description
CO1	Understand and develop the skills of the conceptual framework of management and administration in education and developing employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Comprehend and develop skills role of administrators in education in developing employability.
CO3	Develop understanding and skills of management of schools for developing employability.

Course Code	BEdTC415
Course Name	Health and Physical Education

Cos	Description
CO1	Understand concept, dimension, determinants and importance of health for skill development.
CO2	Comprehend concept, objective and importance of physical education for skill development.
CO3	Develop understanding of concept and factors physical fitness for skill development.

Course Code	BEdTC416
Course Name	Guidance and Counselling

Cos	Description
CO1	Understand concept and types of guidance and counselling for skill development and employability.
CO2	CO-2: Comprehend components of career information for skill development and employability thus satisfy national and global needs.
CO3	CO-3: Develop understanding and sources of objectives of career information at different levels for skill development and employability.

Sanjeev Rawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BEdTC417
Course Name	Environmental Education

Cos	Description
CO1	Understand the concept of environment, ecosystem and natural disaster for skill development.
CO2	Develop understanding of natural resources and associated problems for skill development.
CO3	Develop awareness of different environmental issues and its preventions for skill development.

Course Code	BEdTC418
Course Name	Value Education

Cos	Description
CO1	Acquire basic knowledge and conceptual understanding of determinants of values for skill development.
CO2	Understand different types of values for skill development.
CO3	Reflect on role of education or inculcating values for skill development.
CO4	Understand development of values as a personal and life-long process for skill development.

Course Code	EPCII
Course Name	Course Name: Drama and Art in Education

Cos	Description
CO1	Be oriented towards basic concept of Music, Drama, Fine Arts, Dance and other literary activities such as Elocution, Debate, Quiz etc for the

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development of skills.
CO2	Develop skills as well as understanding as well as of local art forms, Music, Plays for developing employability.
CO3	Develop ability to organize various programs of music, drama and other literary activities like Quiz, Essay Writing, Debate etc for skill development and employability.
CO4	Enhance the aesthetic sense by means of these activities.Appreciate performance done by others and give proper feedback for skill development.
CO5	Understand the need of Music, Drama and other creative, co-scholastic activities in individual and social life for skill development and employability.

Course Code	**EPC III**
Course Name	**Critical Understanding of ICT**

Cos	Description
CO1	Develop an understanding of the concept of Computer and its components for skill development.
CO2	Develop an understanding of the concept of ICT and its components. Use ICT in the classrooms in line with educational aims and principles for skill development.
CO3	Explore ICTs along three broad strands; teaching- learning, administrative and academic support systems thereby integrate technology tools for teaching learning, material development, developing collaborative networks for sharing and learning for skill development and employability and thus developing national and global needs.
CO4	Understand the evolution and impact of ICTs on society and in the education system. Understand the advantages and dangers of the internet, the new 'virtual world' for skill development.
CO5	Access available resources, review resources created by peers, collaborate to create their own digital teaching-learning resources for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EPCIV
Course Name	Understanding the Self

Cos	Description
CO1	Develop understanding of student-teachers about themselves –the development of the self as a person and as a teacher for skill development.
CO2	Develop sensibilities, dispositions, and skills that will later help them in facilitating the personal growth for the skill development.
CO3	Develop social relational sensitivity. Develop effective communication skills, including the ability to listen and observe for the skill development.
CO4	Develop a holistic and integrated understanding of the human being and personality for the skill development.
CO5	Build resilience within to deal with conflicts at different levels and learn to create teams to draw upon collective strengths. Inculcation of Self Reflection for the skill development.

Course Code	UDM
Course Name	Disaster Management

Cos	Description
CO1	Understand basic concepts of disaster and its global trend for the skill development.
CO2	Develop understanding of approaches to disaster risk reduction for the skill development.
CO3	Comprehend inter-relationship between disasters and development for the skill development.
CO4	Develop knowledge of disaster risk management in India for the skill development.
CO5	Gain practical understanding of disaster management and case studies for the skill development.

Sanjeev Bhardwaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

PROGRAMME NAME – B.SC. B.ED. (INTEGRATED EDUCATION)

Course Code	Course Code: B010101T
Course Name	Mathematical Physics & Newtonian Mechanics

COs	Description
CO1	Recognize the difference between scalars, vectors, pseudo-scalars and pseudo-vectors.
CO2	Understand the physical interpretation o fgradient, divergence and curl for skill development.
CO3	Comprehend the difference and connection between Cartesian, spherical and cylindrical coordinate systems.
CO4	Know the meaning of 4-vectors, Kronecker delta and Epsilon (LeviCivita) tensors.
CO5	Study the origin of pseudo of orcesin rotating frame for skill development.
CO6	Study the response of the classical system stoexternal forces and their elastic deformation.
CO7	Understand the dynamics of planetary motion and the working of Global Positioning System (GPS) for skill development.
CO8	Comprehend the different features of Simple Harmonic Motion (SHM) and wave propagation.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B010102P
Course Name	MechanicalPropertiesofMatter

COs	Description
CO1	Experimental physics has themost striking impact on the industry wherever the instruments are used to study and determine the mechanical properties.
CO3	Develop skills for Measurement precision and perfection is achieved through Lab Experiments.
CO3	CO3:OnlineVirtual Lab Experiments give an insight in simulation techniques and provide abasis for modeling.

Course Code	B020101T
Course Name	Fundamentals of Chemistry

COs	Description
CO1	Molecular geometries , physical and chemical properties of themolecules for skill development and employability.
CO2	Current bonding models for simple inorganic and organic molecules in order to predict structures and important bondingparameters for skill development and employability.
CO3	The chapter Recapitulation of basics of organic chemistry gives the most primary and utmost important knowledge and concepts of organic Chemistry for skill development and employability.
CO4	This course gives a broader theoretical picture in multiple stages in an overall chemical reaction for skill development and employability.
CO5	It describes reactive intermediates , transition states and states of all the bonds broken and formed for skill development and employability.
CO6	It enables tounderstand the reactants, catalyst , steriochemistry and major and minor products of any organicreaction for skill development

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and employability.
CO7	It describes the types of reactions and the Kinetic and thermodynamic aspects one should know for carrying out any reaction and the ways how the reaction mechanism can bedetermined for skill development and employability.
CO8	The chapters Steriochemistry gives the clear picture of two-dimensional and three-dimensional structure ofthe molecules, and their role in reactionmechanism for skill development

Course Code	**B020102P**
Course Name	**Quantitative Analysis**
COs	**Description**
CO1	Potability tests of water samples of water samples for skill development.
CO2	Eestimation of metalsions for skill development and employability.
CO3	Estimation of acids and alkali contents in commercial products so as to develop skills and employability.
CO4	Estimation of in organic salt sand hydrated water in samples for skill development and employability.

Course Code	**B030101T**
Course Name	**Differential Calculus & Integral Calculus**
COs	**Description**
CO1	To enhance knowledge of real valued functions such as sequence and series.They will also be able to know about continuous and differentiable functions for skill development, employability.
CO2	They should have knowledge about curvature, envelope and evolutes and trace curve in polar, Cartesian as well as parametric curves and many other

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	related concepts for skill development, employability.
CO3	The course is to equip the student with necessary analytic and technical skills. By applying the principles of integral he learns to solve a variety of practical problems in science and engineering so as to develop skills and employability.
CO4	To get the knowledge of beta gamma function and different theorems regarding vector integration for skill development and employability.
CO5	To increase the knowledge of students regarding many engineering problems for skill development and employability.

Course Code	**B030102P**
Course Name	**Practical**

COs	**Description**
CO1	The main objective of the course is to equip the student to plot the different graph and solve the different type of equations by plotting the graph using different computer software such as Mathematica /MATLAB /Maple /Scilab / Maxima etc for skill development and employability.
CO2	After completion of this course student would be able to know the convergence of sequences through plotting, verify Bolzano-Weierstrass the orem through plotting the sequence, Cauchy's root test by plotting n^{th} roots and Ratio test by plotting the ratio of n^{th} and $(n+1)^{th}$ term for developing skills and employability.
CO3	Student would be able to plot Complex numbers and their representations, Operations like addition, subtraction, Multiplication, Division, Modulus and Graphical representation of polar form for skill development and employability.
CO4	Student would be able to perform following task of matrix as Addition, Multiplication, Inverse, Transpose, Determinant, Rank, and Eigen vectors, Eigen values, Characteristic equation and verification of the Cayley-Hamilton theorem, solving the systems offline are equations for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B040101T
Course Name	Microbiology & Plant Pathology

COs	Description
CO1	Develop understanding about the classification and diversity of different microbes including viruses, Algae, Fungi & Lichens & their economic importance to develop skills and employability.
CO2	Develop conceptual skill about identifying microbes, pathogens, biofertilizers for developing skills and employability.
CO3	Gain knowledge about developing commercial enterprise of microbial products for developing skills and employability.
CO4	Learn host –pathogen relationship and disease management for developing skills and employability.
CO5	Learn Presentation skills (oral & writing) in life sciences by usage of computer of computer & multimedia for skill development and employability.
CO6	Gain Knowledge about uses of microbes in various fields for skill development and employability.
CO7	Understand the structure and reproduction of certain selected bacteria algae, fungi and lichens for skill development and employability.
CO8	Gain Knowledge about the economic values of this lower group of plant community for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B040102P
Course Name	Techniques in Microbiology &Plant Pathology

COs	Description
CO1	Understand the instruments, technique, lab etiquettes and good lab practices for working in a microbiology laboratory for skill development and employability.
CO2	Develop skills for identifying microbes and using them for Industrial, Agriculture and Environment purposes for developing skills and employability.
CO3	Practical skills in the field and laboratory experiments in Microbiology & Pathology.
CO4	Learn to identify Algae, Lichens and plant pathogens along with their Symbiotic and Parasitic associations.
CO5	Have the knowledge of Gram staining technique for developing skills and employability.
CO6	Gain knowledge on fixation, dehydration, hand sectioning, microtome sectioning.
CO7	Observe and identify the microbes, algae and fungi for developing employability.
CO8	Can initiate his own Plant & Seed Diagnostic Clinic Can start own enterprise on microbial product for skill development and employability.

Course Code	B050101T
Course Name	Cytology, Genetics and Immunology

COs	Description
CO1	Understand the structure and function of all the cell organelles so as to provide entrepreneurship.
CO2	Know about the chromatin structure and its location for better development

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	of skills.
CO3	To be familiar with the basic principle of life, how a cell divides leading to the grow of an organism and also reproduces to form new organisms and how one cell communicates with its neighboring cells and thus developing entrepreneurship.
CO4	Understand the basic principles of genetics and how genes (earlier called factors) are inherited from one generation to another
CO5	Understand the Mendel's laws and the deviations from conventional patterns of in heritance for skill development.
CO6	Comprehend how environment plays an important role by interacting with genetic factors.
CO7	How to detect chromosomal aberrations in humans and study the pattern of inheritance by pedigree analysis in families for the development of employability.
CO8	To have an in depth understanding about Immune System & its mechanisms for understanding and development of entrepreneurial skills.

Course Code	**B050102P**
Course Name	**Cell Biology & Cytogenetic Lab**
COs	**Description**
CO1	To use simple and compoundmicroscopes. To prepare slides and stain them to see the cellorganelles for skill development.
CO2	To be familiar with the basic principle of life, how a cell divides leading to the growth ofanorganism and also reproduces to form neworganisms for skill development.
CO3	The chromosomal aberrations by preparingkaryotypes for skill development.
CO4	How chromosomal aberrations are inherited in humans by pedigree analysis infamilies. The antigen-antibodyreaction for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	E030101T
Course Name	Development of Education in India

COs	Description
CO1	Develop understanding of Indian ethos and its educational importance for skill development.
CO2	Understand the characteristics, features, strengths, and weaknesses of education in ancient, medieval India and British period for enhancing skills.
CO3	Understand the contribution of various major committees and commissions on education inIndependent India for skill development and employability.
CO4	Develop an understanding of the issues and challenges faced by contemporary education in India to meet local and national needs and thus developing skills, employability and entrepreneurship.

Course Code	E030102T
Course Name	Pedagogy of Sciences -1

COs	Description
CO1	Develop an understanding of the nature, branches and scope of science for skill development.
CO2	Develop understanding of generating and communicating knowledge in science for skill development, employability and entrepreneurship.
CO3	Understand and explain relation between knowelege and curriculum in sciences.
CO4	Enhance skills of preparing and planning teaching of science so as local needs could be meet for skill development, employability and entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	Z010101T
Course Name	Food, Nutrition and Hygiene

COs	Description
CO1	To learn the basic concept of the Food and Nutrition for developing skills.
CO2	To study the nutritive requirement during special conditions like pregnancy and lactation for skill development and employability.
CO3	To learn meal planning. To learn 100 days Nutrition Concept to develop skills.
CO4	To study common health issues in the society. To learn the special requirement of food during common illness for enhancing skills.

Course Code	B010201T
Course Name	Thermal Physics & Semiconductor Devices

COs	Description
CO1	Recognize the difference between reversible and irreversible processes.
CO2	Develop skills to Understandthephysicalsignificanceofthermodynamical potentials.
CO3	Comprehendthekineticmodelofgasesw.r.t.variousgaslaws.
CO4	Develop skills to Study the implementations and limitationsofundamental radiation laws.
CO5	UtilityofAC bridges.
CO6	Recognize the basic components of electronic devices.
CO7	Develop skills to Design simple electronic circuits.
CO8	Understandtheapplicationsofvariouselectronic instruments.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B020202P
Course Name	Biochemical Analysis

COs	Description
CO1	Understandthequalitativeandquantitativeanalysis.
CO2	Determinequalitativeandquantitativeinformationforproteins,aminoacidsandfats.
CO3	Determineandextractnucleicacids.
CO4	Synthesizedrugmoleculessuchaspropranolol,aspirinandbarbituricacid.

Course Code	B030201T
Course Name	Matrices and Differential Equations & Geometry

COs	Description
CO1	Perform the matrix operations of addition, multiplication and transposition and express a system of simultaneous linear equations in matrix form. Solve a system of linear equations by row-reducing its augmented form, inverse of a matrix.
CO2	Solve the problems of Complex number, Function of complex variable, Trigonometric, Exponential, Logarithmic functions.
CO3	Determine the different types of differential equations their solutions using different methods
CO4	Use three dimensional geometry to understand different mathematical problems.
CO5	Study the basic concepts regarding three dimensional geometry for better employability.

Course Code	B040201T
Course Name	Archegoniates and Plant Architecture

COs	Description
CO1	Develop critical understanding on morphology, anatomy and reproduction

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	of Bryophytes to develop skills.
CO2	Develop critical understanding on morphology, anatomy and reproduction of Pteridophytes.
CO3	Develop critical understanding on morphology, anatomy and reproduction of Gymnosperms.
CO4	Understanding of plant evolution and their transition to landhabitat.
CO5	Understand morphology, anatomy, reproduction and developmental changes therein through typological studyand create a knowledge base in understanding the basis of plant diversity, economic values & taxonomy ofplants to develop skills.
CO6	Understand the meristems and role in plant development; primary structure of root, stem and leaf to develop skills.
CO7	Compare normal secondary growth and abnormal secondary growth to develop skills.
CO8	Understand the details of external and internal structures of floweringplants to develop skills.

Course Code	**B040202P**
Course Name	**Land Plants Architecture**

COs	**Description**
CO1	The students will be made aware of the group of plants that have given rise to land habit and the flowering plants. Through field study they will be able to see these plants grow in nature and become familiar with the biodiversity.
CO2	Students would learn to create their small digital reports where they can capture the zoomed in and zoomed out picturesas wellasvideosincasetheyareabletofindsomerarestructureorphenomenonr elatedtotheseplants.
CO3	Develop an understanding by observation and table study of representative members of phylogenetically important groups to learn the process of evolution in a broad sense.
CO4	Understand morphology, anatomy, reproduction and developmental changes therein through typological study and create a knowledge base in understanding plant diversity, economic values & taxonomy of lower group

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	of plants
CO5	Understand the composition, modifications, internal structure &architecture of flowering plants for becoming a Botanist.
CO6	Describe the morphology and anatomy of the vascular cryptogams and gymnosperms.
CO7	Have understanding on evolution and affinities of Pteridophytes.
CO8	Have understanding on evolution and affinities of Gymnosperms.

Course Code	**B050201T**
Course Name	**Biochemistry and Physiology**
COs	**Description**
CO1	To develop a deep understanding of structure of biomolecules like proteins, lipids and
CO2	Carbohydratesprovide employability and skills.
CO3	How simple molecules together form complexmacromoleculesbetter understanding of skill.
CO4	To understand the thermodynamics of enzyme catalyzedreactions for understanding of
CO5	entrepreneurial skill.
CO6	Mechanisms of energy production at cellular and molecularlevels entrepreneurship and
CO7	employability.
CO8	To understand systems biology and various functional components of anorganism skilling of

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	B050202P/R
Course Name	Physiological, Biochemical & Hematology Lab

COs	Description
CO1	Understand the structure of biomolecules like proteins, lipids andcarbohydrates
CO2	Perform basic hematological laboratorytesting.
CO3	Distinguish normal and abnormal hematological laboratory findings to predict the diagnosis of hematological disorders anddiseases

Course Code	E030201T
Course Name	Philosophical and Sociological Foundations of Education

COs	Description
CO1	Develop understanding of concept and branches of philosophy develops skills.
CO2	Gain knowledge of educational implications of western and Indian schools of philosophy to develop the skills.
CO3	Discuss the contributions of prominent educational thinkers to education for raising the qualities of entrepreneurship.
CO4	Describe sociological perspectives of education to meet local needs and develop the skills and entrepreneurship.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	TECEC-1
Course Name	SPECIAL EDUCATION

COs	Description
CO1	Develop understanding of concept, objectives and historical perspectives of special education to provide employability.
CO2	Comprehend role of education for children with mental retardation to develop the skills.
CO3	Gain understanding of role of education for children with hearing impariment to develop the skills.
CO4	Enhance knowledge of education for gifted and creative children for raising the knowledge and skills to meet their local and national needs.

Course Code	E030202P
Course Name	Engaging with Pedagogies-1

COs	Description
CO1	Analyze the secondary school curriculum from various perspective to develop the skills.
CO2	Design and develop unit and lesson plans to develop the skills.
CO3	Design and identify relevant audio-visual materials for classroom teaching to develop the skills.
CO4	Design and develop achievement tests related to their subjects to develop the skills.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	Z020201
Course Name	First Aids and Health

COs	Description
CO1	Learn the skill needed to assess the ill or injured person, provide CPR to infants, children and adults.
CO2	Learn the skills to handle emergency child birth, Basic sex education help young people navigate thorny questions responsibly and with confidence and Sexual desire is a healthy drive.
CO3	It's a deep, powerful instinct at the core of our survival as a species. Help to understand natural changes of adolescence.
CO4	Learn the skills to identify Mental Health status and Psychological First Aid.

Course Code	BSCBED321
Course Name	LEARNING AND TEACHING

COs	Description
CO1	Develop understanding about learning and factors that effects learning. for skill development, employability
CO2	Understand the theories of learning of Skinner, Piaget and Vygotsky in relation to their educational implications. for skill development, employability
CO3	Understanding the nature of learner and learning styles. for skill development, employability
CO4	Develop understanding of teaching, modalities of teaching and instruction and role of teacher to meet their local needs and for developing skills, employability

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED322
Course Name	ASSESSMENT FOR LEARNING

COs	Description
CO1	Understand the concept of Assessment, testing, evaluation and measurement for developing skills and employability.
CO2	Understanding various approaches to assessment and practical strategies for implementing Assessment for Learning in the context of holistic development for skill development and employability.
CO3	Understand construction of various assessment tools and their characteristics for enhancing skills and developing employability.
CO4	Apply various statistical techniques to analyze the data regarding students' various aspects in the classroom for skill development and employability.

Course Code	BSCBED323
Course Name	YOGA EDUCATION, SELF UNDERSTANDING AND DEVELOPMENT

COs	Description
CO1	Understand yoga, its historical background and various streams of it for skill development and employability.
CO2	Understanding yogic text for skill development and employability.
CO3	Understanding health and the role of yoga in attaining positive health for skill development and employability.
CO4	Role of Yoga in Personality development and Stress Management for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED331
Course Name	ORGANIC CHEMISTRY I

COs	Description
CO1	Recognize either molecule is aromatic, non-aromatic or antiaromatic. Assign R and S to given molecules for skill development, employability entrepreneurship.
CO2	Recognize either molecule is aromatic, non-aromatic or antiaromatic. Assign R and S to given molecules. for skill development, employability entrepreneurship.
CO3	Do interconversion of Fischer to Newmann, Newmann to Sawhorse and vice versa. for skill development, employability entrepreneurship.
CO4	Understand the nomenclature, synthesis, isomerism and physical properties of aliphatic hydrocarbons, aromatic hydrocarbons, alkyl and aryl halides. for skill development, employability entrepreneurship

Course Code	BSCBED351
Course Name	PRACTICAL (CHEMISTRY)

COs	Description
CO1	Students are able to determine the melting and boiling points of given organic compounds. for skill development, employability
CO2	Ability to prepare organic complex compound of industrial applications. for skill development, employability
CO3	Ability to know the process of crystallisation as a separation method. for skill development, employability

Sanjeev Bhardwaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED332
Course Name	ELECTRICITY AND ELECTROMAGNETISM
COs	**Description**
CO1	Apply Gauss's law of electrostatics to solve a variety of problems. for skill development, employability
CO2	Define Polarizability and susceptibility. for skill development, employability
CO3	Understand Biot – Savart Law and its applications, apply Ampere's Circuital Law to solve problems. Understand Magnetic materials and their properties. for skill development, employability
CO4	Explain Faraday's laws and Lenz's Law for skill development, employability

Course Code	BSCBED352
Course Name	PRACTICAL (PHYSICS)
COs	**Description**
CO1	Evaluate specific resistance of material for skill development, employability
CO2	Compare two resistances for skill development, employability
CO3	Convert Galvanometer into Ammeter and voltmeter for skill development, employability
CO4	Measure magnetic moment (M) of a magnet, evaluate the ballistic constant for skill development, employability

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED333
Course Name	REAL ANALYSIS
COs	**Description**
CO1	Be familiar with the concept of sequences, series and recognize convergent, divergent, bounded, Cauchy and monotone sequences. for skill development, employability
CO2	Test the convergence and divergence of series using ratio test, root test and Leibnitz test. for skill development, employability
CO3	Understand the concepts of point-wise
CO4	Understand Riemann integrability of continuous and monotone functions. for skill development, employability

Course Code	BSCBED334
Course Name	DIVERSITY OF ANIMALS–III AND COMPARATIVE ANATOMY
COs	**Description**
CO1	Understand different classes of chordates, level of organization and evolutionary relationship between different subphyla and classes, within and outside the phylum. for skill development, employability
CO2	Study about diversity in animals making students understand about their distinguishing features. for skill development, employability
CO3	Appreciate similarities and differences in life functions among various groups of animals in Phylum Chordata. for skill development, employability

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED353
Course Name	PRACTICAL (ZOOLOGY)
COs	**Description**
CO1	Comprehend the circulatory, nervous and skeletal system of chordates. for skill development, employability
CO2	Know about the habit and habitat of chordates in marine, freshwater and terrestrial ecosystems. for skill development, employability

Course Code	BSCBED335
Course Name	GYMNOSPERMS AND REPRODUCTIVE BIOLOGY OF ANGIOSPERMS
COs	**Description**
CO1	Understand about habitats of gymnosperm plants their affinities, classification and economic importance. for skill development, employability
CO2	Explain the morphology, anatomy and reduction in gymnosperm plants. for skill development, employability
CO3	Understand the structure of male and female reproductive bodies in flowering plants. Familiarize to pollination processes. for skill development, employability
CO4	Learn about double fertilization and their significance. Know about the structure and development of dicot and monocot embryos. for skill development, employability
CO5	Understand apomixes, polyembryony and parthenocarpy.Understand the scope and value of tissue culture, their techniques and culture media etc. for skill development, employability

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED354
Course Name	PRACTICAL (BOTANY)

COs	Description
CO1	Gain knowledge on fixation, dehydration, hand sectioning, of some gymnosperms. for skill development, employability
CO2	Dissect out the pollinia from *Calotropis procera* flower and explain the structure. for skill development, employability
CO3	Explain the structure of T.S. of anther of Datura. for skill development, employability
CO4	Understand the types of placentation in different flower bud practically and physically. Observe and understand the pollination process in natural environment for skill development, employability

Course Code	BSc.BED421
Course Name	CONTEMPORARY INDIA AND EDUCATION

COs	Description
CO1	Increase reliance on social mobilization to promote basic education and satisfying local and national needs.
CO2	Emphasisze on pre-primary education for skill development.
CO3	Introduce the minimum level of learning in school for development ofknowledge and skills.
CO4	Adopt the child centered, activity based approach for development of entrpreneurship and thus fulfilling local needs.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED422
Course Name	ROLE OF ICT IN EDUCATION
COs	**Description**
CO1	Have a basic familiarity with computers.
CO2	Understand & appreciate ICT as effective learning tools for learners to meet national and global needs.
CO3	Understand ICT as an emormous functional support to teachers for gaining knowledge and skills.

