



AUXILIUM COLLEGE (Autonomous)

(Accredited by NAAC with A+ Grade with a CGPA of 3.55 out of 4 in the 3rd cycle)
Gandhi Nagar, Vellore – 6.

Curricula developed and implemented have relevance to the local, national, regional and global developmental needs which is reflected in Programme outcomes (POs), Programme Specific Outcomes(s) and Course Outcomes (COs) of the Programmes offered by the Institution.

FOCUS: EMPLOYABILITY NEEDS

Programme	Course Code	Title of Course	Description	PO	PSO	CO
B.A. English	UALSC20	Allied I Language Skills for Communication	The course seeks to impart the essential skills required to communicate in English as it is the global link language and is the medium required for employment and research	Attain knowledge and understand the principles and concepts in the respective discipline. Effectively communicate general and discipline specific information, ideas and opinions.	Attain fluency, accuracy and a good command in the four skills (listening, speaking, reading and writing) of English Language Apply the knowledge of form, structure, history and contextual cultural diversity and comprehend the applications of the English Language in practice	Demonstrate adequate efficiency in oral and written communication in English Demonstrate knowledge of the structure of English language Understand the process of communication in general and communication in English Utilize the knowledge and skills of English language to get employment
B.A. English	USENA20	SBE English for Communication	Enhances the fluency in English for effective communication	Effectively communicate general and discipline specific information, ideas and opinions.	Attain fluency, accuracy and a good command in the four skills (listening, speaking, reading and writing) of English	Acquire knowledge on employment communication.

					Language	
B.A. English	USENA20	SBE II Conversational English	Apply communicative skills for conversational and academic purposes.	Emulate positive social values and exercise leadership qualities and team work.	Discern avenues for higher learning, career options, and venture entrepreneurship	Implement the strategies for effective speech communication.
B.A. English	USENC20	SBE III English for Competitive Examinations	Emphasizes on the writing skills to crack diversified national and international competitive examinations to pursue higher studies and get employment	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Discern avenues for higher learning, career options, and venture entrepreneurship	Speak and write fluently in English
B.A. English	USENC20	SBE IV Journalism	Develops the career opportunities in the field of Journalism	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Appreciate life, think critically, and develop positive, interpersonal relationship with fellow humans	Write news articles and edit news
B.A. English	UGENA617	Non-Major Elective II Communication and Soft Skills	Enables the strategies to decipher work load and cater duties according to the needs of the specific chosen fields	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Appreciate life, think critically, and develop positive, interpersonal relationship with fellow humans	Enhance skill based competencies for better communication among students

B.A. History	USHIB20	Introduction to Competitive Examination	To help the students to gain knowledge on all levels to face the Competitive exams	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society	Prepare for various types of Competitive Examinations and acquire human values like equality, freedom, and Social Justice and contribute towards the needs of the society	Discuss the Memory and Inductive Reasoning for Current Affairs and its significance for competitive exams.
B.B.A	UABUA20	Business Communication	Course depicts the basic concepts of communication process	Communicate the general ideas, opportunities and opinions and to become empowered and motivated citizens of the country.	Acquire the basic and managerial communications skills to gain professionalism.	Impart the importance of Communication and to understand the concepts of Communication.
B.B.A	UCBAC20	Organisational Behaviour	Know the fundamental concept of Organizational Behaviour	Adapt towards the positive thinking capacity, to adapt the social values, to exercise leadership qualities and bringing out their capabilities through team work	To get an exposure by applying the theoretical knowledge into practice by carrying out the institutional training and projects in the organizations.	Assess the attitudinal and motivational behaviour and group dynamics of an individual
B.B.A	UABEA20	Business Environment and Ethics	To know about the environment and its impact on business. Recognize the importance of business ethics and social responsibility in today's business	Mould the students to face the challenges in the global business environment and the society.	To attain the ability to be self-directed towards their career and contribute to the society as responsible citizens.	To know about the environment and its impact on business To recognize the importance of business ethics and social responsibility as an individual to the society

B.B.A	UCBAE20	Marketing Management	Course comprehend the principles, concepts and functions of marketing and to design a marketing strategies for a dynamic marketing and attain the knowledge of Marketing Mix	Mould the students to face the challenges in the global business environment and the society.	Acquire the basic and managerial communications skills to gain professionalism.	Learn the recent trends in marketing
B.B.A	UCBAF20	Financial Accounting	Course highlights the fundamentals of accounting.	Prepare the students to be persistent enough to pull out their own ideas and opinions and to become a strong pillar to the family and society highlighting their feminine power.	Acquire the ability to be a future leader, manager and an entrepreneur reflecting ethical and social values.	Give them a basic knowledge of Accounting principles and practices
B.B.A	UAEBA20	Economics for Business	Course understand the economic concepts and techniques in evaluating business decisions	Attain knowledge and understand the principles and concepts in the respective discipline.	To attain knowledge and understand the managerial principles and concepts of the course adopted.	Have depth knowledge in the basics of Managerial Economics
B.B.A	UEBAB20	Logistics and Supply Chain Management	To familiarize the students with the basic concepts of logistics and supply chain management	To be stimulated towards the change and to be conscious for sustainable development of the society	To acquire the ability to be a future leader, manager and an entrepreneur reflecting ethical and social values.	Be enriched about the activities involved in distribution network planning and Integrated Supply Chain Management

B.B.A	UCBAH20	Cost and Management Accounting	To enable the students understand the concept of Management and Cost Accounting	Prepare the students to be persistent enough to pull out their own ideas and opinions and to become a strong pillar to the family and society highlighting their feminine power.	Acquire the ability to be a future leader, manager and an entrepreneur reflecting ethical and social values.	Gain knowledge on the concepts of management and cost accounting techniques
B.B.A	UCBAJ20	Research Methodology	To understand the basic concepts of research	To formulate, to apply the theoretical knowledge into practice by carrying the institutional training and projects, to adopted sense of creative thinking and learn problem solving skills to take up challenges faced in today's modern world.	To get an exposure by applying the theoretical knowledge into practice by carrying out the institutional training and projects in the organizations	Know the general definition of research and qualities of research. Be able to write report and do statistical analysis
B.B.A	UCBAK20	Human Resource Management and Development	Course designed to understand the various HR functions like Recruitment, selection, training process and also about performance appraisal.	Mould the students to face the challenges in the global business environment and the society.	To acquire the ability to be a future leader, manager and an entrepreneur reflecting ethical and social values.	Attain the knowledge of the various HR functions and its importance

B.B.A	UAITR20	Institutional Training	Course designed to demonstrate the capability of the student in studying the organization and its process in totality.	To formulate, to apply the theoretical knowledge into practice by carrying the institutional training and projects, to adopted sense of creative thinking and learn problem solving skills to take up challenges faced in today's modern world.	To get an exposure by applying the theoretical knowledge into practice by carrying out the institutional training and projects in the organizations.	The Students can acquire the capability of applying the theoretical knowledge into practice covering Production, Human resource, Finance and Marketing to carry out her institutional training with the approval of the department
B.B.A	UCBAL20	Financial Management	Course enable the learners to understand concept of financial management, scope, objectives and time value of money.	To be stimulated towards the change and to be conscious for sustainable development of the society	To attain the ability to be self-directed towards their career and contribute to the society as responsible citizens.	Be well versed in the financial decision, functions and organization of financial managements
B.B.A	UCBAM20	Industrial Relations	Course is designed to cover the basic concepts of Industrial Relations	To communicate the general ideas, opportunities and opinions and to become empowered and motivated citizens of the country.	To acquire the ability to be a future leader, manager and an entrepreneur reflecting ethical and social values.	Understand the basic concepts of Industrial relations like payment of wages act, factories act, maternity act, Industrial disputes act, Employees state insurance act.
B.B.A	UCBAN20	Banking and Insurance	Course impart the knowledge of banking system and its services	To be stimulated towards the change and to be conscious for sustainable development of the	To attain the ability to be self-directed towards their career and contribute to the society as responsible	Gain the knowledge as to how to open and operate accounts in bank and also maintaining relationship with bankers

				society.	citizens.	
B.B.A	UCBAR20	Project	Course is designed to make the students identify a problem in the organization based on the area of specialization and provide solutions and suggestions to the management.	To formulate, to apply the theoretical knowledge into practice by carrying the institutional training and projects, to adopted sense of creative thinking and learn problem solving skills to take up challenges faced in today's modern world.	To get an exposure by applying the theoretical knowledge into practice by carrying out the institutional training and projects in the organizations.	Course includes field studies, surveys, interpretation, planning and designing of the Research Methodology presented in a comprehensive manner with recommendations for solutions based on scientifically worked out data.
B.B.A	UCBAS520	Legal aspects of Business	Course designed to make the students learn the fundamental principles underlying in the law of contract.	To be passionate about multidisciplinary approach for problem solving, critical analysis and decision making in their personal and professional life	To acquire the ability to be a future leader, manager and an entrepreneur reflecting ethical and social values.	Be thorough in the contractual relationships in business
B.B.A	UCBAT20	Production and Materials Management	The Course enable the students to understand the concept of production management, plant location and plant layout	To communicate the general ideas, opportunities and opinions and to become empowered and motivated citizens of the country.	Acquire the ability to be a future leader, manager and an entrepreneur reflecting ethical and social values.	Understand the concepts of production management, plant location and plant layout