Course Code	BSCBED423
Course Name	LANGUAGE ACROSS THE CURRICULUM
COs	**Description**
CO1	Explain the meaning of 'Language across the Curriculum'. for skill development, employability
CO2	Identify the attributes of a lesson with the goal of 'Language across the Curriculum'. for skill development, employability
CO3	.Justify the importance of 'Language across the Curriculum' in the total context of the curriculum for development of skills and knowledge
CO4	Enlist the advantages of considering and applying the idea of 'Language across the Curriculum' in the school/college context. for skill development, employability
CO5	State the aims of 'Language across the Curriculum' approach. for skill development, employability

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED431
Course Name	THERMODYNAMICS, EQUILIBRIUM AND SOLUTIONS
COs	**Description**
CO1	Understanding of the basic concepts of thermodynamics such as system, state, state postulate, equilibrium and properties. for skill development, employability
CO2	Students may differentiate between Open, Closed and Isolated systems, Microscopic and Macroscopic approaches, Intensive and Extensive properties. for skill development, employability
CO3	Knowledge of various laws of thermodynamics and their application. for skill development, employability
CO4	Understanding of the concept of pressure, temperature, specific volume and temperature scales. for skill development, employability

Course Code	BSCBED432
Course Name	OPTICS
COs	**Description**
CO1	Gain knowledge on various theories of light for development of skills.
CO2	Understand the properties of light like coherence, polarization, interference, diffraction for gaining employability
CO3	Explain Fabry Perot interferometers and its applications. for skill development, employability
CO4	Know about the applications of diffraction and polarization. for skill development, employability

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED433
Course Name	DIFFERENTIAL EQUATIONS
COs	**Description**
CO1	Solve the exact, linear and Bernoulli equations and find orthogonal trajectories. for skill development, employability
CO2	Apply the method of variation of parameters to solve linear differential equations. for skill development, employability
CO3	Formulate and solve various types of first and second order partial differential equations. for skill development, employability
CO4	Understand the Formation by elimination of arbitrary constants for skill development, employability

Course Code	BSCBED434
Course Name	ECOLOGY, BIOGEOGRAPHY AND WILDLIFE
COs	**Description**
CO1	Demonstrate an understanding of key concepts in ecology with emphasis on historical perspective, role of physical factors and concept of limiting factors. for skill development, employability
CO2	Comprehend the population characteristics, dynamics, growth models and interactions. for skill development, employability
CO3	Understand the community characteristics, ecosystem development and climax theories for skill development, employability
CO4	Develop understanding of biogeography and wildlife for skill development, employability

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED435
Course Name	PLANT ANATOMY AND ECOLOGY
COs	**Description**
CO1	Understand the meristems and role in plant development. for skill development, employability
CO2	Draw and ex-plain the structures of various tissues in plants and their functions. for skill development, employability
CO3	Know how the secondary growth takes place in some dicot stem. for skill development, employability
CO4	Explain the ecological interconnectedness of life on earth by tracing energy and nutrient flow through the environment. for skill development, employability

Course Code	BSCBED454
Course Name	PRACTICAL (BOTANY)
COs	**Description**
CO1	Understand the meristems and role in plant development. for skill development, employability
CO2	Draw and ex-plain the structures of various tissues in plants and their functions. for skill development, employability
CO3	Know how the secondary growth takes place in some dicot stem. for skill development, employability
CO4	Explain the ecological interconnectedness of life on earth by tracing energy and nutrient flow through the environment. for skill development, employability

Sanjeev Bhawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED521
Course Name	GENDER, SCHOOL AND SOCIETY
COs	**Description**
CO1	Understand meaning of gender and the issues related to gender in education in Indian society for skill development and employability.
CO2	Examine the issues and concerns related to universalisation of Secondary Education for skill development and fulfilling their local needs.
CO3	Understanding different agencies of society in gender bias for skill development and employability.
CO4	Comprehend some of the key concepts of gender studies which encourage critical thinking for skill development and employability.

Course Code	BSCBED522
Course Name	PEDAGOGY OF PHYSICAL SCIENCE-I
COs	**Description**
CO1	Understand science, its domains and contribution of various scientists for skill development, employability and entrepreneurship.
CO2	Understanding of aims and objectives of studying science for skill development and employability.
CO3	Develop skills of making teaching learning process experiential and joyful for skill development, employability and entrepreneurship.

Course Code	BSCBED523
Course Name	PEDAGOGY OF MATHEMATICS - 1
COs	**Description**
CO1	Understand the nature and characteristics of language of mathematics its

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	need , importance and aims and objectives of its teaching for skill development, employability and entrepreneurship.
CO2	Understand the various methods and techniques of teaching mathematics to make teaching learning process experiential and joyful according to local and national needs and for skill development, employability and entrepreneurship.
CO3	Understanding skill to develop lesson plan and teaching aid to enhance teaching and learning for skill development, employability and entrepreneurship.

Course Code	**BSCBED524**
Course Name	**PEDAGOGY OF BIOLOGICAL SCIENCE- 1**
COs	**Description**
CO1	Develop an understanding of the nature of biology its role and importance of biology for skill development, employability and entrepreneurship.
CO2	Develop understanding about the aims and objectives of teaching science for skill development, employability and aentrepreneurship.
CO3	Develop methods and techniques of making teaching learning process experiential and joyful according to local needs for skill development, employability and entrepreneurship.

Course Code	**BSCBED555**
Course Name	**PRACTICUM: SCHOOL ATTACHMENT PROGRAMME-I**
COs	**Description**
CO1	Develop a comprehensive and critical understanding on diversities, disabilities, marginalization and inclusive education. for skill

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development, employability, entrepreneurship
CO2	Understand obstacles to learning due to discriminatory practices with respect to curriculum, teaching approaches, school organization, and various social and cultural factors. for skill development, employability, entrepreneurship
CO3	Implicit and explicit structures in our schools that act as a hindrance in including all students. for skill development, employability entrepreneurship
CO4	Deliver pedagogies, curricula and assessments suitable to various inequalities, diversities and disabilities in Indian classroom. for skill development, employability, entrepreneurship
CO5	Develop an understanding of Technicality of Teaching roles. for skill development, employability,entrepreneurship
CO6	Curriculum Analysis helped in planning for classes. for skill development, employability, entrepreneurship
CO7	Involveand interact with the school activities and were accountable for the same. for skill development, employability Entrepreneurship
CO8	Understand the psycho-social needs of children. for skill development, employability entrepreneurship

Course Code	**BSCBED531**
Course Name	**TRANSITION ELEMENTS, COORDINATION COMPOUNDS AND CHEMICAL KINETICS**
COs	**Description**
CO1	Explain the fundamental concepts in coordination chemistry of transition metals. for skill development, employability, entrepreneurship
CO2	Understand rate of reaction and factors affecting it. for skill development, employability, Entrepreneurship
CO3	Derive integrated rate expressions for zero order, first order, second order and third order reaction. Understand theories of reaction kinetics and differentiate them. for skill development, employability entrepreneurship
CO4	Understand about recently lanthanides have been used inlasers.Know about actinides elements are used as nuclear fuels for various

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	purposes for skill development, employability entrepreneurship

Course Code	BSCBED551
Course Name	PRACTICAL (CHEMISTRY)
COs	**Description**
CO1	To know preparation of a complex. for skill development, employability
CO2	To prepare inorganic complex compound of industrial applications. for skill development, employability
CO3	To know the colorimetric method. for skill development, employability

Course Code	BSCBED532
Course Name	ATOMIC AND MOLECULAR PHYSICS
COs	**Description**
CO1	Motivate the necessity of using quantum mechanics calculations for describing atomic and molecular processes. for skill development, employability
CO2	Difference between atomic emission spectroscopy and atomic absorption spectroscopy and Atomic spectrum. Understand Atomic emission/ absorption spectroscopy. for skill development, employability
CO3	Describe Zeeman's effect, Paschen back effect and Stark effect. for skill development, employability
CO4	Understand Molecular spectroscopy, and Lande splitting factor.Explain Molecular Spectra of diatomic molecules. Differentiate between Vibrational and Rotational energy levels. for skill development, employability

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED552
Course Name	PRACTICAL (PHYSICS)
COs	**Description**
CO1	Measure hybrid parameters of transistors for skill development, employability
CO2	Study characteristics of L.D.R., FET, Tunnel diode and Zener diode. for skill development, employability
CO3	Evaluate ripple factor of dc supply. for skill development, employability
CO4	Calculate UJT parameters for skill development, employability

Course Code	BSCBED533
Course Name	MULTIVARIATE CALCULUS & VECTOR CALCULUS
COs	**Description**
CO1	Understand the basic concepts and know the basic techniques of differential and integral calculus of functions of several variables. for skill development, employability
CO2	Apply the theory to calculate the gradients, directional derivatives, arc length of curves, area of surfaces, and volume of solids. for skill development, employability
CO3	Solve problems involving maxima and minima, line integral and surface integral, and vector calculus. for skill development, employability
CO4	Develop mathematical maturity to undertake higher level studies in mathematics and related fields. for skill development, employability

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED534
Course Name	DEVELOPMENTAL BIOLOGY AND APPLIED ZOOLOGY AND ETHOLOGY

COs	Description
CO1	Understand the events that lead to formation of a multicellular organism from a single fertilized egg, the zygote. for skill development, employability
CO2	Acquire basic knowledge of the cellular processes of development and the molecular mechanisms underlying these. for skill development, employability
CO3	Describe the general patterns and sequential developmental stages during embryogenesis; and understand how the developmental processes lead to establishment of body plan of multicellular organisms. for skill development, employability
CO4	Develop skills and realize significance of diagnosis of parasitic attackand treatment of patient or host. for skill development, employability

Course Code	BSCBED553
Course Name	PRACTICAL (ZOOLOGY)

COs	Description
CO1	Discuss the general mechanisms involved in morphogenesis and to explain how different cells and tissues interact in a coordinated way to form various tissues and organs for skill development and employability.
CO2	Understand about the evolutionary development of various animals for skill development and employability.
CO3	Develop skills and realize significance of diagnosis of parasitic attack and treatment of patient or host for fulfilling local needs and for skill development and employability.

Sanjeev Sharma
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED535
Course Name	BOTANICAL NOMENCLATURE, ANGIOSPERM TAXONOMY AND UTILIZATION OF PLANTS

COs	Description
CO1	What is the role of ICBN in plant taxonomy? What are different data sources in Classification of flowering plants? for skill development, employability
CO2	What are different methods of naming plants? What are different principles of nomenclature? Why name changes? for skill development, employability
CO3	What are artificial, natural and and phylogenetic systems of classification? for skill development, employability
CO4	What are different methods of collecting and preserving plants? What is the importance of maintaining plants in botanic gardens? for skill development, employability
CO5	Comparison among different flowering plants groups.Learn the importance of plant of different plants. for skill development, employability

Course Code	BSCBED554
Course Name	PRACTICAL (BOTANY)

COs	Description
CO1	Have knowledge of taxonomic terms and plants identification as well as their economic importance. for skill development, employability
CO2	Develop the skill of collection and preservation of plant specimens. for skill development, employability
CO3	Study the different food crops, plants fibers, medicinal plants and timber yielding plants. for skill development, employability

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED621
Course Name	CREATING AN INCLUSIVE SCHOOL

COs	Description
CO1	Identity specific identities that exist beyond the superficial .Examples of this would be cultural background, socio-economic status, country of origin.
CO2	Discuss possible impacts of a person self-defined identity on his/her learning or on his/her ability to teach diverse students.
CO3	Recognize examples of unconscious bias, both in themselves and in others.

Course Code	BSCBED622
Course Name	PEDAGOGY OF PHYSICAL SCIENCE-II

COs	Description
CO1	Understand the nature and characteristics of language of mathematics and its correlation with science and other subjects for skill development.
CO2	State the need and importance of evaluation.
CO3	State the aims and objectives of teaching mathematics.

Course Code	BSCBED623
Course Name	PEDAGOGY OF MATHEMATICS-II

COs	Description
CO1	Develop skills of making teaching learning process experiential and joyful and make it according to local and national needs.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand the nature and characteristics of language of mathematics and its correlation with science and other subjects for development of skills.
CO3	State the need and importance of evaluation.

Course Code	BSCBED624
Course Name	PEDAGOGY OF BIOLOGICAL SCIENCE-II

COs	Description
CO1	Develop an understanding of the nature of biology development of skills.
CO2	Understand the role and importance of biology development of skills.
CO3	Identify the place of Biology in curriculum. for development of skills

Course Code	BSCBED631
Course Name	ORGANIC CHEMISTRY – II

COs	Description
CO1	Able to recognize structures of acid halides, esters, amides, acid anhydrides development of skills.
CO2	Able to convert given name of alcohol to structure development of skills.
CO3	Able to write the order of reactivity of different carboxylic acid derivatves development of skills.
CO4	Able to describe different classes of alcohols development of skills.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED651
Course Name	PRACTICAL (CHEMISTRY)

COs	Description
CO1	Able to recognize structures of acid halides, esters, amides, acid anhydrides development of skills.
CO2	The order of reactivity of different carboxylic acid derivatves development of skills.
CO3	Able to describe different classes of alcohols development of skills.

Course Code	BSCBED632
Course Name	CLASSICAL & QUANTUM MECHANICS

COs	Description
CO1	Understand constraints, necessity of Lagrangian and Hamiltonian formulations development of skills and employability.
CO2	Describe Wave-particle duality, de Broglie's hypothesis development of skills and employability.
CO3	Explain Importance of quantum mechanics compared to classical mechanics development of skills and employability.
CO4	Apply various tools to calculate eigen values, eigen functions development of skills and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED652
Course Name	PRACTICAL (PHYSICS)

COs	Description
CO1	Wave-particle duality, de Broglie's hypothesis development of skills and entrepreneurship.
CO2	Importance of quantum mechanics compared to classical mechanics development of skills and entrepreneurship.
CO3	Apply various tools to calculate eigen values, eigen functions development of skills and entrepreneurship.

Course Code	BSCBED633
Course Name	GROUPS AND RINGS

COs	Description
CO1	Identify the concept of Normal groups and Quotients groups development of skills and entrepreneurship.
CO2	Analyze Permutation groups and counting principle development of skills and entrepreneurship.
CO3	Explain Sylow's theorem and its applications development of skills and entrepreneurship.
CO4	Provide information on ideals and Quotient rings, Field of Quotient of an integral domain development of skills and entrepreneurship.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED634
Course Name	ANIMAL PHYSIOLOGY, ENDOCRINOLOGY AND IMMUNOLOGY

COs	Description
CO1	Describe the basic mechanisms, distinctions and functional interplay of innate and adaptive immunity development of skills.
CO2	Relate to errors occurring during development leading to congenital disorders and human diseases development of skills.
CO3	Understand the concept of Endocrinology development of skills.
CO4	Develop ideas of Immunology and its structure and types development of skills.

Course Code	BSCBED653
Course Name	PRACTICAL (ZOOLOGY)

COs	Description
CO1	Describe basic and state-of-the-art experimental methods and technologies development of skills.
CO2	Integrate knowledge of each subsystem to see their contribution to the functioning of higher-level systems in health and disease including basis of vaccination, autoimmunity, immunodeficiency, hypersensitivity and tolerance development of skills.

Course Code	BSCBED635
Course Name	PLANT PHYSIOLOGY AND METABOLISM

COs	Description
CO1	Understand the plants and plant cells in relation to water, the movement of sap and absorption of water in plant body development of skills.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Know micro and macronutrients and their role in plant developments development of skills.
CO3	Understand the process of photosynthesis in higher plants with particular emphasis on light and dark reactions, C_3 and C_4 pathways development of skills.
CO4	Understand the respiration in higher plants with particular emphasis on aerobic and anaerobic respiration development of skills.

Course Code	BSCBED654
Course Name	PRACTICAL (BOTANY)

COs	Description
CO1	Understand the plants and plant cells in relation to water, the movement of sap and absorption of water in plant body development of skills.
CO2	Know micro and macronutrients and their role in plant developments development of skills.
CO3	Understand the process of photosynthesis in higher plants with particular emphasis on light and dark reactions, C_3 and C_4 pathways development of skills.
CO4	Understand the respiration in higher plants with particular emphasis on aerobic and anaerobic respiration development of skills.

Course Code	BSCBED721
Course Name	HEALTH AND PHYSICAL EDUCATION

COs	Description
CO1	Develop understanding about health, its significance and scenario of health education in India. for skill development, employability entrepreneurship

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Developing understanding about the health issues due to tech-aids. for skill development, employability entrepreneurship
CO3	Fmiliarize students of good health can be achieved. for skill development, employability entrepreneurship
CO4	Develop understanding about the concept of first aid- its principles and uses. for skill development, employability entrepreneurship

Course Code	**BSCBED 755**
Course Name	**PRACTICUM: INTERNSHIP IN SCHOOL SUBJECT PHYSICAL SCIENCE**
COs	**Description**
CO1	marginalization and inclusive education for skill development, employability and entrepreneurship.
CO2	Understand obstacles to learning due to discriminatory practices with respect to curriculum, teaching approaches, school organization, and various social and cultural factors to meet local needs and for skill development, employability and entrepreneurship.
CO3	Implicit and explicit structures in our schools that act as a hindrance in including all students to develop skills and employability.
CO4	Deliver pedagogies, curricula and assessments suitable to various inequalities, diversities and disabilities in Indian classroom to develop skills and employability.
CO5	Develop an understanding of Technicality of Teaching roles to develop skills and employability.
CO6	Curriculum Analysis helped in planning for classes for skill development, employability and entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO7	Involve and interact with the school activities and were accountable for the same for skill development, employability and entrepreneurship.
CO8	Understand the psycho-social needs of children to develop skills and employability.

Course Code	**BSCBED756**
Course Name	***PRACTICUM:* INTERNSHIP IN SCHOOL SUBJECT MATHEMATICS**
COs	**Description**
CO1	marginalization and inclusive education for skill development, employability and entrepreneurship.
CO2	Understand obstacles to learning due to discriminatory practices with respect to curriculum, teaching approaches, school organization, and various social and cultural factors to meet local needs and for skill development, employability and entrepreneurship.
CO3	Implicit and explicit structures in our schools that act as a hindrance in including all students to develop skills and employability.
CO4	Deliver pedagogies, curricula and assessments suitable to various inequalities, diversities and disabilities in Indian classroom to develop skills and employability.
CO5	Develop an understanding of Technicality of Teaching roles to develop skills and employability.
Co6	Curriculum Analysis helped in planning for classes for skill development, employability and entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO7	Involve and interact with the school activities and were accountable for the same for skill development, employability and entrepreneurship.
CO8	Understand the psycho-social needs of children to develop skills and employability.

Course Code	BSCBED757
Course Name	*PRACTICUM:* INTERNSHIP IN SCHOOL SUBJECT BIOLOGICAL SCIENCE

COs	Description
CO1	marginalization and inclusive education for skill development, employability and entrepreneurship.
CO2	Understand obstacles to learning due to discriminatory practices with respect to curriculum, teaching approaches, school organization, and various social and cultural factors to meet local needs and for skill development, employability and entrepreneurship.
CO3	Implicit and explicit structures in our schools that act as a hindrance in including all students to develop skills and employability.
CO4	Deliver pedagogies, curricula and assessments suitable to various inequalities, diversities and disabilities in Indian classroom to develop skills and employability.
CO5	Develop an understanding of Technicality of Teaching roles to develop skills and employability.
Co6	Curriculum Analysis helped in planning for classes for skill development, employability and entrepreneurship.
CO7	Involve and interact with the school activities and were accountable for the

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	same for skill development, employability and entrepreneurship.
CO8	Understand the psycho-social needs of children to develop skills and employability.

Course Code	**BSCBED731**
Course Name	**ELECTROCHEMISTRY AND PHOTOCHEMISTRY**

COs	**Description**
CO1	Able to recognize the reaction of electrochemical cells and types for skill development
CO2	Able to predict the reversible and irreversible reaction. for skill development
CO3	Have knowledge of photochemical laws and their applications for skill development
CO4	Able to solve numerical problems related to electrochemistry for skill development

Course Code	**BSCBED751**
Course Name	

COs	**Description**
CO1	Students are able to know solubility and solubility constant of a weak electrolyte. for skill development
CO2	Ability to know the Quantitative analysis. for skill development
CO3	Ability to know the dissociation constant of a weak acid by. for skill development

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED732
Course Name	NUCLEAR AND PARTICLE PHYSICS

COs	Description
CO1	Acquire basic knowledge about nuclear properties such as mass
CO2	Develop the understanding of nuclear disintegration for skill development
CO3	Understand the various nuclear models. for skill development
CO4	Construction

Course Code	BSCBED752
Course Name	PRACTICAL (PHYSICS)

COs	Description
CO1	Understand characteristics of GM Counter for skill development, employability
CO2	Plot characteristics of FET for skill development, employability
CO3	Verify inverse square law for skill development, employability
CO4	Evaluate ionization of Xenon for skill development, employability

Course Code	BSCBED733
Course Name	LINEAR ALGEBRA

COs	Description
CO1	Understand the concepts of Liner independence, bases and Dual spaces. for skill development, employability
CO2	Discuss Algebra of Linear Transformations and Characteristics roots. for skill development

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Study canonical forms and Nilpotent transformations. for skill development
CO4	Analyze rational canonical forms and Determinants. Understand the Hermitian

Course Code	BSCBED734
Course Name	CELL BIOLOGY, GENETICS AND EVOLUTION

COs	Description
CO1	Have a deeper understanding of the varied branches of the biological sciences like microbiology
CO2	Understand fundamental principles of cell biology. for skill development
CO3	Explain structure and functions of cell organelles involved in diverse cellular processes. for skill development
CO4	Gain knowledge of the basic principles of inheritance. for skill development

Course Code	BSCBED653
Course Name	PRACTICAL (ZOOLOGY)

COs	Description
CO1	Understand fundamental principles of cell biology. for skill development
CO2	Explain structure and functions of cell organelles involved in diverse cellular processes. for skill development
CO3	Appreciate how cells grow

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED735
Course Name	CELL BIOLOGY AND GENETICS

COs	Description
CO1	Difference between prokaryotic eukaryotic cell and ultra structure of plant cell. for skill development
CO2	Structure and functions of cell organelles. for skill development
CO3	The eukaryotic cell cycle and mitotic and meiotic cell division. for skill development
CO4	Structure and chemistry of chromosomes
CO5	Nucleosome model
CO6	Explain the Mendelian inheritance

Course Code	BSCBED754
Course Name	PRACTICAL (BOTANY)

COs	Description
CO1	Understand the various stages occurred in mitotic and meiotic cell divisions. for skill development
CO2	Apply quantitative problem-solving skills to genetics problems and issues. for skill development
CO3	Select and apply experimental procedures to solve genetic problems. for skill development
CO4	Perform the emasculation technique in various crop plants. for skill development
CO5	Know cell structures of Onion cell, *Hydrilla* and *Chara/Spirogyra* cell. for skill development

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED821
Course Name	EDUCATIONAL ADMINISTRATION AND MANAGEMENT

COs	Description
CO1	Ensure adequate utilization of all resources.
CO2	Ensure professional ethics, skills, entrepreneurship and professional development and satisfying national and global needs.
CO3	Mobilize the community.
CO4	Ensure qualitative improvement of education for skill development and fulfill national and global needs.

Course Code	BSCBED822
Course Name	GUIDANCE AND COUNSELLING IN SCHOOLS

COs	Description
CO1	Understand the needs to address the children with diversities in classroom for skill development.
CO2	Identify the causes for classifying various diversities. Acquainted about the policies and programmes for inclusive children for skill development.
CO3	Differentiate between disability and inclusion. Specify the implementation of inclusion to normalize the children with diversities so as to meet their local needs.
CO4	Apply supportive services to children the diversities in mainstream and provide them guidance and counselling for better skills and adjustment in society. Apply software on assistive devices in inclusive schools.

Sanjeev Bajpai
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED 855
Course Name	*PRACTICUM:* READING AND REFLECTING ON TEXT

COs	Description
CO1	To develop study – habits develop skill of reading & writing and develop skill of summarization.
CO2	To develop skill of note-taking.
CO3	To develop the reading capacity.
CO4	To develop the creative ability, logical ability, analytical power, thinking skill and reading skill.
CO5	To develop the methods and approaches about reading for developing skills.
CO6	To know the measurement and evaluation of reading.
CO7	To understand the co-relation among different subject.
CO8	To know the diagnostic and remedial of reading.
CO9	To be motivated to writing on different topic and to be aware of difficulties or Reading and writing.

Course Code	BSCBED831
Course Name	SPECTROSCOPY, NATURAL PRODUCTS AND HETEROCYCLICS

COs	Description
CO1	The students should be able to demonstrate advanced knowledge, skills and understanding in aspect of protein structure.
CO2	The students will be able to introduce about basic chemistry of the heterocyclic.
CO3	The students will get familiar with particular properties and reactions for the most important heterocyclic as well as different systems of nomenclature.
CO4	Able to recognize different regions for different spectroscopy.

Sanjeev Bhatt
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO5	After completion of course students should have the ability to identify organic compounds by analysis and interpretation of spectral data
CO6	Students should have the ability to explain common terms in NMR spectroscopy such aschemical shift, coupling constant and anisotropy and describe how they are affected bymolecular structure.