B.B.A	UEBAC20	Total Quality Management	Course is designed to make the students understand the concepts of total quality management	To communicate the general ideas, opportunities and opinions and to become empowered and motivated citizens of the country.	To attain the ability to be self- directed towards their career and contribute to the society as responsible citizens.	Evaluate the principles of quality management and to explain how these principles can be applied within quality management systems
B.B.A	UEBAD20	Entrepreneurial Development	Course is designed to develop entrepreneurial way of thinking	To pursue higher knowledge, acquire quality professional education, and to develop entrepreneurial skills and contribute towards the needs of the society	Acquire the ability to be a future leader, manager and an entrepreneur reflecting ethical and social values.	Have the ability to discern entrepreneurial traits
B.B.A	UGBAA20	Human Resource Management	The course is designed to understand the basic concepts of HRM	To bring up the economically challenged, socially backward young women to be competent with today's expectation of the competitive world for their sustenance	To attain the ability to be self-directed towards their career and contribute to the society as responsible citizens.	Integrate the knowledge of HR concepts
B.B.A	USBAE20/U SBAE20	Campus to Corporate	Course is designed to build confidence, develop self-esteem, and to bring positive changes in the attitude & behaviour	To bring up the economically challenged, socially backward young women to be competent with	To acquire the basic and managerial communications skills to gain professionalism.	Proactively manage the transition from being the student to the employee

			of the students	today's expectation of the competitive world for their sustenance		
B.B.A	USBAF20/U SBAF20	Applications of GST	Course is designed to enable the students to learn the concepts of GST from the pre GST period to post GST period	To be passionate about multidisciplinary approach for problem solving, critical analysis and decision making in their personal and professional life	To attain the ability to be self-directed towards their career and contribute to the society as responsible citizens.	Enable the students to learn the concepts of GST from the pre GST period to post GST period
B.B.A	USBAA20/ USBAA20	Life Style Management	Course is designed to understand the concept of self-management	Adapt towards the positive thinking capacity, to adapt the social values, to exercise leadership qualities and bringing out their capabilities through team work	To attain the ability to be self-directed towards their career and contribute to the society as responsible citizens.	Be equipped with the talent of self-management
B.B.A	USBAB20/U SBAB20	Winning Through Communication	Course is designed to understand the concept in communication	Adapt towards the positive thinking capacity, to adapt the social values, to exercise leadership qualities and bringing out their capabilities through team work	Acquire the basic and managerial communications skills to gain professionalism.	To understand the role of communication in Personal and Professional success

B.B.A	USBAD20/ USBAD20	Hotel Planning and Administration	Course is designed to develop a conceptual understanding of the Hotel Planning and Administration	To formulate, to apply the theoretical knowledge into practice by carrying the institutional training and projects, to adopted sense of creative thinking and learn problem solving skills to take up challenges faced in today's modern world.	Acquire the basic and managerial communications skills to gain professionalism.	Understand the concepts in Hotel Planning and Administration
B.B.A	USBAC20// USBAC20	Hospital Planning and Administration	Course enable the students to understand the planning of Modern Hospital	To formulate, to apply the theoretical knowledge into practice by carrying the institutional training and projects, to adopted sense of creative thinking and learn problem solving skills to take up challenges faced in today's modern world.	Acquire the basic and managerial communications skills to gain professionalism.	Be familiarized with Organization Structure and Medical Records of a Hospital
B.C.A	UCCAA20	Programming in C	To learning the basic programming constructs they can easily switch over to any other language in future.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Acquire skills in computer and information technology and also be competent in the field of Commerce, Mathematics and	Introduce the students to understand the concept of basic programming thereby reducing the design complexity and increasing the reusability of a component.

					Management.	Construct the basic structure of C programming, declaration and usage of variable. Understand and develop conditional and iterative statements to write programs. Exercise C programs that uses array and string. Develop user defined functions to solve real time problems
B.C.A	UCCAC20	Practical IC	To design, develop and test programs written in C.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Ability to work as a member or leader in diverse teams in multidisciplinary environment. And identify opportunities, entrepreneurship vision and use of innovative ideas to create value and wealth for the betterment of the individual and society.	Exercise with basic structure of the C program, declaration and usage of variable. Resolve mathematical and scientific problem. Develop the programs using conditional and iterative statements. Implement array and string concept in C program. Write real time problems using user defined functions
B.C.A	UCCAD20	Python	To apply a solution clearly and accurately in a program using Python	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Become proficient and ensure job in the key areas of computer science like Web designing and development, Mobile	Understand the Numbers, Math functions, Strings, List, Tuples and Dictionaries in Python Express different Decision Making statements and

					applications, Network and communication technologies, undertaking government organizations, faculty for computer science and applications in educating institutions.	Functions. Interpret Object oriented programming in Python. Explain how to design GUI Applications in Python and evaluate different database operations. Design and develop Client Server network applications using python
B.C.A	UCCA20	Computer Organization and Architecture	To make students understand the basic structure and operation of digital computer. Also understand the hardware's software interface.	Effectively communicate general and discipline specific information, ideas and opinions.	Equip the students with requisite knowledge, skills and right attitude necessary to provide effective software development skills in a global environment and also focus on preparing students for roles pertaining to computer applications and IT industry.	Explain the organization of basic computer, its design and the design of control Unit. Elaborate advanced concepts of computer architecture, Parallel Processing, Interprocessor communication and synchronization. Demonstrate the working of central processing unit and RISC and CISC Architecture. Describe the operations and language the register transfer, micro operations and input output organization. Understand the organization of memory and memory management

						hardware.
B.C.A	UCCAF20	Practical II Python	To describe the core syntax and semantics of Python programming	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Ability to work as a member or leader in diverse teams in multidisciplinary environment. And identify opportunities, entrepreneurship vision and use of innovative ideas to create value and wealth for the betterment of the individual and society.	To Understand the Numbers, Math functions, Strings, List, Tuples and Dictionaries in Python Express different Decision Making statements and Functions. Interpret Object oriented programming in Python. Explain how to design GUI Applications in Python and evaluate different database operation. Design and develop Client Server network applications using python
B.C.A	UCCAG20	Data Structures	To understanding about writing algorithms and step by step approach in solving problems with the help of fundamental data structures	Effectively communicate general and discipline specific information, ideas and opinions.	Equip the students with requisite knowledge, skills and right attitude necessary to provide effective software development skills in a global environment and also focus on preparing students for roles pertaining to computer applications and IT industry.	Discuss the concept of complexity of algorithms, data types, algorithms, Big O notation. Apply basic data structures such as arrays, linked lists, stacks and queues. Identify problem involving trees and binary search trees. Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data using linked list.

						Analyze graphs and describe the hash function and concepts of collision and its resolution methods.
B.C.A	UCCA20	Java Programming	This course provides an introduction to object oriented programming (OOP) using the Java programming language.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Equip the students with requisite knowledge, skills and right attitude necessary to provide effective software development skills in a global environment and also focus on preparing students for roles pertaining to computer applications and IT industry.	<p>Able to understand the use of OOPs concepts.</p> <p>Able to solve real world problems using OOP techniques. To understand the use of polymorphism and Inheritance.</p> <p>Able to understand the use of Packages and Interface in java.</p> <p>Able to develop and understand exception handling, multithreaded applications with synchronization.</p> <p>Able to design GUI based applications and develop AWT and applets for web applications.</p>
B.C.A	UCCAI20	Design and Analysis of Algorithms	To demonstrate a familiarity with major algorithms and data structures.	Emulate positive social values and exercise leadership qualities and team work.	Acquire skills in computer and information technology and also be competent in the field of Commerce, Mathematics and Management.	<p>Define the basic concepts of algorithms and analyze the performance of algorithms.</p> <p>Discuss various algorithm design techniques for developing algorithms.</p> <p>Identify the usage of set of rules design methods including the greedy</p>

						<p>approach, divide and overcome, dynamic programming, and certain. Understand the variations among backtracking; graph coloring and 8 Queens problems. Understand NP completeness and identify different NP complete problems</p>
B.C.A	UCCAJ20	Practical III Java	To understand object oriented programming concepts, and apply them in solving problems.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Introduce and update knowledge relevant to IT like networking, computer graphics, web development, trouble shooting, and hardware and software skills. Also, to develop software solutions to problems across a broad range of application domains through analysis and design.	<p>Understand the fundamentals of object oriented programming in Java, including defining classes, objects, invoking methods etc and I/O Streams. Establish exception handling is used to minimize the errors in Java programming. Demonstrate the concepts of Packages and Interface. Evaluate the Java programs to implement error handling techniques using exception handling. Design GUI based applications and develop applets for web applications.</p>

B.C.A	UCCA20	Practical IV Data Structures and Algorithms	Apply important algorithmic design paradigms and methods of analysis.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Equip the students with requisite knowledge, skills and right attitude necessary to provide effective software development skills in a global environment and also focus on preparing students for roles pertaining to computer applications and IT industry.	Implement PUSH, POP and Add and delete operations of Stack using Array Explore the Infix to postfix conversion and binary tree traversals and its algorithms like depth first and breadth first traversal. Understanding polynomial addition and merge sort using Divide and Conquer Technique. Implement travelling Salesman problem using Dynamic programming and Hashing with two collision techniques. Implement PUSH, POP and Add and delete operations of Stack using Arrays.
B.C.A	UCCAL20	Data Communications and Networking	To introduce analysis and design of computer and communication networks. Understand the network layered architecture and the protocol stack.	Emulate positive social values and exercise leadership qualities and team work.	Become proficient and ensure job in the key areas of computer science like Web designing and development, Mobile applications, Network and communication technologies, undertaking government organizations, faculty	Describe the Functions of each layer in OSI and TCP/IP Mod Explain the types of Transmission Media with Realtime Applications. Apply Time and Frequency concept of analysis. Manage Network functions for an Organization. Analyze various Routing Algorithms and Protocols.