Course Code	BSCBED851
Course Name	PRACTICAL (CHEMISTRY)
COs	**Description**
CO1	To know iodine value of oil.
CO2	To know the estimation of ascorbic acid in Vitamin C.
CO3	To know the preparation of organic compounds of pharmaceutical use.

Course Code	BSCBED832
Course Name	SOLID STATE PHYSICS
COs	**Description**
CO1	Understand the concept of reciprocal space lattice and know the significance of Brillouin zones.
CO2	Describe the main features of the physics of electrons in solids: origin of energy bands, and their influence electronic behavior for skill development.
CO3	Distinguish between metals, semiconductors and insulators.
CO4	Describe Kronig- Penney model.Understand Photoconductivity & Luminescence. Understand the basics of superconductors, their types and applications.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED652
Course Name	SOLID STATE PHYSICS

COs	Description
CO1	Determine hall coefficient
CO2	Measurement of Magnetic susceptibility skill development.
CO3	Calculate refractive index of a dielectric layer skill development.

Course Code	BSCBED833
Course Name	COMPLEX ANALYSIS& NUMERICAL ANALYSIS

COs	Description
CO1	Analyze Analytic functions and exponential functions. Apply Cauchy's theorem for disk and the Integral formula.
CO2	Understand Local properties of Analytic functions. Study Residue theorem and the argument principle.
CO3	Differentiate the Taylor's series and Laurent series. Identity and analyze different types of errors encountered in numerical computing.
CO4	Apply the knowledge of Numerical Mathematics to solve problems efficiently arising in science, engineering and economics etc.
CO5	Utilize the tools of the Numerical Mathematics in order to formulate the real-world problems from the view point of numerical mathematics.

Sanjeev Kumar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED834
Course Name	BIOCHEMISTRY, MOLECULAR BIOLOGY AND BIOTECHNOLOGY

COs	Description
CO1	Gain knowledge and skill in the fundamentals of biochemical sciences, interactions and interdependence of physiological and biochemical processes.
CO2	Get exposed to various processes used in industries
CO3	Demonstrate foundation knowledge in biochemistry; synthesis of proteins, lipids, nucleic acids.
CO4	Carbohydrates; and their role in metabolic pathways along with their regulation.

Course Code	BSCBED853
Course Name	PRACTICAL (ZOOLOGY)

COs	Description
CO1	Demonstrate foundation knowledge in biochemistry; synthesis of proteins, lipids, nucleic acids, and carbohydrates; and their role in metabolic pathways along with their regulation.
CO2	Know about classical laboratory techniques, use modern instrumentation, design and conduct scientific experiments, and analyze the resulting data.
CO3	Be knowledgeable in proper procedures and regulations in handling and disposal of chemicals.

Sanjeev Dawd
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BSCBED835
Course Name	MOLECULAR BIOLOGY, BIOCHEMISTRY & BIOTECHNOLOGY

COs	Description
CO1	Nucleic acid as genetic material, types of DNA, DNA replication and enzymes involved in DNA replication.
CO2	Understand the structure and general features of enzymes, concept of enzyme activity and enzyme inhibition. Have the knowledge of DNA chemical constituents, and its replication for development of skills and entrepreneurship.
CO3	Understand the structure of biomolecules like carbohydrates, proteins, lipids and vitamins.
CO4	Understand nitrogen metabolism in plants. Describe bio-catalysis, pathway engineering, bioprocess control and downstream processing
CO5	Demonstrate their ability to reason both inductively and deductively with experimental information and data for development of skills and employability.. Explain the theory and practice of recombinant DNA technology.

Course Code	BSCBED854
Course Name	PRACTICAL (BOTANY)

COs	Description
CO1	How DNA is isolated from coconut endosperm?
CO2	The effects of pH and temperature on amylase, catalase and peroxidase activity.
CO3	How to separate amino acids by paper chromatography?
CO4	Qualitative and quantitative test for the presence of carbohydrates, proteins and lipids.

Sanjeev Bhatt
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – MASTER OF ARTS (EDUCATION)

Course Code	EDUCC101
Course Name	PHILOSOPHICAL AND SOCIOLOGICAL FOUNDATIONS OF EDUCATION-I

COs	Description
CO1	Understand the nature and function of Philosophy in education and modern philosophies.
CO2	Understand educational thoughts of Indian thinkers and Indian schools of philosophy.
CO3	Understand the nature and approaches of sociology of education for skill development.
CO4	Understand emerging social issues in education, and implications of social stratification and mobility for skill development and to meet local needs.

Course Code	EDUCC102
Course Name	PSYCHOLOGICAL FOUNDATION OF EDUCATION-I

COs	Description
CO1	Understand the nature, concept and principles of educational psychology for skill development and employability.
CO2	Understand the implications of child's growth and development for skill development and employability.
CO3	Understand the concept and factors of learning and techniques of motivation for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Develop understanding about theories of learning.

Course Code	EDUCC103
Course Name	INTRODUCTION TO RESEARCH IN EDUCATION
COs	**Description**
CO1	Understand concept, kinds and approaches of educational research for skill development and employability.
CO2	Develop understanding about formulation and testing of hypotheses in research for skill development and employability.
CO3	Acquaint about different sampling methods used in selecting sample in research for skill development and employability.
CO4	Develop understanding about sources of problem and preparation of research proposal for skill development and employability.

Course Code	EDUCC104
Course Name	EDUCATIONAL MEASUREMENT AND EVALUATION-I
COs	**Description**
CO1	Distinguish the critical features of measurement, evaluation and assessment.
CO2	Explain different types of tests used in education for skill development and employability.
CO3	Understand the procedure of measuring personality, intelligence and attitude to meet local needs and for developing skills and employability.
CO4	Develop understanding about the standardization of test for

Sanjeev Gaur
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	skill development and employability.

Course Code	**EDUCC151**
Course Name	**PRACTICUM**
COs	**Description**
CO1	Understand about critical analysis of educational policies for skill development.
CO2	Understand about the administration of intelligence, personality and sociometry test for skill development and employability.
CO3	Understand about reporting of psychological.

Course Code	**EDUEC105**
Course Name	**NON-FORMAL AND ADULT EDUCATION IN INDIA**
COs	**Description**
CO1	Understand the concept and need of Non-Formal Education for achieving universalization of elementary education.
CO2	Acquaint with meaning and concept of adult education and methods and techniques of adult learning for skill development and employability.
CO3	Comprehend the role of open university, continuing education and correspondence courses for the illiterate adults and to fulfill their national and global needs and developing skills and employability.
CO4	Understand some adult education programme and its related

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	issues for skill development and employability.

Course Code	EDUEC106
Course Name	PROBLEMS OF SECONDARY EDUCATION
COs	**Description**
CO1	Know the history of development of secondary education system in India.
CO2	Explain the reports of Mudaliar and Kothari commissions on secondary education.
CO3	Interpret functioning of various government organizations for secondary Education in India so that local and national needs could be fulfilled and for developing skills and employability.
CO4	Enumerate problems and issues of secondary education in India for skill development and employability.

Course Code	EDUEC107
Course Name	GUIDANCE AND COUNSELLING
COs	**Description**
CO1	Understand concept, need and objectives of guidance.
CO2	Distinguish educational, vocational, personal and group guidance for skill development and employability.
CO3	Understand concept, purpose, types and skills of counselling for skill development and employability.
CO4	Analyze approaches and principles of counselling for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EDUCC201
Course Name	PHILOSOPHICAL AND SOCIOLOGICAL FOUNDATIONS OF EDUCATION-II

COs	Description
CO1	Understand the concept and educational implications of Indian schools of Philosophy for skill development.
CO2	Understand the concept and educational implications of Western schools of Philosophy for entrepreneurship development.
CO3	Understand national values as enshrined in India.
CO4	Understand the relationship of culture and education for skill development and employability.

Course Code	EDUCC202
Course Name	PSYCHOLOGICAL FOUNDATION OF EDUCATION-II

COs	Description
CO1	Understand the nature, concept and theories of intelligence for developing skills.
CO2	Understand theories of personality for developing skills.
CO3	Understand psychology and the needs of special children to meet their local needs and for developing entrepreneurial skill.
CO4	Understand concepts, and factors of social learning for developing employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EDUCC203
Course Name	METHODOLOGY OF EDUCATIONAL RESEARCH

COs	Description
CO1	Understand approaches of qualitative research in education for developing employability.
CO2	Grasp principles and steps of historical research for developing skills.
CO3	Develop understanding about survey research for developing entrepreneurship.
CO4	Understand about experimental and mixed method research for developing employability and entrepreneurship.

Course Code	EDUCC 204
Course Name	EDUCATIONAL MEASUREMENT AND EVALUATION-II

COs	Description
CO1	Understand the concept, types and factors of reliability for skill development.
CO2	Understand concept, types and factors of validity for skill development
CO3	Understand about the measurement of achievement, aptitude and interest and develop entrepreneurship.
CO4	Understand about innovative evaluative practices to meet national and global needs and for developing employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EDUCC 251
Course Name	Practicum: Tool Construction for Research
COs	**Description**
CO1	Identify a research tool and develop research tools to develop skills.
CO2	Describe characteristics of philosophical, psychological and sociological research tool and apply to educational research for skill development.
CO3	Explain and adopt different strategies of administration research tools for developing employability.

Course Code	EDUEC 205
Course Name	Education and Social Concerns
COs	**Description**
CO1	Understand about role of education in Indian society in relation to equity, equality and excellence to develop skills.
CO2	Make an analysis of emerging needs of Indian society for skill development.
CO3	Make a comparative analysis of impact of urbanization, westernization and globalization in education for skill development and employability.
CO4	Develop understanding about concerns and issues in education to meet national needs and sociological thoughts of thinkers for skill development.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	EDUEC 206
Course Name	Inclusive Education
COs	**Description**
CO1	Know and understand concept, meaning and importance of inclusive education.
CO2	Gain understanding about constitutional provisions for inclusive education in India for Skill development
CO3	Understand about advantages of inclusive education and emerging issues for developing entrepreneurship.
CO4	Develop understanding about issues regarding socially disadvantaged children to satisfy local needs.

Course Code	EDUEC 207
Course Name	ENVIRONMENTAL EDUCATION
COs	**Description**
CO1	To understand the concept of environmental education for skill development and employability.
CO2	Foster clear awareness of and concern about, economic, social, political and ecological interdependence in rural urban areas for skill development and employability
CO3	Acquire knowledge, values and skills to protect the environment for skill development and employability
CO4	Actively involved at all levels in working toward resolution of environmental problems for skill development and employability

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAED 311
Course Name	TEACHER EDUCATION

COs	Description
CO1	Impart an adequate knowledge of the subject matter for skill development and employability.
CO2	Enable the teacher to acquire understanding of child psychology for skill development and employability.
CO3	Develop proper attitudes towards teaching for skill development and employability.
CO4	Develop self confidence in the teachers for skill development and employability.

Course Code	MAED 312
Course Name	EDUCATIONAL TECHNOLOGY- I

COs	Description
CO1	Understand the concept of educational technology for skill development and employability.
CO2	Identify educational needs and aspirations of the community for skill development and employability.
CO3	Responsibility of educational technology for skill development and employability.
CO4	Manage the whole educational system so that national and global needs could be fulfilled for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAED 313
Course Name	SPECIAL EDUCATION

COs	Description
CO1	Do all round development in their personality for skill development and employability.
CO2	Make familiar with their abilities and capacities for skill development and employability.
CO3	Make yourself independent for skill development and employability.
CO4	Help in adjustment to the environment for skill development and employability.

Course Code	MAED 314
Course Name	ENVIRONMENTAL EDUCATION

COs	Description
CO1	To understand the concept of environmental education for skill development and employability.
CO2	Foster clear awareness of and concern about, economic, social, political and ecological interdependence in rural urban areas for skill development and employability.
CO3	Acquire knowledge, values and skills to protect the environment for skill development and employability.
CO4	Actively involved at all levels in working toward resolution of environmental problems for skill development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAED 315
Course Name	EDUCATIONAL ADMINISTRATION

COs	Description
CO1	Implies quantitative expansion and qualitative improvement of education so that local and national needs could be satisfied for skill development and employability.
CO2	Ensure adequate utilization of all resources for skill development and employability.
CO3	Ensure professional ethics and professional development among teachers for skill development and employability.
CO4	Mobilize the community for skill development and employability.

Course Code	MAED 411
Course Name	COMPARATIVE EDUCATION

COs	Description
CO1	Assist in the development of educational institutions for developing entrepreneurial skills.
CO2	Highlight the relationships between education and society for developing entrepreneurship.
CO3	Help the current generation, understand the nowadays education system with reference to the past for employability and skill development.
CO4	Describe educational system and process to develop skills.

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAED 412
Course Name	EDUCATIONAL TECHNOLOGY - II

COs	Description
CO1	Facilitate to improve education to meet national and global needs for developing employability and skill development.
CO2	Develop certain models leading to improvement of the process of teaching knowledge for Entrepreneurial Skills.
CO3	Plan the teaching strategies for skill development.
CO4	To understand the concept of communication for developing entrepreneurship.

Course Code	MAED 413
Course Name	CURRICULUM DEVELOPMENT

COs	Description
CO1	Embrace actions and the kinds of learning outcomes anticipated for skill development.
CO2	Have Goal imply References: values, judgments, priorities, emphases so as to develop skills.
CO3	Define the direction of educational development to satisfy national and global needs for developing entrepreneur skills.
CO4	Select content and desirable learning experience knowledge for skills.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAED 414
Course Name	VALUE EDUCATION AND HUMAN RIGHTS

COs	Description
CO1	Develop a sensible person with strong character and values for skill development.
CO2	Have right attitude and standards to face the outside world and know the real purpose of life for entrepreneur development.
CO3	Enhance the knowledge and understanding of human rights for skill development.
CO4	Develop skills for practicing human rights for employability and skill development.

Course Code	MAED 415
Course Name	CHILD DEVELOPMENT

COs	Description
CO1	Ensure each child is valued, respected, feels safe and secure for skill development.
CO2	Enable children for effective communication to develop skills.
CO3	Enable a sound foundation for physical and motor development of children for skill development.
CO4	Promote developmental and integration of the senses.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

IFTM UNIVERSITY

(Established under UP Govt. Act No. 24 of 2010 and section 2(f) of UGC Act 1956)
Lodhipur Rajput, Delhi Road, Moradabad- 244102, U.P.
Telephone: 0591-2360817, 2360818 Email: info@iftmuniversity.ac.in Website: www.iftmuniversity.ac.in

Course Code	MAED 416
Course Name	DISSERTATION and Viva-Voce

COs	Description
CO1	Identify key research questions within the field of Demography on which you will carry out independent research for skill development and employability.
CO2	Manage your time effectively whilst working on your independent research for skill development and employability.
CO3	Demonstrate appropriate referencing and develop skills in other aspects of academic writing for skill development and employability.
CO4	Demonstrate knowledge and understanding of report writing for skill development and employability.
CO5	Apply the demographic/statistical research training acquired in the taught element of the programme by designing an appropriate research strategy and research methodology to carry out your research for skill development and employability.
CO6	Use and develop written and oral presentation skills for skill development and employability.
CO7	Identify, summarize and critically evaluate relevant literature and write a literature review of the relevant field for skill development and employability.
CO8	Identify, analyses and interpret suitable data to enable the research question to be answered for skill development and employability.
CO9	Understand and apply theoretical frameworks to the chosen area of study for skill development and employability.
CO10	Show evidence of clarity of argument, understanding of the chosen topic area, and presentation of technical information for skill development and employability.
CO11	Describe the process of carrying out independent research in written format and report your results and conclusions with reference to existing literature for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO12	Analyses and synthesize research findings for skill development and employability.

Course Code	**MAED 417**
Course Name	**Population Education**
COs	**Description**
CO1	Embrace actions and the kinds of learning outcomes anticipated for skill development.
CO2	Have Goal imply References: values, judgments, priorities, emphases for Entrepreneurship development.
CO3	Define the direction of educational development to meet local and national needs for entrepreneur skills.
CO4	Select content and desirable learning experience for developing employability.

Course Code	**MAED 418**
Course Name	**Computer Education**
COs	**Description**
CO1	To understand the structure, function and characteristics of computer systems for skill development.
CO2	To explain the function of each element of a memory hierarchy for entrepreneurship development .
CO3	To identify the impact on processor design for skill development.
CO4	To understand the design of the various functional and components of computers for developing employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAED 419
Course Name	Elementary Education
COs	**Description**
CO1	To understand the concept and process of teaching – learning for skill development.
CO2	To design and develop ICT integrated learning resources to meet national and global needs for entrepreneurship development.
CO3	Develop awareness towards social concerns and social issues for skill development.
CO4	Understand various issues and concerns related to Assessment for learning for entrepreneurship skills.

Course Code	MAED 420
Course Name	Development of Learner and Teaching Learning Process
COs	**Description**
CO1	To understand the development of Indian Education during different ages for skill development.
CO2	Comprehend the development of Education in Colonial period for entrepreneurship development.
CO3	Comprehend the development of Education in different period for skill development.
CO4	Comprehend the development of Education in post-independent era for entrepreneurship skills.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAED 421
Course Name	Essential of Educational Technology and Administration

COs	Description
CO1	Understand the conceptual aspects involved in administration and management for skill development.
CO2	Ensure professional ethics and professional development so as to meet national and global needs for developing entrepreneurship.
CO3	Mobilize the community.
CO4	Understand critical process of educational management related to various levels of education thus developing employability.

Course Code	MAED 422
Course Name	Yoga Education

COs	Description
CO1	Understand the concept, aim and objective of yoga for skill development.
CO2	To understand the definition and objectives of human life according to Indian philosophy thus developing entrepreneurship.
CO3	Knowledge the kinds of yoga.
CO4	To understand the learning and effects of yoga practices for developing employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – M. ED

Course Code	MEDCC101
Course Name	PHILOSOPHICAL PERSPECTIVES OF EDUCATION

COs	Description
CO1	Know the meaning of philosophy and philosophical perspectives of educationfor skill development
CO2	Logically analyze, interpret and synthesize western schools of philosophy and educational thoughts of western thinkers
CO3	Develop insight about Indian schools of philosophy for skill development
CO4	Critically appraise educational contributions of Indian thinkers

Course Code	MEDCC102
Course Name	PSYCHOLOGICAL FOUNDATION OF EDUCATION-UNDERSTANDING LEARNER

Cos	Description
CO1	Develop an understanding of the basic concepts, methods and principles of Educational Psychology with reference to learning and teachingfor skill development and employability.
CO2	Develop an understanding about theories psychological schoolsfor skill development.
CO3	Develop an understanding about learners' growth and development and its characteristics
CO4	Develop an understanding of individual differences, personality and adjustmentsfor skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MEDCC103
Course Name	INTRODUCTORY METHODS OF EDUCATIONAL RESEARCH

Cos	Description
CO1	Explain and describe the meaning of Scientific Method, Scientific Inquiry, Paradigm, Theory and their implications for educational researchto develop skills.
CO2	Understand steps of conducting educational researchto develop skills and employability and thus satisfying national and global needs.
CO3	Develop understanding about selection of sample in educational researchfor skill development.
CO4	Understand research tools and statistical techniques for analysis of datafor the development of skills and employability.

Course Code	MEDCC104
Course Name	EUCATIONAL TECHNOLOGY AND ICTs

Cos	Description
CO1	Develop an understanding of the nature and scope of educational technology, stages and levels of teaching so as to develop skills and employability.
CO2	Understand about the role of major institutions of educational technology in India
CO3	Familiarize with the new trends and techniques and develop skills of the same in Education along with online learning so as to meet national and global needs and thus developing skills and employability.
CO4	Acquaint with the challenges and opportunities emerging in integrating new technology

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MEDEC105
Course Name	GUIDANCE AND COUNSELLING
COs	**Description**
CO1	Understand concept, need and principles of guidance programme.
CO2	Promote their knowledge about educational, vocational, individual and group guidancefor developing employability.
CO3	Develop understanding about types and techniques of counsellingfor developing employability.
CO4	Comprehend techniques of counseling of special children to meet their local needs and thus developing skills and employability.

Course Code	MEDEC106
Course Name	INCLUSIVE EDUCATION
Cos	**Description**
CO1	Know and understand concept, meaning and importance of inclusive education to develop skills.
CO2	Gain understanding about constitutional provisions for inclusive education in India
CO3	Understand about advantages of inclusive education and emerging issues for developing skills and employability.
CO4	Develop understanding about issues regarding socially disadvantaged children for developing skills and employability.

Sanjeev Branch

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MEDEC107
Course Name	CURRICULUM STUDIES
COs	**Description**
CO1	Be acquainted with basic concept, based and types of curriculumfor skill development and employability.
CO2	Develop understanding of basic principles of curriculum design and construction so as to develop skills and employability.
CO3	Develop knowledge and skills on evaluation of curriculum and developing employability.
CO-4	Be oriented towards models of curriculum evaluation for developing skills and employability.

Course Code	MEDCC201:
Course Name	SOCIOLOGICAL FOUNDATION OF EDUCATION
COs	**Description**
CO1	Understand nature and postulates of Indian society and Indian constitution
CO2	Gain understanding about emerging needs of Indian society
CO3	Understand impact of modernization, urbanization, westernization and globalization on education to develop skills.
CO4	Comprehend issues and concerned in education and social thoughts of thinkers to develop skills.

Sanjeev Dawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MEDCC202
Course Name	PSYCHOLOGICAL FOUNDATION OF EDUCATION-UNDERSTANDING TEACHING LEARNING PROCESS

Cos	Description
CO1	Understand teaching and learning process for satisfying local and national needs to develop skills and employability.
CO2	Gain understanding of behavioristic approach to learning to develop skills
CO3	Develop knowledge about Gestalt and cognitive approach of learning to develop skills
CO4	Understand different models of teaching

Course Code	MEDCC203
Course Name	ADVANCED METHODS OF EDUCATIONAL RESEARCH

Cos	Description
CO1	Gain understanding of new approaches of educational research
CO2	Understand the applications of statistical techniques in research for developing skills.
CO3	Develop competencies to use computer in data analysis so as to fulfill local needs.
CO4	Develop skills of writing research reports

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MEDCC204
Course Name	SOCIO- ECONOMIC PERSPECTIVES OF EDUCATION

COs	Description
CO1	Acquaint with sociological perspectives and concepts that deal with key aspects of social reality relevant to the study of education for developing skills.
CO2	Understand processes in social system and education to meet local needs for developing skills.
CO3	Gain understanding of social thinkers and their socio-economic implications
CO4	Comprehend education from cultural perspectives, and economics of education for the development of skills and thus developing national and global needs.

Course Code	MEDCC251
Course Name	RESEARCH PRAPOSAL AND REVIEW WRITING

COs	Description
CO1	Identify a research problem and develop research questions.
CO2	Write a review of the literature and draw meaningful inferences.
CO3	Describe characteristics of philosophical, psychological and sociological research paradigms as they apply to educational research.
CO4	Explain and adopt different strategies of research to solve educational problems.
CO5	Write scientific reports and research papers.
CO6	Acquire skills for evaluating and critiquing research in a meaningful way.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO7	Develop various types of research tools for data collection.
CO8	Develop an understanding of principles of quantitative and qualitative research methods.
CO9	Develop the vision to carry out qualitative and quantitative research.

Course Code	MEDEC205
Course Name	MEASUREMENT AND EVALUATION

COs	Description
CO1	Describe measurement and evaluation in the educational and classroom setting
CO2	Understand different types of tests, and construction of achievement steps for skill development and employability.
CO3	Develop understanding about measurement of personality, intelligence and attitude for skill development and employability and also fulfilling local needs.
CO4	Develop understanding of standardization and norms of test for skill development and employability.

Course Code	MEDEC206
Course Name	HUMAN RIGHTS AND VALUE EDUCATION

COs	Description
CO1	Develop conceptual and theoretical understanding of human rights to develop skills.
CO2	Understand human rights in national and international context for the development of skills and thus fulfilling national and global needs.
CO3	Develop understanding about role of teachers in human rights education so as to develop skills.

Sanjeev Bhardwaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand concept and need of value education

Course Code	**MEDEC207**
Course Name	**FUTUROLOGY OF EDUCATION**

COs	Description
CO1	Develop an insight about concept and importance of future studies in education so as to develop skills.
CO2	Become aware about value crisis in future perspectives and future of education for the development of skills and thus satisfying national and global needs.
CO3	Have awareness about future of elementary, secondary and higher education system the development of skills.
CO4	Develop skills and understanding about role of national and international organizations in futurizing education and future of ICT in education to meet national and global needs.

Course Code	**MED311**
Course Name	**HISTORICAL AND POLITICAL PERSPECTIVES OF EDUCATION**

Cos	Description
CO1	Provide an exposure to the historical development of the education system in India.
CO2	Draw from the historical perspectives, the course would attempt to provide an understanding of the linkage between colonial political factors and forces which shaped modern institutional development of education.
CO3	Provide an exposure to the political perspective and transformative role of education.
CO4	Drawing from the theoretical and philosophical perspectives, the course would attempt to provide an understanding of the linkage between education, state and democracy, role of education in citizenship building and in expanding the realm of freedom, rights, claims and entitlementsfor

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	developing skills and employability.
CO5	Provide an exposure to the issues of educational planning in its political perspectives and methods, modes of educational planning and issues in financing of educationto satisfy national needs and developing skills and employability.

Course Code	MED312
Course Name	PERSPECTIVE, RESEARCH AND ISSUES IN TEACHER EDUCATION

COs	Description
CO1	Students will be able to understand Perspectives & Policies of Teacher Education Programmes with reference to – Approaches &Policies for skill development.
CO2	Structure, Management of Teacher Education & factors influencing quality of Teacher Education so as to develop skills and employability.
CO3	Students will be able to review the researchers conducted on effectiveness of teacher education programme & analyze its trends.
CO4	Students will be able to know about various challenges in professional development of teachers & partnership involvein secondary teacher education for the development of skills and employability.

Course Code	MED313
Course Name	TESTING, MEASUREMENTAND EVALUATION IN EDUCATION

COs	Description
CO1	Develop an understanding of principles of quantitative and qualitative methods
CO2	Develop an understanding of principles of data analysis and interpretationto develop skills and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Develop the vision to carry out qualitative and quantitative research for developing skills.
CO4	Apply important qualitative and quantitative statistical techniques for analyzing and interpreting research datafor developing skills and employability.
CO5	Use computers to code and analyze data.Develop the vision to CCE, formative and Summative evaluation system for developing skills and employability.

Course Code	MED314
Course Name	ADMINISTRATION AND MANAGEMENT OF ELEMENTARY EDUCATION IN INDIA

Cos	Description
CO1	Be familiar with the concept of school as a social system and as an organization
CO2	Understand Indian school structure and its specific characteristics. the administrative mechanism to develop skills toeffectively operate schools in the country
CO3	Identify and comprehend the role of various agencies like CABE, NCERT, SCERT, DIETs in functioning of schools at different level so as to develop skills and employability.
CO4	Comprehend the essential components of a school, their role and significance for the development of skills and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MED315
Course Name	ASPECTS, PLANNING & MANAGEMENT AT SECONDARY & SENIOR SECONDARY LEVEL OF EDUCATION

Cos	Description
CO1	Enable the students to comprehend and critically examine the changes in policies and practices in secondary level curriculum in Independent India.
CO2	Enable the students to analyse the policies and practices in secondary level curriculum after independence with regard to national aspirations (Indian Constitution)to develop skills.
CO3	Enable the students to compare the policies and practices in secondary level curriculum of South East Asian countries, (China, Japan), European countries (Norway) and USA.
CO4	Analyse the status of secondary education in India for developing skills and employability.
CO5	Trace out the prevailing hindrances in universalization and quality sustainance.

Course Code	MED351
Course Name	PREPARATION OF SYNOPSIS (PRACTICUM)

Cos	Description
CO1	Identify a research problem and develop research questions.
CO2	Write a review of the literature and draw meaningful inferences.
CO3	Describe characteristics of philosophical, psychological and sociological research paradigms as they apply to educational research.
CO4	Explain and adopt different strategies of research to solve educational problems.
CO5	Write scientific reports and research papers.
CO6	Acquire skills for evaluating and critiquing research in a meaningful way.

Sanjeev Bhau
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO7	Develop various types of research tools for data collection.
CO8	Develop an understandingand skills of principles of quantitative and qualitative research methods.
CO9	Develop the vision to carry out qualitative and quantitative research.

Course Code	**MED352**
Course Name	**FIELD BASED ADMINISTRATION OF RESEARCH TOOLS (PRACTICUM)**

Cos	Description
CO1	Identify a research tools and develop research tools.
CO2	Describe characteristics of philosophical, psychological and sociological research tool and apply to educational research.
CO3	Explain and adopt different strategies of administration research tools.

Course Code	**MED411**
Course Name	**EDUCATIONAL MANAGEMENT, ADMINISTRATION AND LEADERSHIP**

Cos	Description
CO1	The student demonstrates knowledge in relevant significant domains in educational leadership and higher education, including areas such as historical, political, social, legal, and economic contexts in which educational systems operate for developing skills.
CO2	The student demonstrates proficiency in incorporating an understanding of issues relating to social justice, democracy, and equity into professional practice and thus satisfying local and national needs.
CO3	The student demonstrates proficiency in critical and analytical thinking.The student demonstrates proficiency in oral communication skillsfor the skill development and employability.
CO4	The student demonstrates proficiency in written communication skills.The

Sanjay Dave
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	student demonstrates an ability to use scholarly research to improve professional practicefor skill development and employability.

Course Code	MED412
Course Name	SOCIO-ECONOMIC PERSPECTIVES OF EDUCATION

Cos	Description
CO1	To acquaint students with sociological perspectives and concepts that deal with key aspectsof social reality relevant to the study of education. To enable students to understand how the 'Education' is embedded in social structure and culture for skill development.
CO2	To enable students to understand education as a social institution and its complex linkages with other major social institutions for developing skills.
CO3	To enable students to understand educational problems and issues related to educationally excluded / disadvantaged groups, deriving out of intersections of gender, caste, class, culture, ethnicity, disability.
CO4	To enhance capacities of students for the critical evaluation of the role of education in social change and for sociological reflection on educational issues to meet local and national needs and also developing skills for the same.

Course Code	MED413
Course Name	ISSUES & CURRICULAR CONCERNS AT SECONDARY AND SENIOR SECONDARY LEVEL OF EDUCATION

Cos	Description
CO1	To enable the students to comprehend and critically examine the changes in policies and practices in secondary level curriculum in Independent Indiafor developing skills and employability.
CO2	To enable the students to analyze the policies and practices in secondary level curriculum after independence with regard to national aspirations

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	(Indian Constitution)for developing skills and employability.
CO3	To enable the students to compare the policies and practices in secondary level curriculum of South East Asian countries, (China, Japan), European countries (Norway) and USA.To analyse the status of secondary education in Indiafor developing skills and employability.
CO4	To trace out the prevailing hindrances in universalization and quality sustenance. To identify the issues and concerns in secondary education and qualitatively trace out the reasons and visualize their solutions to develop skills and employability.

Course Code	**MED414**
Course Name	**ISSUES & CURRICULAR CONCERNS AT ELEMENTARY LEVEL OF EDUCATION**

Cos	Description
CO1	Be familiar with the concept of school as a social system and as an organization. Understand Indian school structure and its specific characteristics for skill development.
CO2	Visualize the administrative mechanism to effectively operate schools in the country. Identify and comprehend the role of various agencies like CABE, NCERT, SCERT, DIETs in functioning of schools at different levels for the development of skills and employability.
CO3	Comprehend the essential components of a school, their role and significance for the development of skills and employability.
CO4	Assessment in Elementary Education. Understand pedagogical analysis for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MED451
Course Name	SEMINAR AND WORKSHOP (PRACTICUM)

Cos	Description
CO1	Meet curriculum requirements for the class.Knowledge and develop teaching and training skills.
CO2	Understand fun, interactive and hands on opportunities to enhance learning.
CO3	Understand cater for different learning styles and learning needs.
CO4	Know all the resources for an event to remember. Understand inclusive activities accessible to all.

Course Code	MED452 - DISSERTATION AND VIVA VOCE
Course Name	PEDAGOGY OF BIOLOGICAL SCIENCE-PART-II

Cos	Description
CO1	Identify key research questions within the field of Demography on which you will carry out independent research.
CO2	Manage your time effectively whilst working on your independent research.
CO3	Demonstrate appropriate referencing and develop skills in other aspects of academic writing.
CO4	Demonstrate knowledge and understanding of report writing.
CO5	Apply the demographic/statistical research training acquired in the taught element of the programme by designing an appropriate research strategy and research methodology to carry out your research.
CO6	Use and develop written and oral presentation skills.
CO7	Identify, summarize and critically evaluate relevant literature and write a literature review of the relevant field.
CO8	Identify, analyse and interpret suitable data to enable the research question

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	to be answered.
CO9	Understand and apply theoretical frameworks to the chosen area of study.
CO10	Show evidence of clarity of argument, understanding of the chosen topic area, and presentation of technical information.
CO11	Describe the process of carrying out independent research in written format and report your results and conclusions with reference to existing literature.
CO12	Analyse and synthesize research findings.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – MASTER OF ARTS IN ENGLISH

Course Code	Course Code: ENGCC101
Course Name	Course Name: Poetry-I (Chaucer to 1798)
COs	**Description**
CO1	Define 'frame narrative' and explain its use in The Canterbury Tales, identify the key characters style and language in the Prologue to The Canterbury Tales and to Identify Geoffrey Chaucer and describe the time period in which he wrote The Canterbury Tales for skill development.
CO2	Develop sufficient ability for reading and understanding Elizabethan English to allow for better comprehension of Shakespeare's poems and sonnets for employability.
CO3	Have in-depth knowledge of Milton and his epic poem Paradise Lost and Spencer's Fairy Queen through close reading and to explore the poem's main thematic concerns and poetic qualities for developing skills.
CO4	Understand a new genre Metaphysical Poetry and its prominent poets through their writing at global level to inculcate skills.

Course Code	Course Code: ENGCC102
Course Name	Course Name: Prose
COs	**Description**
CO1	Evaluate and analyze Essays critically and to understand them in different contexts for developing skills.
CO2	Explore the major trends, aspects and periodicals in English prose at global level to inculcate analytical skills.
CO3	Have awareness of socio-political and economic conditions of the society from different periods through essays for enhancing skills and employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand poets through the lance of essayists for developing skills.

Course Code	**Course Code: ENGCC103**
Course Name	**Course Name: Shakespearean Drama**

COs	**Description**
CO1	Summarize, identify key characters, analyse the themes present in the plays and to learn historical contexts, psycho-social aspects and discern the various cultural and moral values associated with the texts at national and global level for better skills and employability.
CO2	Have in-depth knowledge of the plays especially tragedy, play with in play, themes, plot, characters etc. to develop skills.
CO3	Develop sufficient ability for reading skill and understanding Elizabethan English to allow for better comprehension of the plays.
CO4	Understand themes, techniques and to have knowledge of the political, economic, social and intellectual background to study the works as representation of the age to enrich skills and employability.

Course Code	**Course Code: ENGCC104**
Course Name	**Course Name: Fiction**

COs	**Description**
CO1	Acquaint with the major novelists in English Literature at global level through a study of the novels representative of the age for skill development and employability.
CO2	Interpret, analyse and evaluate works of fiction in the perspective of literary history and theory for enhancing skills.
CO3	Know various cultures and construction of gender, nation, race, themes and techniques for skill development.
CO4	Understand the perspective of literary history through novels and novelists

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	to inculcate skills and employability.

Course Code	**Course Code: ENGEC105**
Course Name	**Course Name: Gender Studies**

COs	Description
CO1	Have knowledge of gender theory, its evolution through the works for enhancing skills.
CO2	Interpret a text and evaluate themes and techniques and to have knowledge of social change through the lens of gender for skill development and employability.
CO3	Understand concepts and arguments related to gender, women and sexualities at local, national and global level to develop skills.
CO4	Understand feminism and apply feminist and related theories, methodologies and methods for skill development and employability.

Course Code	**ENGEC106**
Course Name	**Literature of Indian Diaspora**

COs	Description
CO1	AcquaintwithknowledgeofIndianDiasporawritersandtheirworks for skill development.
CO2	Haveabroadoutlookondiasporaliterature and understand themes, plot, characters etc. at national and global level for enhancing skills.
CO3	Understandandestimatethediversepaths,theIndianculturehastakenintheeraofm ulticulturalism for employability.

Santosh Nawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understand the issues of diaspora, location, history and geography in literature and an awareness of the relationship between literary texts and their historical, political and cultural contexts at national level for enhancing skills.

Course Code	**ENGEC107**
Course Name	**Postcolonial Literature and Theory**
COs	**Description**
CO1	Learn about a wide range of topics, including: the migration of people in the aftermath of the colonial encounter; trans-Atlantic slavery, the apartheid regime and its aftermath and the Algerian struggle for liberation at national level for enhancing skills.
CO2	Think about diverse forms of anti-colonial resistance; the power and limits of anti-colonial nationalisms; the exclusions of nationalist discourse; the gendering of nations and the patriarchal construction of women as emblems of the nation for employability.
CO3	Have critical introduction to the fascinating yet highly contested field of postcolonial literatures and theory for enhancing skill development and employability.
CO4	Evaluate critically these texts in relation to postcolonial theory for enhancing analytical skills.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ENGEC108
Course Name	Comparative Literature And Translation

COs	Description
CO1	Know how to read closely, critically and deeply at least two different languages at national and global level to enhance skills.
CO2	Be familiar with a broad range of literary texts written in one language and with a more limited range of texts written in a second language for enriching skills.
CO3	Have the basic knowledge of periods in the history of one literary tradition and have at least some preliminary acquaintance with a second for skill development and employability.
CO4	Have a critical and aesthetic appreciation of a variety of literary modes, genres and uses of figurative language and to know how to construct written arguments grounded in textual evidence and strengthened by research for employability.

Course Code	ENGEC109
Course Name	Canadian Literature

COs	Description
CO1	Critically interacts with works from different contexts: social, political, economic, historical and national subjects conscious of their own socio-historic specificity at global level and thus their level of critical thinking is enhanced.
CO2	Form an idea of the complex nature of literary studies and how they are entangled with other aspects of the social body to enrich skills.
CO3	Analyse these works from the political, historical and sociological perspectives for better skills and employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Have knowledge of different authors' work and their styles for skill enhancement.

Course Code	**ENGEC110**
Course Name	**Fourth World Literature**
COs	**Description**
CO1	Use critical thinking skills to gain insight into the cultural, historical and literary contexts of major Western and non-Western works at national and global level.
CO2	Explain the diversity of cultures and the commonalities of human experience reflected in the literature of the fourth world at global level for developing skills.
CO3	Examine oneself and one's culture through multiple frames of reference including the perception of others from around the world for enhancing skills and employability.
CO4	Demonstrate an awareness of the tools of literary analysis including knowledge of appropriate terminology and of literary criticism to inculcate skills.

Course Code	**ENGEC111**
Course Name	**English for Specific Purposes**
COs	**Description**
CO1	Write analytically and creatively to express ideas clearly and incisively in their writing in ways required both inside and outside of the academy at local, national and global level for skill enhancement and employability.
CO2	Hones the writing skills and learns the conventions of academic writing, develop skills that enable them to communicate effectively in writing and present ideas clearly and logically to achieve a specific purpose and to be appropriate for an intended audience.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Interpret and explore relationships from the points of view of different people, heighten their awareness of correct usage of English grammar in writing at national and global level and to present their ideas clearly and logically to achieve a specific purpose for enhancing compositional skills.
CO4	Use effectively a range of writing, reading and strategies applicable to multiple disciplines for skill development and employability.

Course Code	**ENGCC201**
Course Name	**Poetry-II**
COs	**Description**
CO1	Understand poetry from various cultures, languages and historic periods from romantic period to contemporary period at global level for skill development and employability.
CO2	Appreciate and critique poetry as a literary art and its various elements of poetry to enrich skills.
CO3	Have thorough knowledge of representative Victorian poets and poetry for skill development.
CO4	Know about themes, techniques, genre etc. of Victorian poets & poetry and Pre-Raphaelite Movement for enhancing skills and employability.

Course Code	**ENGCC202**
Course Name	**British Drama**
COs	**Description**
CO1	Appreciate ambiguity and complexity and to articulate their own interpretations with an awareness and curiosity for other perspectives globally for developing skills.
CO2	Have knowledge of major genres of British Drama like Comedy of Manners for skill enhancement.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand Problem plays and Jacobean Revenge Tragedy thoroughly for inculcating skills and employability.
CO4	Do psychological study of the confluence of power, allegiance, innocence and corruption and to understand the influence of Ibsen's work and *A Doll's House* in particular on Western drama both thematically and structurally, examine gender expectations in marriage and society both in Ibsen's time and in the present and Identify and understand symbols, metaphors and allegories in *the plays for developing skills.*

Course Code	**ENGCC203**
Course Name	**American Literature**
COs	**Description**
CO1	Get the glimpse of American Literature, Culture, Theory etc. for enhancing skills.
CO2	Have an awareness of the social, historical, literary and cultural elements of the changes in American literature by identifying and describing distinct literary characteristics of American literature for skill development and employability.
CO3	Analyze and evaluate literary works of eminent American writers to develop skills.
CO4	Gain an understanding of how society, culture and politics affect American literature and have an idea of the intense masculinity and adventurous & widely publicized life nationally to enrich skills and employability.

Course Code	**ENGCC204**
Course Name	**Indian English Literature**
COs	**Description**
CO1	Have awareness of social, political and cultural issues reflected in Indian writing in English to inculcate skills.
CO2	Learn the values of spiritual refinement in human life at national level for

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	skill development and employability.
CO3	Understand how well the Indian culture is reflected in Literature for enhancing skills.
CO4	Be familiar with the Rise of the Indian Novel, different kinds of freedom and how one's perception of freedom influences the identity for skill development.

Course Code	**ENGEC205**
Course Name	**Feminism: Concepts and Theories**
COs	**Description**
CO1	Have knowledge of three waves of feminism, gender inequality, gender politics, power relations, promotion of women's national and global rights and interests and reimagining of the world-famous Indian epic, the Mahabharat—told from the point of view of an amazing woman to enhance skills and employability.
CO2	Have knowledge of different terms of feminism, a balanced view of feminism as a reaction to oppression and abuse and to know how sex is used symbolically in literature at national and global level, the purpose of the dystopian perspective in literature for skill development and employability.
CO3	Understand different types of theories and gender discrimination nationally through the works of Mahesh Dattani for enriching skills.
CO4	Have knowledge of key concepts of Feminism for inculcating skills.

Course Code	**ENGEC206**
Course Name	**Translation Studies**
COs	**Description**
CO1	Get first-hand knowledge of Indian literature translated in English and to shape their understanding of translated literature, its history, philosophy

Sanjeev Dwivedi
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	and politics for enhancing skills and employability.
CO2	Have knowledge of Greek poet, Greek Literature, Greek History and Trojan War- a legendary conflict between an alliance of Greek cities and the city of Troy for developing skills.
CO3	Know about Sanskrit Literature through the work of great author for enriching knowledge and skills.
CO4	Have in-depth knowledge of Rasa that signifies aesthetic pleasure or the thrill of joy invariably accompanying a skilful enactment of a play, rendered highly appealing through excellent poetry, music and action through the work of Barat Muni for inculcating skill development and employability.

Course Code	**ENGEC207**
Course Name	**World Literature**
COs	**Description**
CO1	Use critical thinking skills to gain insight into the cultural, historical and literary contexts of major Western and non-Western works.
CO2	Explain the diversity of cultures and the commonalities of human experience reflected in the literature of the world for enhancing skills and employability.
CO3	Examine oneself and one's culture through multiple frames of reference including the perception of others around the world for employability.
CO4	Know about Colombian author *Gabriel García Márquez* that tells the multi-generational story of Russian playwright *Anton Chekhov whose play deals with Social Change for skill development.*

Sanjeev Sharma
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ENGEC208
Course Name	Nineteenth Century Novel

COs	Description
CO1	Understand and discuss the novels of the period and the different forms at national and global level for enhancing skills.
CO2	Analyse and discuss fiction and particularly the novel form for employability.
CO3	Understand how the national as well as global novelists of the period contributed in various different ways to the development of the novel at global level to enrich their skills.
CO4	Get the necessary critical faculties, analytical approach and analytical, interpretative and inference skills for a successful understanding of literature in general, fiction and the novel in particular for skill development and employability.

Course Code	ENGEC209
Course Name	Non- British Literature

COs	Description
CO1	Have awareness of these literary periods and the trends of each at global level for enriching their skills.
CO2	Introduce a bunch of English poetry; drama; prose and fiction to inculcate skills.
CO3	Introduce works of different authors and their styles for enhancing employability.
CO4	Make them known how culture made changes to English language from time to time nationally and globally for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	ENGEC210
Course Name	**African and Caribbean Literature**
COs	**Description**
CO1	Read and analysed some of the most significant pieces from African and Caribbean Literature and the socio-political aspects at global to boost skills.
CO2	Know the theories that have shaped this genre of literature globally since its advent in the literary arena for employability.
CO3	Have a comprehensive understanding of the African and Caribbean Literature for better skills and employability.
CO4	Acquire the required knowledge to pursue further studies/research in English at local, national and global level for enhancing employability.

Course Code	ENGEC211
Course Name	**English for Employability**
COs	**Description**
CO1	*Improve the communication skills* to face their job interviews for getting a job at local, national and global level.
CO2	Write analytically and creatively to express ideas clearly and incisively in their writing in ways required both inside and outside of the class for skill enhancement and employability.
CO3	Use effectively a range of writing, reading and strategies applicable to multiple disciplines for enriching Skills and employability.
CO4	Improve employment skills, soft skills, work-readiness skills or foundational skills and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MEG301
Course Name	Literary Criticism and Theory

COs	Description
CO1	Acquaint with the history of English criticism in terms of teaching of certain important texts and ideas of everlasting significance ingrained in them for better skills and employability.
CO2	Gain knowledge for analysing critically a work of art.
CO3	Understand different aspects of literary studies known as theory to develop their analytical skills.
CO4	Get the concept of structuralism and post structuralism and sensitise the importance of feministic movement and its impact on society at global level for skill development and employability.

Course Code	MEG302
Course Name	Ages and Movements in English Literature

COs	Description
CO1	Know about literary periods and movements at global level through history to inculcate skills and employability.
CO2	Use content-specific vocabulary to compare literary periods to boost comparative and analytical skills.
CO3	Have examples of authors and literary works from each literary period to enrich their skills.
CO4	Discuss the innovations and perspectives of each literary period for better employability.

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MEG303
Course Name	Modernist Movement

COs	Description
CO1	Analyse the various elements of poetry such as diction, tone, form, genre, imagery, figures of speech, symbolism, theme, etc at national and global level for skill development and employability.
CO2	Improve their understanding of the modern authors for skill development.
CO3	Apply the principles of literary criticism to analyse poetry to enrich skills.
CO4	Raise significant questions, gather relevant evidence, reach well-reasoned conclusions, weigh alternative systems of thought and write as means of intellectual inquiry and creative expression for skill development and employability.

Course Code	MEG304-I
Course Name	Women's Writing

COs	Description
CO1	Have basic understanding of concepts like, Sex and Gender; Women's Liberation Movement; Feminisms; Women and the Canon with reference to the appropriate text sat national and global level for skill development and employability.
CO2	Study a selection of novels that focus on women's lives and reflect on what it means to be a woman and feminist from various sexual, racial, class and national perspectives to boost skills.
CO3	Know some of the developments, them and narrative strategies of women writing to enrich skills.
CO4	Analyse literary texts through the national and global perspectives of gender, knowing the central points of a selection of feminist theory and use

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	it as a context for reading literary texts for employability.

Course Code	**MEG304-II**
Course Name	**Environment & Literature**

COs	**Description**
CO1	Know serious ecocriticism issues represented in literature at global level for better skills.
CO2	Have knowledge of the relationships between nature and literature at national and global level for skill development.
CO3	Study, investigate and understand environmental concerns in literature for enhancing employability.
CO4	Get environmental history-the idea that environments change over time nationally and globally to enrich skills.

Course Code	**MEG304-III**
Course Name	**Absurd Drama**

COs	**Description**
CO1	Get ideas of existentialism and express what happens when human existence lacks meaning or purpose and communication breaks down for skill development.
CO2	Know that logical construction and argument give way to irrational and illogical speech and to the ultimate conclusion—silence to enhance skills.
CO3	Have idea that plays categorized in this movement typically represent human existence as non-sensical and often chaotic to enrich skills and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Know the meaning, characteristics and prominent national and global authors of absurd drama to inculcate skills.

Course Code	**MEG304-IV**
Course Name	**Translation Studies**

COs	**Description**
CO1	Get a glimpse of Indian contribution to literature in English at global level to enrich skills.
CO2	Understand the issues raised by Diaspora movement across the globe for skills and employability.
CO3	Have the knowledge of the native varieties of literature-the range of texts taken from different language-literatures for inculcating values and analytical skills.
CO4	Have knowledge of different literature at local, national and global level for skill development.

Course Code	**MEG401N**
Course Name	**Trends and Movements in English Literature (Post World War-II)**

COs	**Description**
CO1	Know poetry of the personal or "I", focusing on extreme moments of individual experience, the psyche and personal trauma, including previously and occasionally still taboo matters such as mental illness, sexuality and suicide, often set in relation to broader social themes at national level to enrich skills and employability.
CO2	Have the knowledge of new genres of drama after WW-II for skill development.
CO3	Understand different tends and genre of fiction like Science fiction, Spy fiction, Fantasy and Travelogue for employability.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Get the deep insight into different literary theories emerged globally after WW-II to boost the skills.

Course Code	**MEG402**
Course Name	**Commonwealth Literature**
COs	**Description**
CO1	Understand Apartheid and its effects on Black people in South Africa, as well as the impact of marital unfaithfulness on families and the State of Emergency to have basic understanding and skills.
CO2	Know Diaspora Literature, Cultural Clash, Quest for identity at global level to inculcate skills.
CO3	Have an idea of India's transition from British colonial rule to independence and the partition of India and postcolonial, postmodern and magical realist literature for skill development.
CO4	Describe the culture of the Igbo people, the impact of British colonization, compare the expected roles of each gender and explain the significance of Okonkwo's hyper-masculinity and list characteristics that form the basis of an ideal family according to the Igbo and to know the effects of upheaval and bloody revolution, documenting a search for an independent identity- National, female, Canadian and nature, duality and metamorphosis through the writers and their works for skill development and employability.