					for computer science and applications in educating institutions.	
B.C.A	UCCAM20	Operating System	To analyze processes, resource control (concurrency etc.), physical and virtual memory, scheduling, I/O.	Attain knowledge and understand the principles and concepts in the respective discipline.	Introduce and update knowledge relevant to IT like networking, computer graphics, web development, trouble shooting, and hardware and software skills. Also to develop software solutions to problems across a broad range of application domains through analysis and design.	Acquire the important computer system resources and the role of operating system in their management policies and algorithms Understand the process management policies and scheduling of processes by CPU. Evaluate the requirement for process synchronization and coordination handled by operating system. Describe and analyze the memory management and its allocation policies. Entity use and evaluate the storage management policies with respect to different storage management technologies.
B.C.A	UCCAN20	.NET Programming	Design and develop professional Console and Window based .NET application.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Introduce and update knowledge relevant to IT like networking, computer graphics, web development, trouble shooting, and hardware and software skills. Also to develop	Understand the concepts of .NET Framework and C Apply the usage of Methods, Arrays and Strings. Interpret the concepts of Constructors, Inheritance and Interfaces. Analyze Operator

					software solutions to problems across a broad range of application domains through analysis and design.	Overloading, Delegates, Events and Exception Create Windows Applications and Web based Applications.
B.C.A	UCCAO20	Practical V Linux	To learn programmatically to implement simple OS mechanisms.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Equip the students with requisite knowledge, skills and right attitude necessary to provide effective software development skills in a global environment and also focus on preparing students for roles pertaining to computer applications and IT	Become familiar with the C language, gcc compiler, and make files to understand the high level structure of the Linux kernel. Understand the high level structure of the Linux kernel both in concept and source code. Acquire a detailed understanding of one aspect (the scheduler) of the Linux kernel. To learn to develop software for Linux systems. To obtain a foundation for an advanced course in operating systems.
B.C.A	UCCAP20	Practical VI.NET	Identify and resolve problems in C#.NET window based application.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Become proficient and ensure job in the key areas of computer science like Web designing and development, Mobile applications, Network and communication technologies,	Understand code solutions and compile C# projects within the .NET framework Create user interactive web pages using .NET. To develop, implement and creating Applications with C#. Debug, compile, and run a

					undertaking government organizations, faculty for computer science and applications in educating institutions.	simple application. Create Mobile Application using .NET compact Framework
B.C.A	UCCAQ20	Relational Database Management Systems	The objective of this course is to expose the students to the fundamentals & basic concepts in relational Data Base Management Systems.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Become proficient and ensure job in the key areas of computer science like Web designing and development, Mobile applications, Network and communication technologies, undertaking government organizations, faculty for computer science and applications in educating institutions.	Demonstrate an understanding of the elementary & advanced features of DBMS & RDB Write the SQL commands to create tables and Triggers, insert/update/delete data, and query data in a relational DBMS. Analyze and Design a database based on a data model considering the normalization to a specified level Apply the storage size of the database and design appropriate storage techniques. Analyze the requirements of transaction processing, concurrency control Analyze and XML Structure

B.C.A	UCCAS20	Mobile Application Development	To learn about how to develop an android services and to publish android application for use.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Become proficient and ensure job in the key areas of computer science like Web designing and development, Mobile applications, Network and communication technologies, undertaking government organizations, faculty for computer science and applications in educating institutions.	<p>Understanding of Android and Android SDK and know about its development environment. Recognize the architecture of Android and its tools. Analyze Eclipse and Android Development Tools (ADT). Understanding of the specific requirements, possibilities and challenges when developing for a mobile context.</p> <p>Understanding of the interaction between user interface and underlying application infrastructure. Define to plan and carry out a design work including developing a prototype that can be evaluated with a specified user group.</p> <p>Develop practical skills and knowledge to construct software for a mobile application and the ability to reflect over possibilities and demands in collaborative software development.</p>
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B.C.A	UECAC20	Elective I C Object Oriented Analysis and Design	Identify, Analyze the subsystems, various components and collaborate them interchangeably Model the event driven state of object and transform them into implementation specific layouts.	Emulate positive social values and exercise leadership qualities and team work.	Become proficient and ensure job in the key areas of computer science like Web designing and development, Mobile applications, Network and communication technologies, undertaking government organizations, faculty for computer science and applications in educating institutions.	Analyse, design, document the requirements through use case driven approach. Identify, analyse, and model structural and behavioural concepts of the system. Develop, explore the conceptual model into various scenarios and applications. Apply the concepts of architectural design for deploying the code for software. Apply the Testing Strategies and Debugging Principles for measuring the User Satisfaction.
B.C.A	UCCAT20	Practical VIIRDBMS	To apply relational database theory and be able to describe relational algebra expression, tuple and domain relation expression from queries.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Introduce and update knowledge relevant to IT like networking, computer graphics, web development, trouble shooting, and hardware and software skills. Also to develop software solutions to problems across a broad range of application domains through analysis and design.	Understand, Appreciate and effectively explain the underlying concepts of Database technologies. Programming PL/SQL including stored procedures, stored functions, cursors, packages. Design and implement a database schema for a given problem domain. Construct a query using SQL DDL, DML, and DCL Commands. Prepare

						<p>various database tables and joins them using SQL commands.</p> <p>Analyze various aggregate functions using SQL commands.</p> <p>Design and develop front end tool VB .NET to design forms, and select, insert, delete, update using Data Source Binding.</p>
B.C.A	UCCA20	Practical VIII Mobile Application Development	To understand how to work with various mobile application development frameworks.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Become proficient and ensure job in the key areas of computer science like Web designing and development, Mobile applications, Network and communication technologies, undertaking government organizations, faculty for computer science and applications in educating institutions.	<p>Establishing the development environment.</p> <p>Implementing the layout to add action bar.</p> <p>Understanding the interfaces using views, menus and notification.</p> <p>Apply and learn multiple screens to emulate android application. Perform basic interaction with application.</p>
B.C.A	UCCA20	Internet and Web Programming	Enhance the programming experience with the help of tools like editors and debuggers that makes JavaScript	Emulate positive social values and exercise leadership qualities and team work.	Introduce and update knowledge relevant to IT like networking, computer graphics, web development, trouble shooting, and hardware and software	Acquire the basic concept of JavaScript. Use operators, variables, arrays, control structures, functions and objects in JavaScript. Create PHP programs that use various

			coding easier and more interactive.		skills. Also to develop software solutions to problems across a broad range of application domains through analysis and design.	PHP library functions, and that manipulate files and directories. Design a responsive web site using HTML, PHP, MySQL and Apache. Students will be able to build dynamic web pages using JavaScript (Client Side Programming) and apply their knowledge to create interactive websites.
B.C.A	UCCAW20	Data Mining	To analyze the data, identify the problems, and choose the relevant models and algorithms to apply.	Attain knowledge and understand the principles and concepts in the respective discipline.	Ability to work as a member or leader in diverse teams in multidisciplinary environment. And identify opportunities, entrepreneurship vision and use of innovative ideas to create value and wealth for the betterment of the individual and society	Understand Data Warehouse fundamentals and Data Mining Principles. Understand and implement classical algorithms in data mining and identify the application area of algorithms. Compare and evaluate different data mining techniques like, prediction, clustering and association rule mining. Describe complex data types with respect to spatial and web mining. Analyze the temporal mining techniques to detect patterns in the world.

B.C.A	UECAD20	Elective II A Cryptography	To understand Cryptography Theories, Algorithms and Systems.	Appreciate biodiversity and enhance coconsciousness for sustainable development of the society.	Become proficient and ensure job in the key areas of computer science like Web designing and development, Mobile applications, Network and communication technologies, undertaking government organizations, faculty for computer science and applications in educating institutions.	Classify the symmetric encryption techniques. Illustrate various Public key cryptographic techniques. Evaluate the authentication and hash algorithms. Summarize the intrusion detection and its solutions to overcome the attacks. Basic concepts of system level security.
B.C.A	UCCAX20	Practical IX Internet and Web Programming	Comprehend the usage of PHP and JavaScript in dynamic web development.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Become proficient and ensure job in the key areas of computer science like Web designing and development, Mobile applications, Network and communication technologies, undertaking government organizations, faculty for computer science and applications in educating institutions.	Know variable naming rules and JavaScript data types. Use operators, variables, arrays, control structures, functions and objects in JavaScript. Demonstrate objects and arrays usage Create PHP programs that use various PHP library functions, and that manipulate files and directories. Validate user input and create cookies in PHP

B.C.A	UCCAY20	Project Work	Students have to do project throughout the semester in any application to gain practical knowledge	Emulate positive social values and exercise leadership qualities and team work.	Ability to work as a member or leader in diverse teams in multidisciplinary environment. And identify opportunities, entrepreneurship vision and use of innovative ideas to create value and wealth for the betterment of the individual and society.	An ability to understand the social and ethical implications of working as a professional in the field of computer science. An ability to use current tools and methodologies in computing practice.
B.Com	UECOB20	Essentials of Business Communication	Impart the strategies of effectiveness of business writing.	Recognize the need for and have the ability to engage in lifelong learning process to cope up with the emerging trends in social, cultural, economic and technological changes.	Exercise leadership qualities and moral values through ethical ways with the concern for the society and the environment with team spirit to adapt to change throughout their professional career.	Skills in writing resume, job applications and to face interviews.
B.Com	USCOE20	E Payments and Accounting Software	To gained In depth knowledge on Tally hands on training to create a company and preparation of final accounts.	Apply ethical principles in promoting values and attitudes and become responsible towards the practice of accounting norms	Apply the practical knowledge gained over the years in the field of auditing, tax filing, share market and other finance related services	To evaluate the various knowledge about payment methods.

B.Sc. Biochemistry	UCBCA20	Bioorganic Chemistry	To provide a clear note on the bioorganic compounds.	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Assess the structural features of genetic material.
B.Sc. Biochemistry	UCBCC20	Main Practical I	To provide a wide practical knowledge on Qualitative and Quantitative Analysis.	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Analyses quantitatively the biomolecules and mineral components
B.Sc. Biochemistry	UCBCB20	Cell Biology	To provide a deep knowledge about cell – the basic unit of life.	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Recall on the components of cell membrane and its role in maintaining cell function
B.Sc. Biochemistry	UCBCD20	Biochemical techniques	To study about the principles and applications of biochemical techniques.	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Analyse certain functionalities of bio molecules by using spectroscopic techniques
B.Sc. Biochemistry	UCBCE20	Physiology and Nutrition	To understand the homeostatic mechanism of each organ.	Effectively communicate general and discipline specific information, ideas	Bring economically challenged, socially backward young women to be competent with today's	Explain the central and peripheral nervous system organization