Course Code	**MEG403-I**
Course Name	**Social Concerns in Indian Writing in English**
COs	**Description**
CO1	Analyse literary problems in a way that reflects insight into the distinctive historical, traditional and social situatedness of English literature as an academic discipline at national level for employability.
CO2	Have deep knowledge of social issues reflected in the works of English to

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	enrich skills.
CO3	Know social problems of Indian society delineated by the Indian English writers for better understanding and developing skills.
CO4	Know different social vices presented in the society in different centuries through the poetry through analytical skill and employability.

Course Code	**MEG403-II**
Course Name	**English Language Teaching**
COs	**Description**
CO1	Heighten their awareness of correct usage of English grammar in writing and speaking for better employability at national as well as global level.
CO2	Improve their speaking ability in English both in terms of fluency and comprehensibility.
CO3	Strengthen their ability to write academic papers, essays and summaries using the process approach.
CO4	Attain and enhance competence in the four modes of literacy: writing, speaking, reading and listening to get attractive employment.

Course Code	**MEG403-III**
Course Name	**World Literature**
COs	**Description**
CO1	Use critical thinking skills to gain insight into the cultural, historical and literary contexts of major Western and non-Western works.
CO2	Explain the diversity of cultures and the commonalities of human experience reflected in the literature of the world for employability.
CO3	Examine oneself and one's culture through multiple frames of reference including the perception of others from around the world for enriching skills and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Demonstrate an awareness of the tools of literary analysis including knowledge of appropriate terminology and of literary criticism for skill enhancement.

Course Code	**MEG403-IV**
Course Name	**Dissertation**
COs	**Description**
CO1	Develop deeper knowledge, understanding, capabilities and attitudes in the context of the programme of study for skill development.
CO2	Plan and use adequate methods to conduct qualified tasks in given frameworks and to evaluate the work at national and global level for employability.
CO3	Have a holistic view to critically, independently and creatively identify, formulate and deal with complex issues at local, national and global level for employability.
CO4	Contribute to research and development work to get employment.

Course Code	**MEG404**
Course Name	**Viva-Voce**
COs	**Description**
CO1	Confirm what they understand and what they have studied and to defend that verbally for effective communication.
CO2	Have a sound base in English language and Literature for employability.
CO3	Judge their presence of mind, arrangement of words and enhance communicative English.
CO4	Demonstrate their ability to participate in academic discussion with research colleagues at national and global level to enhance employability.

Sanjeev Dawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – M.A. (HINDI)

Course Code	HINCC101
Course Name	हिन्दी साहित्य की ऐतिहासिक परम्परा

COs	Description
CO1	हिन्दी साहित्य के अध्ययन से छात्र कवि, लेखक तथा हिन्दी नाटक और सिनेमा में भी भाग्य आजमा सकते है।
CO2	किसी भी भाषा का साहित्य मनुष्य को मनुष्य बनाए रखने की क्षमता रखता है।
CO3	समाज को साहित्य से ज्ञान की प्राप्ति होती है।इसके द्वारा विद्यार्थियों में लेखन विकास को बढ़ाना है।
CO4	साहित्य में विज्ञान के साथ साथ दर्शन आदि का ज्ञान भी प्राप्त होता है। जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।

Course Code	HINCC102
Course Name	पूर्वमध्यकालीन काव्य

COs	Description
CO1	समाज को साहित्य से ज्ञान की प्राप्ति होती है।
CO2	साहित्य की अनेक विधाएँ होती है जैसे कि कहानी, नाटक, उपन्यास आदि।
CO3	साहित्य में विज्ञान के साथ साथ दर्शन आदि का ज्ञान भी प्राप्त होता है।
CO4	किसी भी भाषा का साहित्य मनुष्य को मनुष्य बनाए रखने की क्षमता रखता है।जो विद्यार्थियों में कौशल का विकास करती है। और राष्ट्रीय स्तर पर एक स्वस्थ समाज के निर्माण में साहित्य के महत्व को समझें।

Course Code	HINCC103
Course Name	उत्तर मध्यकालीन काव्य

COs	Description
CO1	काव्य में शब्द योजना, शैली, छंद, अलंकार और कल्पना, मूर्त –अमूर्त एवं जड़–चेतन आदि का ज्ञान होता हैं।
CO2	स्वयं पढ़कर काव्य के मुख्य भाव और अर्थ को समझाना । और रोजगार के अवसर उपलब्ध कराना हैं।

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	कल्पना शीलता को बढ़ाना जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।
CO4	काव्य में एक विधा के रूप में परिचित होना और उसकी खासियतें जानना।

Course Code	**HINCC104**
Course Name	**प्रयोजनमूलक हिन्दी**

COs	**Description**
CO1	केंद्र के कार्यालयों से लेकर दूतावासों तक में अधिकारी, कर्मचारी बनने के अवसर प्राप्त होता है।
CO2	आकाशवाणी, दूरदर्शन आदि में अनुवादक, संपादक, समाचार दाता आदि के रूप में रोजगार प्राप्त कर सकते है। जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।
CO3	बैंकों आदि अनेक संस्थाओं में हिन्दी अधिकारी के रूप में नियुक्तियाँ हासिल कर सकते है।
CO4	प्रयोजन मूलक हिन्दी के द्वारा छात्रों को एक नया मार्ग दिखा सकते है।

Course Code	**HINEC105**
Course Name	**व्यावहारिक हिन्दी पत्रकारिता और अनुवाद**

COs	**Description**
CO1	केंद्र के कार्यालयों से लेकर दूतावासों तक में अधिकारी, कर्मचारी बनने के अवसर प्राप्त होता है।
CO2	आकाशवाणी, दूरदर्शन आदि में अनुवादक, संपादक, समाचार दाता आदि के रूप में नौकरियाँ प्राप्त होती है।
CO3	बैंकों आदि अनेक संस्थाओं में हिन्दी अधिकारी के रूप में रोजगार प्राप्त कर सकते है।
CO4	अनुवाद के प्रकार जैस साहित्य अनुवाद, आधिकारिक या तकनीकी अनुवाद के बारे में ज्ञान प्रदान करना जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	HINEC106
Course Name	हिन्दी साहित्य की अन्य गद्य विधाएं

COs	Description
CO1	गद्य की विविध विधाओं का स्वरूप स्पष्ट कर सकेंगे।
CO2	गद्य की विविध विधाओं में अंतर कर सकेंगे।
CO3	नवीन विधाओं का परिचय दे सकेंगे ।जो विद्यार्थियों के रोजगार उपलब्ध करायेगा और राष्ट्रीय स्तर पर एक स्वस्थ समाज के निर्माण में साहित्य के महत्व को समझें।
CO4	हिन्दी गद्य की सभी विधाओं का सम्यक ज्ञान प्राप्त कर सकेगें।

Course Code	HINEC107
Course Name	हिन्दी दलित विमर्श और साहित्य

COs	Description
CO1	इससे हम सभी दलित जाति के मनुष्यों के अनुभवों , कष्टों और संघर्षों के बारे में जानकारी प्राप्त कर सकेंगें।
CO2	हिन्दी गद्य की सभी विधाओं का सम्यक ज्ञान प्राप्त कर सकेंगें ।
CO3	स्वयं पढ़कर काव्य के मुख्य भाव / अर्थ को समझ सकेंग और रोजगार के अवसर प्राप्त कर सकेंगें।
CO4	कल्पना शीलता को बढ़ाना जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।

Course Code	HINCC201
Course Name	भारतीय साहित्य

COs	Description
CO1	हिन्दी भाषा की उपयोगिता को बढ़ाना एवं लेखन कौशल का विकास करना। जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।
CO2	हिन्दी साहित्य का मौलिक एवं अनूदित से परिचय होता है।
CO3	अग्नि गर्भ में सामंती कृषि व्यवस्था, किसानों का जीवन संघर्ष का आदि के बारे में जानकारी प्राप्त करना है।
CO4	गीतांजली का मुख्य परिणाम शिक्षण पद्धतियों का अध्ययन कर शान्ति निकेतन को लाभ पहुंचाना था।

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	HINCC202
Course Name	भाषा विज्ञान एवं हिन्दी भाषा

COs	Description
CO1	भाषा की वर्तमान स्थिति और समस्याएँ के बारे में जानकारी प्राप्त कर भाषा विज्ञान एवं भाषा शास्त्र में अंतर प्राप्त करना। तथा लेखन कौशल तथा रोजगार के अवसर उपलब्ध कराता है।
CO2	कार्यालयों में प्रयुक्त होने वाली हिन्दी भाषा का समग्र ज्ञान प्राप्त करना।
CO3	हिन्दी भाषा की उपयोगिता को बढ़ाना जो राष्ट्रीय स्तर पर एक स्वस्थ समाज के निर्माण में साहित्य के महत्व को समझें।
CO4	विद्यार्थियों में रा'ट्रीयता तथा नैतिक चरित्र की भावना का विकास होगा।

Course Code	HINCC203
Course Name	हिन्दी भाषा का व्याकरणिक स्वरुप

COs	Description
CO1	छात्रों में व्याकरण के द्वारा भाषा शुद्ध ,लिखने ,बोलने के कौशल का विकास होता है।
CO2	व्याकरण ही भाषा को सरलता से अपेक्षित लक्ष्य तक पहुँचाता है।
CO3	व्याकरण के नियमों का ज्ञान ,छात्रों में मौलिक वाक्य संरचना की योग्यता का विकास करता है।
CO4	हिन्दी भाषा को शुद्ध रूप में लिखने और बोलने संबंधी नियमों का बोध कराता हैं।जो उनके कौशलों का विकास करता है जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।

Course Code	HINCC204
Course Name	पत्रकारिता प्रशिक्षण

COs	Description
CO1	आकाशवाणी, दूरदर्शन आदि में अनुवादक, संपादक, समाचारदाता आदि के रूप में रोजगार के अवसर उपलब्ध कराता है। जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।

Sanjeev Dawra
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	केंद्र के कार्यालयों से लेकर दूतावासों तक में अधिकारी, कर्मचारी बनने के अवसर प्राप्त होते है।
CO3	पत्रकारिता का मुख्य उद्देश्य जनता की इच्छाओं,विचारों को समझना और उन्हें व्यक्त करना हैं।
CO4	पत्रकारिता और साहित्य दोनों में उच्च अध्ययन जारी रखा जा सकता है।

Course Code	**HINEC205**
Course Name	**विशेष अध्ययनः किसी एक रचनाकार का**

COs	**Description**
CO1	कबीरदास जी की सबद ,रमैनी में नीति,व्यवहार,समता,एकता,वैराग्य और ज्ञान की बाते समझाने का प्रयास किया हैद्य इसमें सांसारिक,अध्यामिक,नैतिक और परलौकिक विषयों की भी सहजता के साथ समझाने की चेष्टा की हैं।
CO2	सूरदास और तुलसीदास की कृष्णलीलाऔररामभक्ति को उनके दर्शन के साथ जोड़कर उनके महत्व और आधार को समझना।
CO3	कामायनी का परिणामहैदृसमरसता के द्वारा आनंद की प्राप्तिद्य भावनाओं और दृष्टिकोणों का समन्वय ही समरसता है।
CO4	हिन्दी साहित्य का मौलिक एवं अनूदित से परिचय होता है। तथा विद्यार्थियों में लेखक के जीवन शैली का विश्लेषण और कौशल विकास का ज्ञान कराना।

Course Code	**HINEC206**
Course Name	**हिन्दी साहित्य और सिनेमा**

COs	**Description**
CO1	चलचित्र ,एक ओर मनोरंजन का साधन व सामाजिक बुराइयों को दूर करने में सहायक है।
CO2	चलचित्र मानव के लि, ज्ञान वृद्वि का साधन भी है। जो विद्यार्थियों के कौशलो का विकास करता है।
CO3	दर्शक ,एक सिनेमा हल में इतिहास, भूगोल व विज्ञान सम्बन्धी ज्ञान का सरलता से साक्षात्कार कर लेता है जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।
CO4	सिनेमा अभिव्यक्ति का सर्वाधिक प्रभावशाली ,एवं सशक्त माध्यम है।

Sanjeev Dawal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	HINEC207
Course Name	भाषिक संप्रेषण: स्वरूप और सिद्धांत

COs	Description
CO1	कार्यालयों में प्रयुक्त होने वाली हिन्दी भाषा का समग्र ज्ञान प्राप्त करना है जो स्थानीय और राष्ट्रीय स्तर पर एक स्वस्थ समाज के निर्माण में साहित्य के महत्व को समझें।
CO2	भाषा की वर्तमान स्थिति और समस्याएँ के बारे में जानकारी प्राप्त कर भाषा विज्ञान एवं भाषाशास्त्र में अंतर सकेंगे।
CO3	आकाशवाणी, दूरदर्शन आदि में अनुवादक, संपादक, समाचार दाता आदि के रूप में रोजगार के अवसर उपलब्ध कराता है।
CO4	केंद्र के कार्यालयों से लेकर दूतावासों तक में अधिकारी, कर्मचारी बनने के अवसर प्राप्त होते है।

Course Code	MAH 311
Course Name	आधुनिक गद्य साहित्य

COs	Description
CO1	भारतीय कृषक के विसंगति पूर्ण जीवन की अभिव्यंजना को समझेंगे।
CO2	समाजवादी व्यवस्था की स्थापना पर बल।सामाजिक शोषकों का यथार्थ चित्रण।
CO3	क्रान्ति धर्मी में नारी चरित्रों की सृष्टि करेगा।जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।
CO4	आदर्श समाज की स्थापना।जो विद्यार्थियों को रोजगार के अवसर उपलब्ध करा सके।

Course Code	MAH 312
Course Name	भारतीय नाट्य साहित्य एवं रंगमंच

COs	Description
CO1	नाट्य साहित्य से मनोरंजन एवं छात्रों का सार्वभौम विकास है।
CO2	नाट्य साहित्यिक अभिक्षमता का विकास होता है बल्कि इस एक विधा से अन्य विधाओं जैसे दृकविता, कहानी का कल्पना लोक भी जुड़ता हैं।
CO3	रंगमंच के निर्माता से परिचित हो सकेगें जो विद्यार्थियों को रोजगार के अवसर उपलब्ध करा सके और राष्ट्रीय स्तर पर एक स्वस्थ समाज के निर्माण में साहित्य

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	के महत्व को समझें।
CO4	नाट्य साहित्य से मनोरंजन एवं छात्रों का सार्वभौम विकास हैद्य इसमें न सिर्फ साहित्यिक अभिक्षमता का विकास होता है बल्कि इस एक विधा से अन्य विधाओं जैसे– कविता, कहानी का कल्पना लोक भी जुड़ता हैं।

Course Code	MAH 313
Course Name	किसी एक रचनाकार का विशेष अध्ययन

COs	Description
CO1	कबीरदास जी की साखी, सबद, रमैनी में नीति, व्यवहार, समता, एकता, वैराग्य और ज्ञान की बातें समझाने का प्रयास किया हैद्य इसमें सांसारिक, अध्यामिक, नैतिक और पारलौकिक विषयों की भी सहजता के साथ समझाने की चेष्टा की हैं।
CO2	सूरदास और तुलसीदास की कृष्णलीला काव्य और रामभक्ति काव्य को उनके दर्शन के साथ जोड़कर उनके महत्व और आधार को समझना।
CO3	कामायनी का परिणाम है –समरसता के द्वारा आनंद की प्राप्ति भावनाओं और दृष्टिकोणों का समन्वय ही समरसता है।इसके द्वारा विद्यार्थियों में विभिन्न लेखकों व कवियों के लेखन कार्य का विश्लेषण करना है।
CO4	हिन्दी साहित्य के अध्ययन से छात्र कवि, लेखक तथा हिन्दी नाटक और सिनेमा में भी भाग्य आजमा सकते है। जो राष्ट्रीय स्तर पर एक स्वस्थ समाज के निर्माण में साहित्य के महत्व को समझें।

Course Code	MAH 411
Course Name	भारतीय एवं पाश्चात्य काव्य शास्त्र तथा हिन्दी समालोचना

COs	Description
CO1	काव्य के प्रयोजन,लक्षण आदि के बारे में विस्तृत जानकारी प्राप्त करेंगे।
CO2	रस, अलंकार का काव्य में प्रयोग करना। इसके द्वारा विद्यार्थियों में लेखन कौशलो का
CO3	पाश्चात्य काव्य के बारे में जानना।
CO4	समालोचना की उपयोगिता, प्रवृत्तियाँ के बारे में जानकारी प्राप्त करना।

Course Code	MAH 412
Course Name	आधुनिक काव्य

COs	Description
CO1	काव्य को पढ़कर उसके मुख्य भाव और अर्थ को समझना इसके द्वारा विद्यार्थियों में

Sanjeev Dewal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	लेखन कौशलों का विकास करना है।
CO2	काव्य में निहित भाव को अपने परिवेश से जोड़कर देख पाना है।
CO3	कल्पनाशीलता को बढ़ाना है जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।
CO4	काव्य पढ़ने के लिए प्रेरित करना और स्वयं काव्य लिखने के लिए प्रेरित होना है।

Course Code	**MAH 413**
Course Name	**छायावादोत्तर काव्य**

COs	**Description**
CO1	नई कविताओं में नए भाव बोधों की अभिव्यक्ति के साथ ही नये मूल्यों और नए शिल्प विधान के अन्वेषण को समझेंगे।
CO2	सामाजिक यथार्थवाद को प्रतिष्ठित करने के कारण ही प्रगतिवाद कहा गया है।
CO3	काव्य का मुख्य लक्ष्य जनवादी शक्तियों को संघटित करके मार्क्सवाद और भौतिक यथार्थवाद को सिद्ध करना है जो स्थानीय और राष्ट्रीय स्तर पर एक स्वस्थ समाज के निर्माण में साहित्य के महत्व को समझें।
CO4	काव्य को पढ़कर उसके मुख्य भाव और अर्थ को समझना काव्य में निहित भाव को अपने परिवेश से जोड़कर देख पाना।जो विभिन्न क्षेत्रों में विद्यार्थियों को लेखन कौशल का विकास कर सके।

Course Code	**MAH- 414 (I)**
Course Name	**निबन्ध लेखन**

COs	**Description**
CO1	निबंध के द्वारा छात्र सभी क्षेत्रों में सफल विचार दृविमर्श के लिए श्रेष्ठ निबंध लेखन को सीखने का प्रयास करेंगे ।
CO2	निबंध लेखन आपके विचारों के लिए एक अवसर प्रदान करता है। जो विद्यार्थियों को लेखन कार्य में कौशल विकास करता है।
CO3	निबंध लेखन के द्वारा भाव अवभव्यक्त करने की क्षमता का ववकास।
CO4	निबंध लेखन कला का विकास कर सके। जो विद्यार्थियों को लेखन कार्य में कौशल विकास करता है।

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAH- 414 (II)
Course Name	निबन्ध लेखन

COs	Description
CO1	निबंध के द्वारा छात्र सभी क्षेत्रों में सफल विचार दृविमश के लिए श्रेष्ठ निबंध लेखन को सीखने का प्रयास करेंगे ।
CO2	निबंध लेखन आपके विचारों के लिए एक अवसर प्रदान करता है। जो विद्यार्थियों को लेखन कार्य में कौशल विकास करता है।
CO3	निबंध लेखन भाव अवभव्यक्त करने की क्षमता का विकास करता है।
CO4	निबंध लेखन कला का विकास कर सके। जो विद्यार्थियों को लेखन कार्य में कौशल विकास करता है।

Course Code	MAH 414 (III)
Course Name	राजभाषा प्रशिक्षण

COs	Description
CO1	भाषा की वर्तमान स्थिति और समस्याएँ के बारे में जानकारी प्राप्त कर भाषा विज्ञान एवं भाषा शास्त्र में अंतर सकेंगे।
CO2	कार्यालयों में प्रयुक्त होने वाली हिन्दी भाषा का समग्र ज्ञान प्राप्त करना।
CO3	हिन्दी भाषा की उपयोगिता को बढ़ाना। जो विद्यार्थियों को लेखन कार्य में कौशल विकास करता है।
CO4	विद्यार्थियों में राष्ट्रीयता तथा नैतिक चरित्र की भावना का विकास होगा। जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।

Course Code	MAH 414 (IV)
Course Name	विशेष लेखक : प्रेमचंद

COs	Description
CO1	हिन्दी साहित्य के अध्ययन से छात्र कवि, लेखक तथा हिन्दी नाटक और सिनेमा में भी भाग्य आजमा सकते है।
CO2	समाज को साहित्य से ज्ञान की प्राप्ति होती है जो राष्ट्रीय स्तर पर एक स्वस्थ समाज के निर्माण में साहित्य के महत्व को समझें।
CO3	नवीन विधाओं का परिचय दे सकेंगे। जो विद्यार्थियों को लेखन कार्य में कौशल

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	विकास करता है।
CO4	इससे हम सभी दलित जाति के मनुष्यों के अनुभवों , कष्टों और संघर्षों के बारे में जानकारी प्राप्त कर सकेंगें।
Course Code	**MAH 414 (V)**
Course Name	**विश्व व भारतीय रगमच**

COs	Description
CO1	नाट्य साहित्य से मनोरंजन एवं छात्रों का सार्वभौम विकास करेगा जो राष्ट्रीय और विश्व स्तर
CO2	नाट्य साहित्यिक अभिक्षमता का विकास होता है बल्कि इस एक विधा से अन्य विधाओं जैसे दृकविता, कहानी का कल्पना लोक भी जुड़ता हैं।
CO3	रंगमंच के निर्मा.ासे परिचित हो सकेगें।इसके द्वारा विद्यार्थियो को रोजगार एवं कौशल
CO4	नाट्य साहित्य से मनोरंजन एवं छात्रों का सार्वभौम विकास हैद्य इसमें न सिर्फ साहित्यिक अभिक्षमता का विकास होता है बल्कि इस एक विधा से अन्य विधाओं जैसे– कविता, कहानी का कल्पना लोक भी जुड़ता हैं।

Course Code	**MAH 414 (VI)**
Course Name	**हिंदी में दलित साहित्य**

COs	Description
CO1	इससे हम सभी दलित जाति के मनुष्यों के अनुभवों , कष्टों और संघर्षों के बारे में जानकारी प्राप्त कर सकेंगें।
CO2	हिन्दी गद्य की सभी विधाओं का सम्यक ज्ञान प्राप्त कर सकेंगें ।और उनकों रोजगार के अवसर उपलब्ध कराना।
CO3	स्वयं पढ़कर काव्य के मुख्य भाव / अर्थ को समझाना ।
CO4	कल्पनाशीलता को बढ़ाना है जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAH 414 (VII)
Course Name	मीडिया लेखन

COs	Description
CO1	केंद्र के कार्यालयों से लेकर दूतावासों तक में अधिकारी, कर्मचारी बनने के अवसर प्राप्त होता है।
CO2	आकाशवाणी, दूरदर्शन आदि में अनुवादक, संपादक, समाचार दाता आदि के रूप में रोजगार के अवसर प्राप्त होती है।
CO3	बैंकों आदि अनेक संस्थाओं में हिन्दी अधिकारी के रूप में नियुक्तियाँ हासिल कर सकते है।
CO4	अनुवाद के प्रकार जैस साहित्य अनुवाद, आधिकारिक या तकनीकी अनुवाद के बारे में ज्ञान प्रदान करना जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।

Course Code	MAH 414 (VIII)
Course Name	अनुवाद : सिद्धान्त एवं व्यवहार

COs	Description
CO1	अनुवाद के अर्थ, कार्यक्षेत्र और प्रकृति के बारे में ज्ञान प्रदान करना।जो विद्यार्थियों को लेखन कार्य कौशल का विकास और रोजगार के अवसर उपलब्ध करता है।
CO2	अनुवाद के चरणों और अनुवाद के सिद्धांत के बारे में ज्ञान प्रदान करना।
CO3	अंग्रेजी से हिन्दी, हिन्दीसे अंग्रेजीके अनुवाद के बारे में ज्ञान प्रदान करना जो राष्ट्रीय और विश्व स्तर पर व्यक्तित्व विकास के पूरक होंगे।
CO4	अनुवाद के प्रकार जैस साहित्य अनुवाद, आधिकारिक या तकनीकी अनुवाद के बारे में ज्ञान प्रदान करना ।

Sanjeev Dawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – BACHELOR OF ARTS IN JOURNALISM

Course Code	A270101T
Course Name	Basics of Mass Communication and Journalism

COs	Description
CO1	Prepare the students to understand physiology-based courses for enhancing skill development.
CO2	Students will get familiar with different types of Communication and Journalism for enhancing skill development.
CO3	Acquaint students with practical knowledge of Media related Computer software for the growth of employability, skill development and entrepreneurship.
CO4	Explain the need and importance of studying Communication across life span Function of Journalism and Mass Communication Education in India for skill development of students.
CO5	Know about the Journalism as a Profession; Types of Journalism, Origin and Development of Media: Newspaper, Radio, Television and Digital Media for skill development.
CO6	Pioneer Journalists of India for enhancement of skill development.
CO7	Duties and responsibilities of a Journalist; Values and Ethics of Journalism for skill development.
CO8	Press Council of India, Prasar Bharati Board, RNI, Committees for Journalism for skill development.