				and opinions	modern world for their sustenance	
B.Sc. Biochemistry	UCBCF20	Main Practical II	To inculcate practical skill in Biochemistry.	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Implement experimental protocol, and adapt them to plan and carry out simple colorimetric estimation
B.Sc. Biochemistry	USBCBn20	Skill Based Elective Health Care for Women	To provide awareness about common health problems of women and how to overcome certain diseases	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Discuss the types of anemia and obesity
B.Sc. Biochemistry	UCBCG20	Enzymes & Intermediary metabolism	To impart knowledge about the enzymes and the metabolism of biomolecules and its interrelationship.	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Discuss the kinetics of enzyme catalyzed reactions, enzyme immobilization and applications of enzymes and their future potential
B.Sc. Biochemistry	UCBCH20	Endocrinology	Endocrinology describes in detail the role of endocrine glands, their secretion and its regulatory effect on metabolic activities to maintain homeostasis.	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Analyze the clinical disorders of hormones

B.Sc. Biochemistry	UEBCA20	Elective IA Immunology	To help the students to understand the components of Immune system	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Discuss the basic techniques of antigen and antibody interactions
B.Sc. Biochemistry	UEBCB20	Elective IB Environmental Toxicology	To understand the basics in toxicological aspects that effect the environment.	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Identify signs and symptoms of important toxic syndromes
B.Sc. Biochemistry	UCBCJ20	Main Practical III	The course is aimed to enhance the practical skill of the student in handling and estimating the components present in the biological samples.	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Predict the biochemical laboratory analysis
B.Sc. Biochemistry	UCBCK20	Main Practical IV	The course is aimed to enhance the practical skill of the student in handling and estimating the components present in the biological samples.	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Analyze the biological sample for the enzyme activity

B.Sc. Biochemistry	USBCCn20	Skill Based Elective III Entrepreneurial Biochemistry	To understand the concept of entrepreneurship	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Implement market opportunities into business plan
B.Sc. Biochemistry	UCBCI20	Molecular Biology	To make a study on life and the information centers called genes.	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Demonstrate the nature of Genes
B.Sc. Biochemistry	UEBCC20	Elective IIA Clinical Biochemistry	To understand the biochemical basis of various diseases and disorders	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Identify various renal disorders and examination of gastric residuum
B.Sc. Biochemistry	UEBCD20	Elective IIB Pharmacology	To make detailed study of drugs, and their actions on living systems	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Outline the clinical applications, side effects and toxicities of cardiovascular drugs
B.Sc. Biochemistry	UEBCE20	Elective IIIA Biotechnology	To explore the applications and future potential of Biotechnology	Effectively communicate general and discipline specific information, ideas	Bring economically challenged, socially backward young women to be competent with today's	Recall the steps involved in recombinant DNA technology

				and opinions	modern world for their sustenance	
B.Sc. Biochemistry	UEBCF20	Elective IIIB Plant Biochemistry	To explore the applications of plant and their products	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Identify the antioxidant potential and role of secondary metabolites
B.Sc. Biochemistry	USBCDn20	Skill Based Elective IV Medical Laboratory Technology	To make detailed study of the organization and functions of a laboratory	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Evaluate the significance of urine analysis and its correlation with disease
B.Sc. Biochemistry	USBCAn20	Skill Based Elective II Nutritional Biochemistry	To make a note on nutrients and its role on metabolism.	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Discuss basic principles and practices of common food preservation methods
B.Sc. Biochemistry	UABCA20	Allied Biochemistry I	To acquire knowledge on the structure and the function of biomolecules	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Outline the properties and structural organization of proteins

B.Sc. Biochemistry	UABCA20	Allied Biochemistry I	To understand the basic of metabolic pathway	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Outline the properties and structural organization of proteins
B.Sc. Biochemistry	UABCB20	Allied Biochemistry II	To acquire knowledge on the structure and the function of biomolecules	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Describe and identify the main characteristics of diagnosis, screening and prognosis of disease
B.Sc. Biochemistry	UABCC20	Allied Biochemistry Practical	To provide a basic knowledge about common diseases and its treatment.	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Estimate the amount of biomolecules
B.Sc. Biochemistry	UGBCAn20	NME Disease and Treatment	To impart knowledge on action of drugs in treating diseases.	Effectively communicate general and discipline specific information, ideas and opinions	Bring economically challenged, socially backward young women to be competent with today's modern world for their sustenance	Acquire a broad knowledge about the deadliest diseases in the world
B.Sc. Biochemistry	UCBCBn20	NME Therapeutic Agents	To impart knowledge on action of drugs in treating diseases.	Effectively communicate general and discipline specific information, ideas	Bring economically challenged, socially backward young women to be competent with today's	Outline the role of antibiotics and its side effects

				and opinions	modern world for their sustenance	
B.Sc. Chemistry	UCCHA20	General Chemistry – I	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Recall and understand the concepts of valency, oxidation and reduction, classify the elements in the periodic table and explain the periodicity of properties. Recall the concepts and theories of acid base, buffer solutions, understand the principle of inorganic qualitative analysis and apply it in practical's. Apply IUPAC nomenclature in naming organic compounds and the concept of hybridization to identify the geometry and shape of the simple organic molecules. Analyse and apply the concepts of liquid and gaseous states. Recall the concepts of classical and quantum mechanics and solve related problems.