Course Code	A270102P
Course Name	Computer for Mass Media

COs	Description
CO1	Students will get familiar with computer for skill development.
CO2	Acquaint students with practical knowledge of basics of computer for skill development.
CO3	Students will get familiar with different types of software for skill development and employability.
CO4	Students will get familiar with internet surfing, content searching, fact checking for skill development, employability and entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	A270201T
Course Name	**Reporting and Editing (Theory)**

COs	Description
CO1	Learn about Various types of news, elements & structure for skill development and employability.
CO2	Understanding concepts of local, National & Global beat Reporting and its Importance for skill development.
CO3	Learn Challenges of specialized area of reporting for skill development and employability.
CO4	Understanding the different types of news papers & structure and functions of news room for skill development, employability and entrepreneurship.
CO5	Understand Editing methods, tools and symbols for skill development, employability and entrepreneurship.
CO6	Understanding of the method & importance of proof reading for skill development, employability and entrepreneurship.
CO7	Art of Translation in Media for skill development, employability and entrepreneurship.
CO8	Role & responsibilities of Reporter, Proof reader & Editor for skill development, employability and entrepreneurship.

Course Code	A270202P
Course Name	**Media Related Software (Practical)**

COs	Description
CO1	Ability to handle media related software for skill development, employability and entrepreneurship.
CO2	Able to edit audio-visual content for skill development, employability and entrepreneurship.
CO3	Able to Prepare Graphics for skill development, employability and entrepreneurship.
CO4	Able to Visual Effect software, graphic designing software for skill development, employability and entrepreneurship.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BA JMC 311
Course Name	Film Appreciation

COs	Description
CO1	Define the film & its concepts for skill development.
CO2	Distinguish between the different types of films for skill development.
CO3	Describe the different aspect of films for skill development.
CO4	Apply the knowledge in analyze the needs of films in media cinema industry while launching a making a short film, documentary film, tele film and any other film organization and promotional strategies for skill development, employability and entrepreneurship.

Course Code	BA JMC 312
Course Name	Television Production

COs	Description
CO1	Define & introduction of television & its concepts for skill development.
CO2	Distinguish between different types of television programme for skill development.
CO3	Describe the history & development of television and TV programme production for skill development.
CO4	Apply the knowledge in analyze the needs of TV programme production in media market while launching a TV channel and any other audio visual social media platform and promotional strategies for skill development, employability and entrepreneurship.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BA JMC 313
Course Name	Cyber Media Journalism

COs	Description
CO1	Define the cyber media & its concepts for skill development.
CO2	Distinguish between cyber communication & traditional communication for skill development.
CO3	Describe the tools & techniques of cyber media and its ethics for skill development.
CO4	Apply the knowledge in analyze the needs of cyber media in media industries while launching a news paper, TV channel, Radio Stations or any other social media platform and promotional strategies for skill development, employability and entrepreneurship.

Course Code	BA JMC 314
Course Name	Media Marketing

COs	Description
CO1	Define the media marketing & its concepts for skill development.
CO2	Distinguish between general marketing & media marketing for skill development.
CO3	Describe the theories of media marketing and its importance for skill development.
CO4	Apply the knowledge in analyze the needs of media marketing in media industries while launching a news paper, TV channel, Radio Stations or any other social media platform and promotional strategies for skill development, employability and entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAJMC314 A
Course Name	Value Education

COs	Description
CO1	Students will know the social and cultural configuration of contemporary India for skill development.
CO2	Students will understand the constitutional factors of India for skill development.
CO3	Students will learn the economic values of India for skill development.
CO4	Students will understand the various issues and their reforms for skill development.

Course Code	BAJMC314 B
Course Name	Tribal Studies

COs	Description
CO1	Students will know the basics of tribal studies for skill development.
CO2	Students will understand tribal life for skill development.
CO3	Students will learn about tribal society for skill development.
CO4	Students will understand various rituals and myths of tribes for skill development.
Course Code	BAJMC314 C
Course Name	Multimedia Journalism

COs	Description
CO1	Students will know the basics of multimedia for skill development.
CO2	Students will understand multi platform communications for skill development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Students will learn about making audio and video content for skill development, employability and entrepreneurship.
CO4	Students will understand mobile journalism for skill development, employability and entrepreneurship.

Course Code	**BAJMC314 D**
Course Name	**Health & Science Communication**

COs	Description
CO1	Students will know the basics of Health Communication for skill development.
CO2	Students will understand the health care system in India for skill development.
CO3	Students will learn the basics of health care marketing for skill development.
CO4	Students will understand the elements of health and science communication for skill development.

Course Code	**BAJMC 315**
Course Name	**Print Media Production (ITR Practical)**

COs	Description
CO1	Have knowledge of Print Media (Reporting, writing, typing, editing and layout designing) for skill development, employability and entrepreneurship.
CO2	Apply the knowledge in analyze the needs of practical knowledge of print media in media industries while launching a news paper or any other print media platform and promotional strategies for skill development, employability and entrepreneurship..

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BAJMC 411
Course Name	Environmental Studies & Media

COs	Description
CO1	Define the environmental studies and & its concepts for skill development.
CO2	Distinguish between different types of environmental issues for skill development.
CO3	Describe the environmental issues & the role of media for skill development.
CO4	Apply the knowledge in analyze the needs of environmental knowledge in media industries while launching a news paper, TV channel, Radio Stations or any other social media platform and promotional strategies for skill development, employability and entrepreneurship.

Course Code	BA JMC 412
Course Name	Development Communication

COs	Description
CO1	Define the development communication and & its concepts for skill development.
CO2	Distinguish between different mediums of development communication for skill development.
CO3	Describe the theories of development communication for skill development.
CO4	Apply the knowledge in analyze the needs of developmental issues in media industries while launching a news paper, TV channel, Radio Stations or any other social media platform and promotional strategies for skill development, employability and entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BA JMC 413
Course Name	Audio-Visual Media-I

COs	Description
CO1	Define the audio visual media & its concepts for skill development.
CO2	Distinguish between audio & visual media for skill development.
CO3	Improve the knowledge in the field of audio visual media & basics of broadcasting techniques for skill development, employability and entrepreneurship.
CO4	Describe the development of audio & visual media & its structure and functioning and importance for skill development and employability.

Course Code	BA JMC 414
Course Name	Graphics & Design

COs	Description
CO1	Define the graphics & designing & its concepts for skill development and employability.
CO2	Distinguish between graphic & designing for skill development.
CO3	Describe the importance of graphic & designing in audio visual programme production for skill development, employability and entrepreneurship.
CO4	Improve the knowledge in the field of graphic designing & animation for skill development, employability and entrepreneurship.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BA JMC 415
Course Name	Photography: Techniques & Applications

COs	Description
CO1	Define the photography & its concepts for skill development.
CO2	Distinguish between different types of cameras and shots for skill development, employability and entrepreneurship.
CO3	Describe the theories of photography, videography, lighting & sound recording techniques for skill development, employability and entrepreneurship.
CO4	Improve the deep knowledge in photo & videography for skill development, employability and entrepreneurship.

Course Code	BA JMC 415 A
Course Name	Language Skills and Media Writing

COs	Description
CO1	Students will know the basic elements of language for skill development.
CO2	Students will understand vocabulary and its importance for skill development, employability and entrepreneurship.
CO3	Students will learn the concept of paragraph for skill development, employability and entrepreneurship.
CO4	Students will understand the use of translation in Media for skill development, employability and entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BA JMC 415 B
Course Name	Science Communication

COs	Description
CO1	Students will know the basics of Science Communication for skill development.
CO2	Students will understand the science and technologies of ancient India for skill development.
CO3	Students will learn the scientific awareness for skill development.
CO4	Students will understand the convergence of modern and traditional media for skill development.

Course Code	BA JMC 415 C
Course Name	Inter Cultural Communication

COs	Description
CO1	Students will know the basics of Culture- World and India for skill development.
CO2	Students will understand inter cultural Communication for skill development.
CO3	Students will learn different barriers to cultural communication for skill development.
CO4	Students will understand the ethics of cultural communication for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BA JMC 415 D
Course Name	General Awareness

COs	Description
CO1	Students will know the basics of Indian Constitution for skill development.
CO2	Students will understand the parliamentary procedure in India for skill development.
CO3	Students will learn the Indian Socio-Cultural and Economic environment for skill development.
CO4	Students will understand the Foreign policies of India for skill development.

Course Code	BA JMC 511
Course Name	Photo Journalism

COs	Description
CO1	Define the photo journalism & its concepts for skill development.
CO2	Distinguish between different types of cameras and shots for skill development and employability.
CO3	Describe the theories of photography for skill development.
CO4	Apply the knowledge in analyze the needs of photography in different types of media, media industries while launching a news paper, TV channel or any other social media platform and promotional strategies for skill development, employability and entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BA JMC 512
Course Name	Media Research

COs	Description
CO1	Define the media research & its concepts for skill development.
CO2	Distinguish between different types of research method, data collection and sampling & its result for skill development.
CO3	Describe the theories of research & media research for skill development.
CO4	Apply the knowledge in analyze the needs of media research in media sector and society while launching a news paper, TV channel, Radio Stations or any other social media platform and promotional strategies for skill development, employability and entrepreneurship.

Course Code	BA JMC 513
Course Name	Audio-Visual Media-II

COs	Description
CO1	Define the audio visual media & its concepts for skill development.
CO2	Distinguish between audio & visual media for skill development.
CO3	Describe the development of audio & visual media & its structure and functioning and importance for skill development.
CO4	Apply the knowledge in analyze the needs of audio & visual media in electronic media industries, while launching a TV channel, or any other audio visual media platform and promotional strategies for skill development, employability and entrepreneurship.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BA JMC 514
Course Name	Media Laws

COs	Description
CO1	Define the media laws & its concepts for skill development.
CO2	Distinguish between general reporting & court reporting for skill development.
CO3	Describe the theories of media laws and ethics for skill development.
CO4	Apply the knowledge in analyze the needs of medial laws & ethics in reporting, media market while launching a news paper, TV channel, Radio Stations or any other social media platform for skill development, employability and entrepreneurship.

Course Code	BA JMC 514 A
Course Name	Consumer Behaviour and Audience Study

COs	Description
CO1	Identify the basic concepts of consumer behaviour for skill development.
CO2	Understand the basics for segmenting a market for skill development.
CO3	Produce ideas on positioning and repositioning consumers for skill development.
CO4	Analyze consumer's perception for a product or services for skill development.

Course Code	BA JMC 514 B
Course Name	Introduction to Media and Entertainment Business

COs	Description
CO1	Understand the media and entertainment business for skill development,

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	employability and entrepreneurship.
CO2	Launch media and entertainment ventures for skill development, employability and entrepreneurship.
CO3	Explain the unique nature of M&E business and its impact on society for skill development, employability and entrepreneurship.
CO4	Plan strategies to take organizations to newer heights for skill development, employability and entrepreneurship.

Course Code	**BA JMC 514 C**
Course Name	**Journalism Across Media**

COs	**Description**
CO1	Explain the concept of news, especially in the digital context for skill development, employability and entrepreneurship
CO2	Turn in different types of news reports and soft stories for skill development, employability and entrepreneurship.
CO3	Analyse different approaches to newspaper, magazine and cyber journalism for skill development, employability and entrepreneurship.
CO4	Apply digital fact-check skills for skill development, employability and entrepreneurship.

Course Code	**BA JMC 514 D**
Course Name	**Sports Journalism**

COs	**Description**
CO1	Students will know the basics of Sports Journalism for skill development.
CO2	Students will understand the writing and presentation of sports news for skill development and employability.
CO3	Students will learn the sports management for skill development, employability and entrepreneurship.
CO4	Students will understand the various factors of sports journalism for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BA JMC 515
Course Name	Media Production (ITR Practical)

COs	Description
CO1	Making news bulletin, television programmes, radio news bulletin & different types of radio programmes for skill development, employability and entrepreneurship.
CO2	Making different types of film for skill development, employability and entrepreneurship.
CO3	Start any audio visual based programmes for social media for skill development, employability and entrepreneurship.
CO4	Apply the knowledge in analyze the needs of electronic media in media industries while launching a TV channel, Radio Stations or any other social media platform for skill development, employability and entrepreneurship.

Course Code	BA JMC 611
Course Name	Corporate Communication

COs	Description
CO1	Define the corporate communication & its concepts for skill development.
CO2	Distinguish challenges between different types of corporate sectors for skill development.
CO3	Describe the theories of corporate communication and its importance for skill development and employability.
CO4	Improve the professional communication skills for skill development.

Sanjeev Bhanu
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BA JMC 612
Course Name	Event Management

COs	Description
CO1	Define the media management & its concepts for skill development.
CO2	Distinguish between the different types of ownership in media organization for skill development and employability.
CO3	Describe the structure & functions of the different departments in print media & electronic media for skill development and employability.
CO4	Improve the leadership quality for skill development.

Course Code	BA JMC 613
Course Name	Global Media Scenario

COs	Description
CO1	Define the global media & its concept for skill development.
CO2	Distinguish between different types of medium of global communication for skill development.
CO3	Describe the local, National and global media scenario & impact of global communication for skill development.
CO4	Improve the knowledge of global media activities for skill development.

Sanjeev Bhawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BA JMC 614
Course Name	Specialized Journalism

COs	Description
CO1	Define the specialized journalism and & its concepts for skill development.
CO2	Distinguish between the different types of specialized area of journalism for skill development.
CO3	Describe the vast area of specialized journalism and its challenges & prospects for skill development and employability.
CO4	Apply the knowledge in analyze the needs of specialized journalism in the media industries while launching a news paper, TV channel or any other social media platform and promotional strategies for skill development, employability and entrepreneurship.

Course Code	BA JMC 614 A
Course Name	Media, Gender and Human Rights

COs	Description
CO1	Students will know the basics Human Rights for skill development
CO2	Students will understand various rights and freedom enjoyed by the people for skill development.
CO3	Students will learn the gender balance and its challenges in media for skill development.
CO4	Students will understand the working of Human Rights institutions for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BA JMC 614 B
Course Name	Broadcasting Media

COs	Description
CO1	Students will know the concept of broadcasting media for skill development.
CO2	Students will understand various radio setups and programmes for skill development, employability and entrepreneurship.
CO3	Students will learn various TV setups and programmes for skill development, employability and entrepreneurship
CO4	Students will understand the impact of TV on society for skill development.

Course Code	BA JMC 614 C
Course Name	Artificial Intelligence, 5G and Augmented Reality and Virtual Reality

COs	Description
CO1	Students will know the concept of artificial intelligence for skill development.
CO2	Students will understand need of 5G in modern world for skill development.
CO3	Students will learn the basics of VR for skill development and employability.
CO4	Students will understand role of AI in organizations for skill development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	BA JMC 614 D
Course Name	Radio Jockeying & Production

COs	Description
CO1	Students will know the basics of Jockeying for skill development.
CO2	Students will understand the elements of radio production for skill development and employability.
CO3	Students will learn various types of radio programmes for skill development.
CO4	Students will understand different setups of radio for skill development and employability.

Course Code	BA JMC 615
Course Name	Dissertation

COs	Description
CO1	The students will be able to identify the problems of research and the selection of the research topic for study and the students will be mature as researcher for skill development

Course Code	BA JMC 616
Course Name	Disaster Management

COs	Description
CO1	The students will be able to identify the nature and causes of disaster and to apply the disaster risk reduction mechanism for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – M.A. (Journalism and Mass Communication)

Course Code	MAJCC101
Course Name	**Principles of Journalism & Communication**

COs	Description
CO1	Define the journalism and communication& its concepts to enrich knowledge and skills.
CO2	Distinguish between journalism & communication for skill development and entrepreneurship.
CO3	Describe the theories of communication for skill development and entrepreneurship.
CO4	Apply the knowledge in analyze the needs of media market while launching a news paper, TV channel, Radio Stations or any other social media platform and promotional strategies to enrich knowledge and skills.

Course Code	MAJCC102
Course Name	**History of Mass Media**

COs	Description
CO1	Define the history of Regional, Indian, Global media and its concepts to enrich knowledge and skills.
CO2	Distinguish between the development of print and electronic medium for skill development and entrepreneurship.
CO3	Describe the development of social media to enrich knowledge and skills.
CO4	Apply the knowledge in analyze the different stages of media history for skill development and entrepreneurship.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJCC103
Course Name	**Print Journalism: Reporting and Editing**

COs	Description
CO1	Define the field reporting, editing & its concepts to enrich knowledge and skills.
CO2	Distinguish between field reporting for different media for skill development.
CO3	Describe the theories of field reporting & editing in print media for skill development.
CO4	Apply the knowledge in analyze the needs of field reporting & editing in media industry while launching a news paper, magazine or any other media platform and promotional strategies to enrich knowledge and skills.

Course Code	MAJCC104
Course Name	**Advertising: Concepts & Principles**

COs	Description
CO1	Define the advertising & its concepts to enrich knowledge and skills
CO2	Distinguish between advertising & publicity to enrich knowledge and skills
CO3	Describe the different types of advertising for skill development.
CO4	Apply the knowledge in analyze the needs of advertising and media market while launching a news paper, TV channel, Radio Stations or any other social media platform and promotional strategies to enrich knowledge and skills.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJCC105
Course Name	Public Relations & Corporate Communication

COs	Description
CO1	Define the public relations and corporate communication & its concepts to enrich knowledge and skills.
CO2	Distinguish between public relations & corporate communication to enrich knowledge and skills.
CO3	Describe the theories of public relations & corporate communication for skill development and entrepreneurship.
CO4	Apply the knowledge in analyze the needs of corporate communication and value of public relations in media market to enrich knowledge and skills.

Course Code	MAJEC104
Course Name	Culture and Media

COs	Description
CO1	Define culture, its characteristics, features etc for skill development and entrepreneurship..
CO2	To know the effects of media on society and culture to enrich knowledge and skills.
CO3	Describe the concept of Cultural implications of mass media to enrich knowledge and skills.
CO4	To know the impact of media in cultural change or skill development and entrepreneurship.

Sanjeev Bhanot
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJEC105
Course Name	Media Marketing

COs	Description
CO1	Define market, its characteristics, features etc to enrich knowledge and skills.
CO2	To know the effects of media on market and organization for skill development and entrepreneurship..
CO3	Describe the concept of integrated market communication for skill development and entrepreneurship.
CO4	To know the effects of Promotion mix in marketing.

Course Code	MAJEC106
Course Name	Graphics & Design

COs	Description
CO1	Print newspaper, designing newspaper, making layout for skill development and entrepreneurship.
CO2	Understand the basics of printing for skill development and entrepreneurship.
CO3	Do Desktop Publishing to enrich knowledge and skills.
CO4	To know the effects of designing and printing for skill development and entrepreneurship.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJEC107
Course Name	Indian Governance

COs	Description
CO1	The students will know about socio cultural aspects of India and its freedom movement.
CO2	The students will learn about Indian constitution and democracy to enrich knowledge and skills.
CO3	To provide students about features of Indian Economy, the effect of privatization, globalization and liberalization, the new economic initiatives to enrich knowledge and skills.
CO4	The students will learn about socio-economic equality, women safety, judicial activism and various programs of health and hygiene to enrich knowledge and skills.

Course Code	MAJEC108
Course Name	Personality Development & Media

COs	Description
CO1	The students will know about meaning definition and basics of personality for skill development.
CO2	The students will learn about communicative persona, professional skill development for Media Entrepreneurs to enrich knowledge and skills.
CO3	To provide students about features of time management, team work and leadership and conflict resolution to enrich knowledge and skills.
CO4	The students will learn about the role of different institutions of personality development for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJEC109
Course Name	Indian Society

COs	Description
CO1	The students will know about the basic features of Indian society and religion to enrich knowledge and skills.
CO2	The students will learn about marriage and kinship in Indian society and the evil practices of dowry for skill development.
CO3	To provide students about the characteristics of cast system and its mobilization to enrich knowledge and skills.
CO4	The students will learn about the factors of social change, media and technology used to bring social changes to enrich knowledge and skills.

Course Code	MAJEC110
Course Name	Functional Hindi

COs	Description
CO1	छात्र भाषा और समाज के सबधो को समझ पाएगे।
CO2	छात्र वाक्य और उसके प्रयोग को जानेंगे।
CO3	हिंदी और प्रांतीय भाषाओ का ज्ञान होगा।
CO4	छात्र मीडिया में प्रयुक्त होने वाली हिंदी का प्रयोग कार पाएगे।

Course Code	MAJEC111
Course Name	Traditional Media

COs	Description
CO1	The students will learn about the various features of folk media for skill

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development.
CO2	The students will have a broad idea about types of folk media and folk music to enrich knowledge and skills.
CO3	To provide students about the knowledge of several types of festivals in India to enrich knowledge and skills.
CO4	The students will learn about the merits and demerits of folk media, influence of modern media on folk media, role of folk media in promoting literacy and social reform to enrich knowledge and skills.

Course Code	**MAJEC112**
Course Name	**Indian Economics**
COs	**Description**
CO1	To make understand the students about basic terms and concepts of economy for skill development and entrepreneurship.
CO2	The students will learn about the nature of Indian economy and the role of SEBI to enrich knowledge and skills.
CO3	To provide students about the effect of globalization, privatization and disinvestment on Indian economy to enrich knowledge and skills.
CO4	The students will learn about foreign trade and balance of payment for skill development and entrepreneurship.

Course Code	**MAJCC 201**
Course Name	**Electronic Media: Radio & TV**
COs	**Description**
CO1	Define & introduction of radio & television news & its concepts for skill development and entrepreneurship.
CO2	Distinguish between radio & television news and programme for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Describe the history & development of radio television news for skill development.
CO4	Apply the knowledge in analyze the needs of radio & Television news in media industries while launching a radio &TV channel and any other audio visual social media platform and promotional strategies for skill development and entrepreneurship.

Course Code	**MAJCC 202**
Course Name	**Development Communication**

COs	**Description**
CO1	Define the development communication and & its concepts for skill development and entrepreneurship.
CO2	Distinguish between different medium of development communication for skill development.
CO3	Describe the theories of development communication for skill development.
CO4	Apply the knowledge in analyze the needs of developmental issues in media industries while launching a news paper, TV channel, Radio Stations or any other social media platform and promotional strategies for skill development and entrepreneurship.

Course Code	**MAJCC 203**
Course Name	**New Media: Tools & Techniques**

COs	**Description**
CO1	Define the new media & its concepts for skill development.
CO2	Distinguish between & different types for skill development.
CO3	Describe the tools & techniques of cyber media and its ethics for skill development and entrepreneurship.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Apply the knowledge in analyze the needs of new media in media industries while launching a news paper, TV channel, Radio Stations or any other social media platform and promotional strategies for skill development and entrepreneurship.

Course Code	**MAJCC 204**
Course Name	**Photo Journalism**

COs	**Description**
CO1	Define the photo journalism & its concepts for skill development and entrepreneurship.
CO2	Distinguish between different types of cameras and shots for skill development.
CO3	Describe the theories of photography for skill development and entrepreneurship.
CO4	Apply the knowledge in analyze the needs of photography in different types of media, media industries while launching a news paper, TV channel or any other social media platform and promotional strategies for skill development.

Course Code	**MAJCC 205**
Course Name	**Event Management**

COs	**Description**
CO1	Define the concepts of Event Management for skill development.
CO2	Distinguish between different types of events for skill development and entrepreneurship.
CO3	Describe the media coverage of local, National and Global events for skill development.
CO4	Describe the structure of domestic & professional event for skill

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development and entrepreneurship.

Course Code	**MAJEC 204**
Course Name	**Media Management**

COs	Description
CO1	Define & introduction of media management its concepts for skill development and entrepreneurship.
CO2	Distinguish between different types of ownership in media organization for skill development..
CO3	Describe the structure and functions of the different department for skill development and entrepreneurship.
CO4	Apply the knowledge in analyze the needs of media management in media market while launching a news paper, Radio or TV channel and any other audio visual social media platform and promotional strategies for skill development.

Course Code	**MAJEC 205**
Course Name	**Media Economics**

COs	Description
CO1	Define & introduction of media economics and its concepts for skill development and entrepreneurship.
CO2	Distinguish between different types of ownership in media organization for skill development.
CO3	Describe the structure and functions of the different departments of a media organization for skill development.
CO4	To know the effects of Tools for a Business Journalist for skill development and entrepreneurship.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJEC 206
Course Name	International Communication

COs	Description
CO1	Define the concept of international communication for skill development.
CO2	Describe the new world order for skill development and entrepreneurship.
CO3	Describe the concept of convergence for skill development and entrepreneurship.
CO4	To know the effects of New International Information and Communication Order for skill development and entrepreneurship.

Course Code	MAJEC 207
Course Name	Digital Media & Health

COs	Description
CO1	The students will know about definition of public health, importance of yoga, and medical tourism destination for skill development and entrepreneurship.
CO2	The students will learn about concept of health journalism, various sources of health report and role of media in public health campaign for skill development.
CO3	To provide students about the characteristics of cast system and its mobilization for skill development.
CO4	The students will learn about Information Education Communication, Behavior Change Communication and feature of health communication and career prospects for skill development and entrepreneurship.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJEC 208
Course Name	Global Politics

COs	Description
CO1	The students will know about the basic features of Global Politics for skill development and entrepreneurship.
CO2	The students will learn about the process of elections for skill development.
CO3	To provide students about the characteristics of cast system and its mobilisation for skill development and entrepreneurship.
CO4	The students will learn about the factors of social thinking and politics for skill development.

Course Code	MAJEC 209
Course Name	Value Oriented Media Education

COs	Description
CO1	The students will know about various aspects of value education including tribal life for skill development.
CO2	The students will learn about gender equality, the problems of exceptionally challenged person and respect to others for skill development and entrepreneurship.
CO3	To provide students about the knowledge of constitutional values like democracy, socialism, secularism and equality for skill development.
CO4	The students will learn about the role of media in upholding social values, value education and role of voluntary organization for skill development and entrepreneurship.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJEC 210
Course Name	Tribal Society

COs	Description
CO1	The students will know about the basic features meaning and characteristics of tribal life and their geographical distribution for skill development.
CO2	The students will learn about social-economic and cultural aspects of tribal life for skill development.
CO3	To provide students about the characteristics of tribal society for skill development and entrepreneurship.
CO4	The students will learn about the religious and supernatural beliefs of tribal people for skill development and entrepreneurship.

Course Code	MAJEC 211
Course Name	Digital Journalism

COs	Description
CO1	The students will know about the basic features of multimedia for skill development and entrepreneurship.
CO2	The students will learn about multiplatform communications and sources and online research for skill development.
CO3	To provide students about the characteristics of audio visual content, auditing of sound, details of broadcasting and webcasting for skill development and entrepreneurship.
CO4	The students will learn about the features of mobile journalism, corporate websites and web feature stories for skill development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJEC 212
Course Name	Science & Media

COs	Description
CO1	The students will know about the characteristics of science and role of media in changing health behavior for skill development and entrepreneurship.
CO2	The students will learn about the science in India, epidemiology and community involvement for skill development and entrepreneurship.
CO3	To provide students about the science writing and research methods for science communicators and mobile communicators for skill development.
CO4	The students will learn about the factors of media and science journalism, features of science reporters for skill development.

Course Code	MAJMC311
Course Name	Communication Research

COs	Description
CO1	Define the communication research& its concepts for skill development and entrepreneurship.
CO2	Distinguish between different types of research method, data collection and sampling & its result to enrich knowledge and skills.
CO3	Describe the theories of research & communication research for skill development and entrepreneurship.
CO4	Apply the knowledge in analyze the needs of communication research in media sector and society while launching a news paper, TV channel, Radio Stations or any other social media platform and promotional strategies to enrich knowledge and skills.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJMC312
Course Name	Media Laws & Ethics

COs	Description
CO1	Define the media laws& its concepts for skill development and entrepreneurship.
CO2	Distinguish between general reporting & court reporting for skill development and entrepreneurship.
CO3	Describe the theories of media laws and ethics to enrich knowledge and skills.
CO4	Apply the knowledge in analyze the needs of medial laws & ethics in reporting, media market while launching a news paper, TV channel, Radio Stations or any other social media platform and promotional strategies to enrich knowledge and skills.

Course Code	MAJMC313
Course Name	Photo Journalism

COs	Description
CO1	Define the photo journalism& its concepts to enrich knowledge and skills.
CO2	Distinguish between different types of cameras and shots for skill development and entrepreneurship.
CO3	Describe the theories of photography to enrich knowledge and skills.
CO4	Apply the knowledge in analyze the needs of photography in different types of media, media industries while launching a news paper, TV channel or any other social media platform and promotional strategies for skill development and entrepreneurship.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJMC 313 A
Course Name	Media Writing

COs	Description
CO1	The students will know about the importance of language in communication process for skill development and entrepreneurship.
CO2	The students will learn about the importance of vocabulary and media terminology to enrich knowledge and skills.
CO3	To provide students about the different methods of writing paragraphs and contemporary issues to enrich knowledge and skills.
CO4	The students will learn about the importance of creative and journalistic writing, basic features of print media and electronic media to enrich knowledge and skills.

Course Code	MAJMC 313 B
Course Name	Art of Communication

COs	Description
CO1	The students will know about the basic features of art of communications to enrich knowledge and skills.
CO2	The students will learn about communications in ancient India for skill development.
CO3	To develop scientific approach in media and various methods of art of communications to enrich knowledge and skills.
CO4	The students will learn about the use of traditional media for science education, basic features of science news, science channels and documentaries (audio-visual) to enrich knowledge and skills.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJMC313 C
Course Name	International Cultural Communication

COs	Description
CO1	The students will know about culture as a social institution, features of Indian society from Harappan to Vedic and Buddhist period, comparison between eastern and western cultures for skill development.
CO2	The students will learn about communication as a concept in western and eastern cultures and philosophies to enrich knowledge and skills.
CO3	To provide students about media as a vehicle of inter-cultural communication, manufacturing industry-mass media as a cultural institution for skill development.
CO4	The students will learn about Mass culture typologies, UNESCO's efforts in the promotion of inter cultural communications to enrich knowledge and skills.

Course Code	MAJMC313 D
Course Name	Social Studies

COs	Description
CO1	The students will know about the goals and objectives of Indian constitutions and parliamentary system to enrich knowledge and skills.
CO2	The students will learn about parliamentary and legislative procedure in India, introduction to various political systems in the world for skill development and entrepreneurship.
CO3	To provide students about the knowledge of Indian history, cultural diversities, and Indian economic environment to enrich knowledge and skills.
CO4	The students will learn about Indian foreign policy, UN and SAARC, national and international events for skill development and entrepreneurship.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJMC 313 E
Course Name	Media and Audience Study

COs	Description
CO1	Identify the basic concepts of consumer behaviour for skill development and entrepreneurship.
CO2	Understand the bases for segmenting a market to enrich knowledge and skills.
CO3	Produce ideas on positioning and repositioning consumers for skill development and entrepreneurship.
CO4	Analyze consumer's perception for a product or services to enrich knowledge and skills.

Course Code	MAJMC 313 F
Course Name	Entertainment Business

COs	Description
CO1	Understand the media and entertainment business for skill development and entrepreneurship.
CO2	Launch media and entertainment ventures to enrich knowledge and skills.
CO3	Explain the unique nature of M&E business and its impact on society for skill development and entrepreneurship.
CO4	Plan strategies to take organizations to newer heights to enrich knowledge and skills.

Sanjeev Saini
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJMC314
Course Name	**Professional Project / Specialization** (Print Media)

COs	Description
CO1	Reporting, writing, editing, printing, circulation, add. Making, layout designing for skill development and entrepreneurship..

Course Code	MAJMC315
Course Name	**Industrial Training Report**

COs	Description
CO1	Publish newspaper for skill development and entrepreneurship.
CO2	Do reporting, writing, editing for skill development and entrepreneurship.
CO3	Do Freelancing for skill development and entrepreneurship.
CO4	Be Social Media Expert for skill development and entrepreneurship.

Course Code	MAJMC411
Course Name	**Film Appreciation**

COs	Description
CO1	Define the film & its concepts for skill development.
CO2	Distinguish between the different types of films for skill development and entrepreneurship.
CO3	Describe the different aspect of films for skill development and entrepreneurship.
CO4	Apply the knowledge in analyze the needs of films in media cinema industry while launching a making a short film, documentary film, tele film and any other film organization and promotional strategies for skill

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	development .

Course Code	**MAJMC412**
Course Name	**Specialized Journalism**

COs	Description
CO1	Define the specialized journalism and & its concepts for skill development and entrepreneurship.
CO2	Distinguish between the different types of specialized local, National and Global area of journalism for skill development.
CO3	Describe the vast area of specialized journalism and its challenges & prospects for skill development and entrepreneurship.
CO4	Apply the knowledge in analyze the needs of specialized journalism in the media industries while launching a news paper, TV channel or any other social media platform and promotional strategies for skill development .

Course Code	**MAJMC412 A**
Course Name	**Digital Journalism Across Media**

COs	Description
CO1	Explain news, especially in the digital context for skill development and entrepreneurship.
CO2	Turn in different types of news reports and soft stories for skill development .
CO3	Analyse different approaches to newspaper, magazine and cyber journalism for skill development and entrepreneurship.
CO4	Apply digital fact-check skills for skill development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJMC412 B
Course Name	Sports Reporting

COs	Description
CO1	Students will know the basics of Sports Journalism for skill development and entrepreneurship.
CO2	Students will understand the writing and presentation of sports news for skill development.
CO3	Students will learn the sports management for skill development and entrepreneurship.
CO4	Students will understand the various factors of local, National and Global sports journalism for skill development.

Course Code	MAJMC412 C
Course Name	Gender Sensitization and Human Rights

COs	Description
CO1	Students will know the basics Human Rights for skill development and entrepreneurship.
CO2	Students will understand various rights and freedom enjoyed by the people for skill development.
CO3	Students will learn the gender balance and its challenges in media for skill development.
CO4	Students will understand the working of Human Rights institutions for skill development and entrepreneurship.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJMC412 D
Course Name	Broadcasting

COs	Description
CO1	Students will know the concept of local, National & Global broadcasting media for skill development and entrepreneurship.
CO2	Students will understand various radio setups and programmes for skill development and entrepreneurship.
CO3	Students will learn various TV setups and programmes for skill development.
CO4	Students will understand the impact of TV on society for skill development and entrepreneurship.

Course Code	MAJMC412 E
Course Name	Advanced Mobile Communication Technology

COs	Description
CO1	Students will know the concept of artificial intelligence for skill development and entrepreneurship.
CO2	Students will understand need of 5G in modern world for skill development and entrepreneurship.
CO3	Students will learn the basics of VR for skill development.
CO4	Students will understand role of AI in organizations for skill development.

Sanjeev Arora
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJMC412 F
Course Name	AV Programme Presentation

COs	Description
CO1	Students will know the basics of Jockeying for skill development and entrepreneurship.
CO2	Students will understand the elements of radio production for skill development and entrepreneurship.
CO3	Students will learn various types of radio programmes for skill development.
CO4	Students will understand different setups of radio for skill development and entrepreneurship.

Course Code	MAJMC413
Course Name	Professional Project /Specialization (Electronic Media)

COs	Description
CO1	Making news bulletin, television programmes, radio news bulletin & different types of radio programmes for skill development.
CO2	Making different types of film for skill development and entrepreneurship.
CO3	Start any audio visual based programmes for social media for skill development and entrepreneurship.
CO4	Apply the knowledge in analyze the needs of electronic media in media industries while launching a TV channel, Radio Stations or any other social media platform for skill development .

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MAJMC414
Course Name	Dissertation

COs	Description
CO1	Understand the nature of research for skill development and entrepreneurship.
CO2	Understand the challenges and prospects of the research for skill development and entrepreneurship.
CO3	Write the research paper and article for skill development and entrepreneurship.
CO4	Handle the research projects for skill development and entrepreneurship.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

PROGRAMME NAME – MASTER OF ARTS -SOCIOLOGY

Course Code	SOCCC101
Course Name	Classical Sociological Tradition

COs	Description
CO1	Understand the efforts made by August Comte in developing the science of society, Sociology and his three major theories.And understand Industrial and French Revolution to fulfill global needs for skill development.
CO2	Explain Marx's contribution of dialectics and social change and how capitalism developed through the successive stages of primitive communism, ancient society and feudal society. Understand the concept of class and class conflict, Theory of Social Change and alienation as given by the Marx for skill Development.
CO3	Explain the theories given by Emile Durkheim on Social Facts, Suicide and the Division of Labour for skill Development.
CO4	Explain the central ideas of Max Weber, his argument in making Sociology a science for skill Development.

Course Code	SOCCC102
Course Name	Methodology of Sociological Research

COs	Description
CO1	Discuss concepts and issues related to Social Science research.Explain the various approaches that can be adopted for conducting social science research.Describe Methods of Social Research: Basic, Applied, Action, Qualitative and Quantitativefor skill Development.
CO2	Understand the concept of Hypothesis, Logic of Inquiry, Research Designs and samplingfor skill Development.
CO3	Understand the basic characteristics of different methodologies used for Data collectionfor skill Development.
CO4	Know the application of statistics in social research and how to calculate mean, median, mode and standard deviationfor skill Development.

Sanjeev Bansal

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	SOCCC103
Course Name	Sociology of Change and Development

COs	Description
CO1	Explain the meaning of Social Change and describe main characteristics of the nature of social change at national level for skill Development.
CO2	Understand the theories of social change viz. The direction of social change and the cause of social change and assess the process of changefor skill Development.
CO3	Explain the rationale of understanding social issues in development and analyze various social issues in development such as education, health, nutrition, gender, marginalization and exclusion, and culturefor skill Development.
CO4	Understand the main aspects of the four major theories of development: modernization, dependency, world systems and globalization at national & global level for skill Development.

Course Code	SOCCC104
Course Name	Comparative Sociology

COs	Description
CO1	Explain the Meaning and Scope of Comparative of Sociology for skill Development.
CO2	Understand the Methods of Study, Indices of Comparison: Culture, Nation, Class, Gender and Tribal Society at national level for skill Development.
CO3	Explain the Tribal Economy , Exchange ,ribal Polity, Law & Justice: State and Stateless Society.
CO4	Explain the Central Themes in Comparative Sociologyfor skill Development.

Course Code	SOCEC105
Course Name	Rural Society in India

COs	Description
CO1	Define rural society, differentiate between tribal, peasant, and urban societies, identify the types of village in India, and talk/write knowledgeably about a few important rural studies conducted in Indiafor skill Development at national level .
CO2	Identify various elements of rural social structure in India and describe the characteristic features rural social structure for skill Development at

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

	national level .
CO3	Understand the origin of local governance in India, Explain the evolution of Panchayati Raj Institutions, Discuss the initiatives taken by various committees on local governance, and identify the weaknesses of the local governance before and after 73rd amendmentfor skill Development at national level .
CO4	Explain the relationships between land reforms and agrarian transformation and the limitations of land reforms. And Agrarian Unrest and Peasant Movementsfor skill Development.

Course Code	SOCEC106
Course Name	**Media Culture and Society**

COs	Description
CO1	Define Media and its Characteristics and Types, Traditional and Folk Media, Print Media, Electronic Media, New Media. Identify History of Media In the Modern Times, Media and Pop-culture for skill Development.
CO2	Define Media and Pop-culture, Media and Social Relations, Media and Life world for skill Development.
CO3	Understand the Media as an Agency of Social Change, Globalization of Media; Changing Dimensionsfor skill Development.
CO4	Explain the Role and Impact of Media in Globalizationfor skill Developmenty at national & global level .

Course Code	SOCEC107
Course Name	**Political Sociology**

COs	Description
CO1	Discuss the emergence of political sociology as an intersection of sociology and political science and describe political socialization and its agenciesfor skill Development.
CO2	Explain the theory of Circulation of Elite and Power Elite as given by Pareto & C.W. Mill and describe the theory of Authority and Bureaucracy as given by Max Weber & Mitchell for skill Development.
CO3	Explain Identity Politics, role of religion and caste in Indian politics and how the ethnicity affects politicsfor skill Development at national level .
CO4	Assess the Role of Mass Media and Problems of Communication in Illiterate Societies.for skill Development.

Sanjeev Rawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	SOCCC201
Course Name	Contemporary Sociological Theory

COs	Description
CO1	Explain the Nature and Types of Sociological Theory and Relationship between theory and research for skill Development.
CO2	Explain the Structural- functionalism: The idea of social structure: A. R. Radcliffe Brown for skill Development.
CO3	Explain the Conflict Perspectives and Structural Marxism of R. Dahrendorf, Functions of Conflict of Lewis Coser. And also Conflict and social change of R. Collins for skill Development.
CO4	Explain the Resent trends in sociological theory of Anthony Giddens and Habitus and Field of Bourdieufor skill Development.

Course Code	SOCCC202
Course Name	Methods and Techniques of Sociological Research

COs	Description
CO1	Discuss concepts and issues related to Social Science research.Explain the various approaches that can be adopted for conducting social science research , as Inductive , Deductive and Hypothesisfor skill Development.
CO2	Describe Methods of Social Research: Basic, Applied, Action, Quantitative,Survey techniques, Research design, Sampling designfor skill Development.
CO3	Understand the concept of Qualitative Research Techniques ,Logic of Inquiry, Research Designs and sampling, Case study method, Content analysisfor skill Development.
CO4	Understand the basic characteristics of different methodologies used for Data collection.Know the application of statistics in social research and how to calculate mean, median, mode and standard deviationfor skill Development.

Course Code	SOCCC203
Course Name	Theoretical Perspectives on Development

COs	Description
CO1	Explain the meaning of Social Change and describe Economic growth,Human development, Social development, Sustainable development for skill Development.
CO2	Understand the Problems of developing societies for skill Development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand the Theories of development and Theories of underdevelopment for skill Development.
CO4	Explain the Paths of development: capitalist, socialist, mixed economy, Gandhian,Culture and Institutional barriers of development at national level for skill Development.

Course Code	**SOCCC204**
Course Name	**Comparative Sociological Theories**
COs	**Description**
CO1	Explain the Meaning and Scope of Comparative Sociological theory ,Understand the Social Action ,Theory of Middle Range , Anomie and Reference Group for skill Development.
CO2	Explain the Theory of Conflict Understand the Theory of Conflict ,the Functions of Social Conflict, and Theory of Class Conflictfor skill Development.
CO3	Students understand the Symbolic Interactionismfor skill Development.
CO4	Students understand the Theory of Social Exchangefor skill Development.

Course Code	**SOCEC205**
Course Name	**Perspectives on Indian Society**
COs	**Description**
CO1	Explain the ideas of G.S. Ghurye and Louis Dumont and Discuss in brief about their methodology and contribution to Sociology of Indiafor skill Development at national level .
CO2	Explain the ideas of D.P. Mukherjee, & A. R. Desai, Ramkrishan Mukherjee on Theoretical Perspective.Describe the ideas of Irawati Karve & A.M. Shah on Synthesis of Textual and Field Viewsfor skill Development.
CO3	Describe the ideas of N.K. Bose & Surajit Sinha on Civilizational Perspective and of B.R. Ambedkar & David Hardiman on Subaltern Perspective at national levelfor skill Development.
CO4	Understand the Current Debates on Contextualization and Indigenization and explain the use of native categories in the analysis of Indian Society, Text and Context, Sociology for India at national leve for skill Development.

Sanjeev Agarwal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	SOCEC206
Course Name	Social Demography

COs	Description
CO1	Understand Nature and Scope Social Demography, and Relation between Sociology and Social Demography for skill Development at national level.
CO2	Discuss Malthus' and Dumont's Theory of Population, and Theory of Demographic Transitionfor skill Development.
CO3	Explain Determinants, Differentials and Measurement of Fertility and Mortality, Causes and remedies of Infant Mortality: Determinants and consequences Migration for skill Development.
CO4	Understand the Source of Population Data and Factors Responsible for Rapid Population Growth.Describe Family Planning Programme in India for skill Development.

Course Code	SOCEC207
Course Name	Science, Technology and Society

COs	Description
CO1	Understand The relationship between science and the social, Conventional view of philosophers and historians of science for skill Development.
CO2	Understand The Sociology of Scientific Knowledge (SSK), Post colonial Studies of Science and Feminist Studies of Science for skill Development.
CO3	Understand the Colonial science, human body and science, comparative anatomy in the 19th century for skill Development at national level .
CO4	Understand the Questioning of the traditional boundary between science (knowing) and technology for skill Development

Course Code	MASC311
Course Name	Modern Sociological Theories

COs	Description
CO1	Understanding of Sociological Theory of Talcott Parsons, Robert K. Merton and Neo functionalism of Jeffrey Alexanderfor skill Development.
CO2	Understanding of Conflict Perspectives and Structural Marxism of L. Althusser, Hegemony of Antonio Gramsci, The Class and Class Conflict in Industrial Societies of Dahrendorf-, Functions of Conflict of Lewis Coserfor skill Development.
CO3	Understanding of G.H. Mead, Erving Goffman,A. Schultz, Garfinkel, P.Berger and Luckmann' Thoughtsfor skill Development.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Understanding of Jurgen Habermas, Michael Foucault's theory and understanding of Jacquis Derrida, Anthony Giddens on Structuration, Pierre Bourdieu and Ulrich Beck's Risk Societyfor skill Development.

Course Code	**MASC312**
Course Name	**Gender and Society**
COs	**Description**
CO1	Understand the concepts of sex and gender, Models of Gender Socialization, and Gender and Stratification for skill Development.
CO2	Explain the various Approaches to the study of women and post modern feminismfor skill Development
CO3	Discuss Gender based Division of Labour / Work and Major Women Movement Development and the nature of identity politics in relation to these movements, and impact of Globalization on Womenfor skill Development at national & global level .
CO4	Understand the status of women in India and their specific problems, and issues affecting their quality of life. Explain the role of education and legislation in bringing change in the status of women for skill Development at national & global level .

Course Code	**MASC313**
Course Name	**Social Anthropology**
COs	**Description**
CO1	Understand the meaning, scope of anthropology and its relationship Sociology.Explain Features of Tribes and Concept of Tribe Caste Continuum in Indiafor skill Development.
CO2	Understand the factors that shaped the development of anthropological theories namely Evolutionism and Diffusionism, Functionalism and Structuralism for skill Development.
CO3	Define Kinship and its importance in Primitive Societies and describe Types of Kinship Groups at national level for skill Development.
CO4	Explain the Theories of Origin of Religion namely Evolutionary and Functional, Magic and Religion and its importance in Primitive Societies.Describe the Concept of Tribe, Tribal Community Development and Tribal Policies in India at national levelfor skill Development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MASC314
Course Name	Urban Sociology

COs	Description
CO1	Explain the origin and development of urban sociology and the concept of city at national level for skill Development.
CO2	Define urbanization and its process & social consequences in India at national level for skill Development.
CO3	Understand the causes and consequences of migration in city at national level . And Housing Problems, Emergence of Slums, Environmental problems of Cities, Urban Poverty, Unemployment for skill Development.
CO4	Assess the need and importance of city planning in India and different Approaches for planning. Describe the factors and problems influencing planning, regional planning and policies for planning Understand the pre industrial city and post industrial city at national level for skill Development.

Course Code	MASC315
Course Name	Sociology of Religion

COs	Description
CO1	Define Religion and differentiate between Religion and Dharmaa, explain the theories of origin of religion and outline the social functions of religion for skill Development.
CO2	Establish relationship between Rituals and Myths, Religion and Social Disorganization, Religion and Crime.Explain the Religious Organization namely Sect, Denomination, Cult, Religious Leadership for skill Development.
CO3	Establish relationship between Religion and Social Structure, Religion and Social Change, Religion and Economic System and Religion and Sciencefor skill Development.
CO4	Describe the genesis of major Religion of World namely Hinduism, Jainism, Buddhism, Judaism, Christianity and Islam for skill Development at national & global level .

Course Code	MASC316
Course Name	Science Technology and Theories

COs	Description
CO1	Explain theScience-its importance for skill Development
CO2	History of modern science at national & global level for skill Development

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Explain Indian social structure at national & global level for skill Development
CO4	Describe the Social background of Indian scientists at national & global level for .skill Development

Course Code	MASC317
Course Name	**Traditinal Theoritical Foundations**
COs	**Description**
CO1	Explain the Karl Marx, Dahrendorf and Lewis Coserfor skill Development
CO2	Explain the Max Weber for skill Development
CO3	Explain Vilfredo Paretofor skill Development
CO4	Describe the Althusser , Gramsci for skill Development

Course Code	MASC318
Course Name	**Continuity and Change in India**
COs	**Description**
CO1	Explain the Social Legislation and Social Upliftment for skill Development
CO2	Explain the Historicity of Planning, Five Year Plan at national level for skill Development
CO3	Explain Tribal Development for skill Development
CO4	Describe the Tribal Development for skill Development

Course Code	MASC319
Course Name	**Peasant Society and Social Change**
COs	**Description**
CO1	Understand the theories of social change viz. The direction of social change and the cause of social change and assess the process of change for skill Development
CO2	Explain the Historicity of Planning, Five Year Plan for skill Development
CO3	Explain Tribal Development for skill Development
CO4	Describe the Tribal Development for skill Development

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MASC320
Course Name	Community Health Management

COs	Description
CO1	Understand the Management of Doctor-Patient Relationship for skill Development
CO2	Explain the Ageing: Diseases and Problems for skill Development
CO3	Explain the Meaning of illness, Social and emotional components in illness for skill Development
CO4	Describe the Health education: meaning and conception of health for skill Development

Course Code	MASC411
Course Name	Perspective on Indian Society

COs	Description
CO1	Explain the ideas of G.S. Ghurye , Louis Dumont M.N. Srinivas and S. C. Dube. Discuss in brief about their methodology and contribution to Sociology of India for skill Development
CO2	Explain the ideas of D.P. Mukherjee, & A. R. Desai, Ramkrishan Mukherjee on Theoretical Perspective.Describe the ideas of Irawati Karve & A.M. Shah on Synthesis of Textual and Field Viewsfor skill Development.
CO3	Describe the ideas of N.K. Bose & Surajit Sinha on Civilizational Perspective and of B.R. Ambedkar & David Hardiman on Subaltern Perspectivefor skill Development.
CO4	Understand the Current Debates on Contextualization and Indigenization and explain the use of native categories in the analysis of Indian Society, Text and Context, Sociology for Indiafor skill Development.

Course Code	MASC412
Course Name	Criminology and Penology

COs	Description
CO1	Define Criminology and Explain the Theory of Causation of Crime. Explain Classical and Constitutional Theory of Crime of Lombroso and Hooton, and Economic Theoryfor skill Development.
CO2	Analyze Merton's theory of Social Structure of Crime, Durkheim's theory of Anomie, Theory of Cultural Conflict and Cohen's Sub-Culture Theory.Describe Differential Association Theory of Sutherland and

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	Labeling Theory of Crimefor skill Development.
CO3	Explain the typologies of crimes and punishments for skill Development.
CO4	Understand the Police and Judicial System and define the terms Probation, Parole, Walless Prison, and Victimologyfor skill Development.

Course Code	MASC413
Course Name	Industrial Sociology

COs	Description
CO1	Explain the concept of Industrial Sociology and outline the Industrial Dimensions of Society. Division of Labour, Anomie, Bureaucracy & Rationalization, Surplus Value of Karl Marx; Factories Act 1948for skill Development.
CO2	Outline the concept of Industrial Work and make a distinction between Capitalist & Post-Capitalist Society, Industrial Society & Post- Industrial Societyfor skill Development.
CO3	Describe Industrial Relations and discuss Causes of Industrial Dispute.Outline the process of collective bargaining or method for setting industrial disputefor skill Development.
CO4	Explain the Impact of Industrialization on Stratification, on Family and Education, discuss the Limitations of Industrialization.Review the work of Ralf Dahrendorf on Class and Class conflict in industrial society for skill Development.

Course Code	MASC414
Course Name	Sociology of Health

COs	Description
CO1	Define Sociology of Health and Explain the concept of health and illness, and discuss different social determinates of health and illness for skill Development.
CO2	Explain the Functionalist, Conflict; Interaction is Perspectives on Sociology of Healthfor skill Development.
CO3	Understand the concept of Family and Health care and explain the Health care facilities for elderly, maternal and children.Explain the concept of community Health, discuss Major health issues in India, and state the Major government schemes and programmes to combat the community health problemsfor skill Development.
CO4	Analyses the Indigenous Knowledge systems of medicine and alternative practicesin Developing Countries.Explain the role of NGOs and Health care professionals in combating health issues in Developing Countriesfor skill Development.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MASC415
Course Name	Sociology of Enviornment

COs	Description
CO1	Understand the Environment and Social Environment for skill Development .
CO2	Explain the Environment and Ecology for skill Development.
CO3	Issue Concerning Environment and Development for skill Development.
CO4	Environment Concerns and Movements for skill Development.

Course Code	MASC416
Course Name	Rural and Urban System

COs	Description
CO1	Understand the Rural Society for skill Development
CO2	Explain the Agrarian Institutions for skill Development
CO3	Understand the Urban Society for skill Development
CO4	Explain the Rural-Urban continuum for skill Development

Course Code	MASC417
Course Name	Trible Economy and Society

COs	Description
CO1	Understand the Indian Tribes , Religion, Magic and Totemicfor skill Development
CO2	Explain the Magic, Origin and kinds of Totem for skill Development
CO3	Explain the Primitive Social Organization:for skill Development
CO4	Explain the Primitive Economy for skill Development

Course Code	MASC418
Course Name	Perspective on Rural Development

COs	Description
CO1	Understand the Approaches to Study of Rural Societyfor skill Development
CO2	Explain the Agrarian Institutions for skill Development

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Explain the Urban Society for skill Development
CO4	Explain the Origin and Growth of Urban Centers for skill Development

PROGRAMME NAME – MASTER OF SOCIAL WORK(MSW)

Course Code	MSWCC101
Course Name	**Social Work Profession: Concept, Philosophy and Development**
COs	**Description**
CO1	Define Social Work, Meaning, Definitions, Objectives, Relationship with Sociology for skill Development and employability.
CO2	Understand Historical Development of Social Work in U.K,U.S.A,India to fulfill national & Global needs for skill Development and employability.
CO3	Students will be able to gain knowledge of Ethic and philosophy, emerging trends of Social work for skill Development and employability.
CO4	Define Profession its characteristics and Functions of Professional Social Work.for skill Development and employability.

Course Code	MSWCC102
Course Name	**Social and Psychological Foundation of Social Work**
COs	**Description**
CO1	Define Social Work, Meaning, Definitions, Objectives, Relationship with Sociology for skill Development and employability.
CO2	Understand Historical Development of Social Work in U.K,U.S.A, India to fulfill national & Global needs for skill Development and employability.
CO3	Will be able to gain knowledge of Ethic and philosophy, emerging trends of Social work.And Social service and reform tradition in India to fulfill national & Global needs for skill Development and employability.
CO4	Understand the Psychology in Social Work ,heredity and environment,basic psychology Process for skill Development and employability.

Sanjeev Bawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSWCC103
Course Name	Sociology for Social Work in India

COs	Description
CO1	Define and Nature of Sociology and its relationship with Social Work. Understand Emergence of Sociology, Industrial Revolution, French Revolution, Society, Community, Institution and Association to fulfill national & Global needs for skill Development and employability.
CO2	Understand Historical Social Group and its types, differentiate between In Group and Out Group,Culture, Tradition, Norms, Values Folkways and Mores. Comprehend Social Structure and its Role and Status for skill Development and employability.
CO3	Understand social institutions, Explain Socialization, Social Control, Social Change,Cooperation and Social Conflict for skill Development and employability.
CO4	Define Composition of Indian Society, The concept of Unity and Diversity,Stratification in India, Caste and Class Division for skill Development and employability.

Course Code	MSWCC104
Course Name	Social Case Work, Theory & Practice

COs	Description
CO1	Understand Social Case Work, Social & Professional Relationship, Client – Worker Relationship and Historical Development of Social Case Work for skill Development and employability.
CO2	Explain Social Case Work Process and Approaches to Social Case Work to fulfill national .for skill Development and employability.
CO3	Understand various Techniques & Skills in Social Case Work for skill Development and employability.
CO4	Explain Role of Social Case Worker in Various Settings, Recording & Evaluation in Social Case Work for skill Development and employability.

Course Code	MSWEC105
Course Name	Personality & Dynamics of Human Behaviour

COs	Description
CO1	Define Personality and explain its types and various Stages of Development.Understand Interplay of Heredity & Environment in shaping Human Behaviour and theories of Personality for skill Development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Understand Basic Socio-Psychological Processes,Learning, Socialization, Motivation, Attitudes, Belief for skill Development and employability.
CO3	Understand Human Behaviour, Heredity and Environment, Reflectors, Behavioural Problems in Different Stages of Personality Development, Adjustment and Leadership to fulfill national level for skill Development and employability.
CO4	Understand Concept of Normality & Abnormality, Types of Abnormal Behaviour,Defense Mechanism, Etiology of Abnormal Behaviour, Psychosis and Psychoneurosis Management of Mental Disordersfor skill Development and employability.

Course Code	MSWEC106
Course Name	**Population & Environment**

COs	Description
CO1	Explain Population and its Characteristics, Aspects, Dimensions & Major Components of Population Growthfor skill Development and employability.
CO2	Explain and differentiate between Malthus' and Dumont's Theory of Population. Understand the Theory of Demographic Transition for skill Development and employability.
CO3	Understand the concept and meaning of Environment and Environmental, Management and Environmental Movements in India to fulfill national & Global needs for skill Development and employability.
CO4	Explain laws on Environment Protection in India to fulfill national & Global needs for skill Development and employability.

Course Code	MSWEC107
Course Name	**Social Work Practice in Mental Health**

COs	Description
CO1	Develop competencies to work within health and medical social work settings for skill Development and employability.
CO2	Understand the concept Health Diseases, Health Service and Health Management at the local Level for skill Development and employability.
CO3	Understand the Health Service and System in India ,Health Management at the local Level for skill Development and employability.
CO4	Understand the Community Health: Concept Definition Scope and Programmes for skill Development and employability.

Sanjeev Agrawal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSWCC201
Course Name	Social Work Intervention with Individuals

COs	Description
CO1	Able to develop in-depth knowledge of social case work and its Values and Scope for skill Development and employability.
CO2	Able to understanding various approaches to social case work for skill Development and employability.
CO3	Able to know the Therapeutic Approaches to Social Casework for skill Development and employability.
CO4	Able to develop in-depth knowledge of Tools of Social Casework: Use of Self, Use of Authority, Use of relationship, Use of Interaction and Programme Planning and Development for skill Development and employability.

Course Code	MSWCC202
Course Name	Social Work Intervention with Groups

COs	Description
CO1	Able to familiarizing with basics of Social Group Work, group formation and dynamicsfor skill Development and employability.
CO2	Able to understanding the practical base of group work practice in various settings. And approaches, skills, process and Group dynamics for skill Development and employability.
CO3	Able to understand the Group Work in Practice, Programme Planning in Group Workfor skill Development and employability.
CO4	Able to know communities; leadership, role and responsibilities of a leader in group work for skill Development and employability.

Course Code	MSWCC203
Course Name	Social Work Research and Statistics

COs	Description
CO1	Define and explain the methods of Social Work Research for skill Development and employability.
CO2	Understand the concept of Logic of Inquiry, Hypothesis, Research Design and explain the Strategies used for Research to fulfill national & Global needs for skill Development and employability.
CO3	Understand the Source of Data, Tools of Data Collection and explain the Sampling of Data for skill Development and employability.

Sanjiv Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Explain Social Statics through Measurement of Central tendency viz Mean, Median and Mode and Measures of Variability for skill Development and employability.

Course Code	**MSWCC204**
Course Name	**Community Organization, Theory & Practice**

COs	Description
CO1	Explain Community, its Concept, Nature, and Characteristics & Types at state level.
CO2	Understand Community Organization and explain its Process.
CO3	Explain the Role and Functions of Community Organization Worker, Community Organization in Different settings and Intervention of NGO's.
CO4	Understand Approaches, Models and Strategies of Community Organization.

Course Code	**MSWEC205**
Course Name	**Social justice, Human Right & Social Welfare**

COs	Description
CO1	Explain the Concepts, Concerns and Issues of Social Justice Social and its relationship with Social Legislation, social injustice and mandate for social justice. Understand the Role of social workers in Promoting Social Justicefor skill Development and employability.
CO2	Describe Human rights and Universal Declaration of human Rights.Explain Human Rights and Rights to welfare, constitutional Rights.Describe Fundamental Rights and Directive Principles of State policies for skill Development and employability.
CO3	Explain Social Welfare, Concept of Welfare State, Social Legislation in India, and FiveYear Plans in India to fulfill national & Global needs for skill Development and employability.
CO4	Describe the Welfare Laws enacted by the Indian State at local level for skill Development and employability.

Course Code	**MSWEC206**
Course Name	**Social Works with Older Persons**

COs	Description
CO1	Describe the Meaning and Concept of Aged and Demography of the Ageing in India.Understand the psychosocial theories of Ageing and Social work Intervention with Elderly for skill Development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO2	Explain the Changing Roles, Power and Status of Older Persons.Describe the Psychological, Social and Physical needs and problems of Older Persons for skill Development and employability.
CO3	Understand Health and Mental health Consequences of Ageing viz Anxiety, Depression, Suicidal Tendencies and Alzheime's Disease for skill Development and employability.
CO4	Describe Rights of Older Persons and International Resolutions.Explain Social Security measures and Schemes for the Welfare for the Aged.Describe Agencies and Institution for the Care of Older Persons for skill Development and employability.

Course Code	**MSWEC207**
Course Name	**Social Group Work, Theory & Practice**

COs	**Description**
CO1	Explain Social Group Work, Basic Assumptions, Values & Skills and Historical Development of Social Group Work for skill Development and employability.
CO2	Understand Group Formation, Programme Planning & Development and Recording & Evaluation in Social Group Workfor skill Development and employability.
CO3	Explain Models of Social Group Work Practice for skill Development and employability.
CO4	Understand Group Process, Leadership and Role of Social Group Worker in Various Settings for skill Development and employability.

Course Code	**MSW311**
Course Name	**Social Policy and Planning**

COs	**Description**
CO1	Explain Concept, Objectives and Scope of Social Policy.Understand Principles of Policy Making and Distinction between Social and Economic Policies.Describe Values underlying social policy and planning.Understand the Sources of Social Policy, Directive Principles, Fundamental Rights and Human Rights.for skill Development and employability.
CO2	Explain the Process of Social Policy Formulation, Role of Professional Social Workers. Review the Major Social Policies on Education, Health and Housing for skill Development and employability.
CO3	Describe Social Planning and Linkages between Social Policy and Planning.Understand the Sources of Planning viz Constitution and describe Democratic Decentralization to fulfill national & Global needs for skill Development and employability

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO4	Explain Welfare Planning In India for the Welfare of Child, Women, Youth Aged, Minorities and Welfare of Physically Challenged Groupfor skill Development and employability.

Course Code	**MSW312**
Course Name	**Social Development in India**

COs	Description
CO1	Define Development and its indicators.Explain Social Development and Social Work and Role of NGOs in social movements and Social Development to fulfill national & Global needs for skill Development and employability.
CO2	Describe the theories, strategies and Ideologies of development and explain growth model, Gandhian Models, Marxian and Dependency Models for skill Development and employability.
CO3	Understand social development in India viz Sanskritazation , westernization , Secularization and Modernization. Describe development in India in Historical and Social context during Pre and Post Independent phase , Governmental Measures and five years plans, Neo political , economy and Social Development for skill Development and employability.
CO4	Understand issues and perspectives in sustainable development and problems of sustainable social development in India to fulfill national & Global needs. Explain globalization and sustainability and global effort for human development for skill Development and employability.

Course Code	**MSW313**
Course Name	**Management of Development & Welfare Services**

COs	Description
CO1	Explain the Meaning, Concept, Principles and Functions of Social Welfare Administration,Organization: Meaning, Nature and Design,Decision making, Coordination for skill Development and employability.
CO2	Appreciate the Purpose, Sources and Characteristics of Good Budget and the Methods and Principles of Good Budgeting. Understand the Principles of Fund raising.Explain the Role of Fund Raiser and the Factors Affecting Fund Raising for skill Development and employability.
CO3	Understand the Meaning and Functions of Communication and explain its Channels,Models and the Communication Tools for skill Development and employability
CO4	Appreciate the Importance of Public Relations in Organization. Understand the need of Media Relations, Publicity, Awareness Advertising and Social Marketing at local level for skill Development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSW314
Course Name	Family and Child Welfare

COs	Description
CO1	Explain the scope of family and child welfare, and describe origin, characteristics, types and functions of family for skill Development and employability.
CO2	Understand the problems related to family viz. adjustment, family tension, deviance, alcoholism and drug abuse, divorce & separation and family disorganization for skill Development and employability.
CO3	Appreciate the family welfare policies enacted by the Government at national level for skill Development and employability.
CO4	Understand the various programmes for welfare of family for skill Development and employability.

Course Code	MSW315
Course Name	Criminology & Correctional Administration

COs	Description
CO1	Understand the concept of Criminology and Theories of Crime for skill Development and employability.
CO2	Define Crime and explain its Causes, Prevention & Control . Understand Juvenile Delinquency and explain its Causes, Prevention & Control. Describe New Forms of Crime viz. Organized Crime, White-Collar Crime Cyber Crimes & Terrorism for skill Development and employability.
CO3	Define Penology and Theories of Punishment and Imprisonment for skill Development and employability.
CO4	Understand Prison Administration & Prison Reform in India and Social Work Practice in Prisons to fulfill national & Global needs for skill Development and employability.

Course Code	MSW315-I
Course Name	Youth Welfare and Development

COs	Description
CO1	Define Youth Development And Empowerment ,Youth welfare : Concept, need and historical development, need and process, youth movement for skill development and employability.
CO2	Youth Development And Empowerment: An Introduction: Youth Welfare : Concept, Need and Historical Development, Youth Development for skill development and employability.

Sanjeev Dawar
REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Describe Issues and Problems of Youth Problems of Urban, Rural Youth and Female Youth,Exploitation of youth with reference to communalism and terrorism, Alcoholism and drug dependency to fulfill national & Global needs for skill Development and employability.
CO4	Understand issues and perspectives in sustainable development and problems of sustainable social development in India. Explain globalization and sustainability and global effort for human development for skill Development and employability.

Course Code	**MSW315-II**
Course Name	**Rural Society & Panchayati Raj Institution in India**

COs	**Description**
CO1	Define rural society, differentiate between tribal, peasant, and urban societies, identify the types of village in India, little Community and talk/write knowledgeably about a few important rural studies for skill Development and employability.
CO2	Identify various elements of rural social structure in India and describe the characteristic features rural social structure, Agrarian Relations and Mode of Production Debate to fulfill national & Global needs for skill Development and employability.
CO3	Understand the origin of local governance in India, Explain the evolution of Panchayati Raj Institutions, Discuss the initiatives taken by various committees on at local level for skill Development and employability.
CO4	Explain the relationships between land reforms and agrarian transformation and the limitations of land reforms for skill Development and employability.

Course Code	**MSW315-III**
Course Name	**Perspectives on Rural Development**

COs	**Description**
CO1	Understand the Approaches to Study of Rural Society for skill Development and employability.
CO2	Explain the Agrarian Institutions for skill Development and employability.
CO3	Explain the Urban Society for skill Development and employability.
CO4	Explain the Origin and Growth of Urban Centers for skill Development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSW315-IV
Course Name	Correctional Administration

COs	Description
CO1	To understand changing patterns of urban community and urbanization process in recent to fulfill national & Global needs times for skill Development and employability.
CO2	To understand the ecological and developmental issues and their implications on urban community for skill Development and employability.
CO3	To understand the structure and functions of urban administrative bodies for skill Development and employability.
CO4	Prisons, Remand Homes, Observation Homes, Special Schools, Beggar Homes at national level for skill Development and employability.

Course Code	MSW315-V
Course Name	Counseling & Communication

COs	Description
CO1	To understand Counseling : Meaning, Definition, Relevance to Social Work at national level for skill Development and employability.
CO2	Methods and Techniques of counselling : Counselling process : Phases And Steps,Counselling Techniques for skill Development an employability.
CO3	To understand the Communication framework Concept,Definition, Components, Significance, Steps and Methods for skill Development and employability.
CO4	Communication System in Organization for skill Development and employability.

Course Code	MSW411
Course Name	Organizational Behaviour

COs	Description
CO1	Understand Concept and nature of Organizational Behaviour and Need to understand human Behaviour, Challenges and Opportunities for Organizational Behaviour for skill Development and employability.
CO2	Describe Individual Behaviour, Learning theories and reinforcement schedules,Personality determinants and traits, Perception Process and errors, Interpersonal Behaviour, Johari Window and Transactional Analysis at local level for skill Development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD

CO3	Understand Group Behaviour & Team Development.Types of Groups, Theories of Group Formation,Group Decision Making, Inter Group Behaviour, Concept of Team Vs. Group at local level for skill Development and employability.
CO4	Explain Organization Culture and Conflict Management process and resolution of conflict,Managing Change, Managing across Cultures, Empowerment and Participation at local level for skill Development and employability.

Course Code	**MSW412**
Course Name	**Human Resource Management & Industrial Relations**

COs	**Description**
CO1	Explain Meaning, Objectives, Functions and Scope of HRM &HRD, and describe Relationship between HRD, HRM & Personnel Management at local level for skill Development and employability.
CO2	Define HR Planning and describe its Determinants.Understand Recruitment and Selection Processes and describe Concept HRIS for skill Development and employability.
CO3	Explain Job Analysis, Job Design, Job Evaluation, and Wage Determination, Methods of Wage Determination for skill Development and employability.
CO4	Understand Industrial Relations, Industrial Relation Machinery, Workers Participation in Management and Collective Bargaining, and explain Trade Unions as Bargaining Agent at local level for skill Development and employability.

Course Code	**MSW413**
Course Name	**Labour Welfare and Social Security**

COs	**Description**
CO1	Define Social Security and explain Constituents of Social Security, Growth of Social Security, and its Current Scenario in India at national level for skill Development and employability.
CO2	Explain Social Security Laws viz. Workmen's Compensation Act, 1923, Maternity Benefit Act, 1961 and Minimum Wages Act, 1948 at national level for skill Development and employability.
CO3	Explain Social Security Law-II viz.Employee's State Insurance Act, 1946, Payments of Wages Act, 1936, Employee's Provident fund and Miscellaneous Provision Act, 1952 for skill Development and employability.
CO4	Understand Labour Welfare in India viz. Factories Act, 1948, Contract Labour (Regulation and Abolition) Act, 1970, Industrial Employment

REGISTRAR
IFTM UNIVERSITY
MORADABAD

	(Standing Orders) Act, 1946 and Industrial Disputes Act, 1947. Explain the Role of Welfare Officer at national level for skill Development and employability.

Course Code	MSW414
Course Name	**Rural-Urban Community Development**

COs	Description
CO1	Know Concepts, Goals, Ideology, Process, Principles and Characteristics of Community Development for skill Development and employability.
CO2	Describe Concept, Approaches and Strategies Rural Community Development and Explain Rural Development Programmes in India. And role of Panchayati Raj Institutions and NGOs in Rural Development at local level for skill Development and employability.
CO3	Explain Causes and Consequences Urbanization and describe Urban Community and Role of NGO's in Urban Development, and Urban Community Development Programmes in India, 74th Amendment and Local Bodies, Role of NGO's in Urban Development at national level for skill Development and employability.
CO4	Understand Problems of Rural & Urban Development viz. Poverty and Unemployment, Illiteracy and Social Inequality, Housing, Health and Sanitation, and Problems of Slums at national level for skill Development and employability.

Course Code	MSW415
Course Name	**Dimensions 0f Health & Medical Social Work**

COs	Description
CO1	Explain Meaning, Development, Need, Scope, Principles & Skills of Medical Social Work.Understand the concept of Health and Basic Rules for Healthy Livingfor skill Development and employability.
CO2	Describe Social and Cultural Factors of Health and understand Problems of Health in India at national levelfor skill Development and employability.
CO3	Explain Role of Medical Social Workers in Various Settings.Child Guidance, Clinics, Specialized Hospitals, Counseling Centers, Rehabilitation Centers for skill Development and employability.
CO4	Explain Concept, Meaning, Definitions and Objectives of Community Health. Describe Programmes of Community Health, Various Approaches to Community Health and explain Role of Medical Social Worker in Promotion of Community Health for skill Development and employability.

Sanjeev Bajaj
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSW415-I
Course Name	**Group Process and Dynamics**

COs	Description
CO1	To understand Issues and Basic Assumptions of Group Dynamics for skill Development and employability.
CO2	To understand the Dynamic Interaction: Leadership, Group Morale,Interpersonal Attraction at local level for skill Development and employability.
CO3	To understand Elements of Social Behaviour: Social Motives,Aggression,Achievement,for skill Development and employability.
CO4	To understand Prisons, Remand Homes, Observation Homes, Special Schools, Beggar Homes for skill Development and employability.

Course Code	MSW415-II
Course Name	**Theories of Group Interactions**

COs	Description
CO1	To understand Theories of Group Interaction for skill Development and employability.
CO2	To understand Social Deprivation: Models, Techniques of Measurement for skill Development and employability.
CO3	To understand Group Behaviour & Team Development for skill Development and employability.
CO4	To understand Group Process, Meaning, Group Dynamics for skill Development and employability.

Course Code	MSW415-III
Course Name	**Participatory Approaches in Development and Social Work Practice Skills**

COs	Description
CO1	Welfare Administration, Organization, Meaning, Nature and Design, Decision making, Coordination for skill Development and employability.
CO2	Social Welfare Administration, Meaning, Concept & Principles, Functions of Social Welfare Administration for skill Development and employability.
CO3	Techniques & Skills in Social Case Work for skill Development and employability.
CO4	Role of Social Case Worker in Various Settings for skill Development and employability.

Sanjeev Bansal
REGISTRAR
IFTM UNIVERSITY
MORADABAD

Course Code	MSW415-IV
Course Name	Industry and Society in India

COs	Description
CO1	Understand the Industry: Definition, Scope, Industrial Dimensions of Society at national level for skill Development and employability.
CO2	Understand the Industrial Work: Definition and Nature, Capitalist & Post-Capitalist Society,Industrial Society & Post- Industrial Society for skill Development and employability.
CO3	Describe the Bases of Indian Social System: Verna, Ashram, Purushartha, Doctrine of Karma and Sanskara at national level for skill Development and employability.
CO4	Understand the role of Social Case Worker in Various Settings for skill Development and employability.

Course Code	MSW415-V
Course Name	Welfare Development & Empowerment of Women

COs	Description
CO1	Understand the Women in India,The changing profileof women for skill Development and employability.
CO2	Understand the Women Empowerment: Concept and Dimensions for skill Development and employability.
CO3	Demographic profile related to education, health, employment and political participation of women at national level for skill Development and employability.
CO4	Problems of women in Indian Context for skill Development and employability.

REGISTRAR
IFTM UNIVERSITY
MORADABAD