B.Sc. Chemistry	UCCHC20	Practical I Inorganic Qualitative Analysis	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Recall the principles of inorganic qualitative analysis. Apply the concepts of semimicro analysis in inorganic qualitative analysis. Develop skill to analyse systematically the given inorganic mixture and identify the acid and basic radicals. Understand the importance of eliminating the interfering radical. Eliminate the interfering acid radical for group separation and identification of basic radicals.
B.Sc. Chemistry	UCCHB20	General Chemistry – II	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Illustrate the different types of bonds with examples and apply the knowledge of VSEPR theory to determine geometries of molecules. Interpret the molecular orbital theory of homo and hetero nuclear diatomic molecules, compare the chemical and physical properties of alkali metals and their compounds and understand the chemistry

						<p>of lithium.</p> <p>Analyse and apply the electronic displacement effects, reactions, generation, structure and stability of reaction intermediates.</p> <p>Examine and analyse the reactions and mechanisms of alkanes, alkenes, dienes and alkynes.</p> <p>Analyse the laws and concepts of ideal and non-ideal solutions, mesomorphic and colloidal states.</p>
B.Sc. Chemistry	UCCHC20	Practical I Inorganic Qualitative Analysis	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	<p>Recall the principles of inorganic qualitative analysis. Apply the concepts of semimicro analysis in inorganic qualitative analysis.</p> <p>Develop skill to analyse systematically the given inorganic mixture and identify the acid and basic radicals. Understand the importance of eliminating the interfering radical.</p> <p>. Eliminate the interfering acid radical for group separation and identification of basic</p>

B.Sc. Chemistry	UCCHD20	General Chemistry – III	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	<p>radicals.</p> <p>Define and calculate equivalent weights and concentration terms and explain the principles of volumetric analysis, and illustrate the theories of different types of titrations and indicators.</p> <p>Discuss the trend in periodicity of Beryllium, Boron and Carbon family elements and their compounds.</p> <p>Describe the methods of preparation and properties of cycloalkanes, dicarboxylic acids and carbonyl compounds, and apply the concept of acidity and acid strength of carboxylic acids.</p> <p>Describe the methods of preparation and properties of alcohols, ethers and epoxides.</p> <p>Elaborate the basic concepts of solid state chemistry including solid state defects and semiconductors.</p>
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B.Sc. Chemistry	UCCHF20	Practical – II Volumetric Estimation	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Use double titration method in volumetric analysis. Prepare standard solutions. Apply volumetric principles to carry out acid base titrations, complexometric titrations, precipitation titration and redox titrations like permanganometric, dichrometry and iodometric titrations.
B.Sc. Chemistry	USCHA20	Skill Based Elective – III Industrial Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Discuss the composition, characteristics and manufacture of various industrial products. (Polymer, Leather, Textile, Glass, Ceramics, Cements, Paints and Pigments). Explain the various process involved in the manufacture of leathers and leather products. Describe the importance of natural and synthetic fibres in textile industry. Understand the classifications of fuels and learn the common terms related to it. Understand how to implement the concepts in

						industrial working environment.
B.Sc. Chemistry	UCCHE20	General Chemistry – IV	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Explain the periodic properties of Nitrogen, Oxygen and Halogen family elements and their compounds, and reason out the position of noble gases in the periodic table and describe the preparation and properties of xenon compounds. Illustrate the mechanisms of aliphatic, aromatic nucleophilic substitution and elimination reactions. Recall and apply Huckel's rule, illustrate the preparation, properties and uses of heterocyclic compounds, dihydric and trihydric phenols, and related named reactions. Define the terms involved in thermodynamics, the laws of thermodynamics and their developments. Describe the concept of entropy and calculate the entropy changes during various processes, and to explain the third law of thermodynamics and its

						applications.
B.Sc. Chemistry	UCCHF20	Practical – II Volumetric Estimation	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Use double titration method in volumetric analysis. Prepare standard solutions. Apply volumetric principles to carry out acid base titrations, complexometric titrations, precipitation titration and redox titrations like permanganometric, dichrometry and iodometric titrations.
B.Sc. Chemistry	USCHB20	Skill Based Elective – IV Agricultural chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Understand the scope of agriculture in India and Tamil Nadu. Explain the physical and chemical properties of soil. Describe the types of farming. Summarize the certification of organic products. Identify the benefits and adverse effects of pesticides.
B.Sc. Chemistry	UCCHG20	Inorganic Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Discuss the general characteristics of d and f block elements, and compare the properties of elements belonging to Ti, V, Cr, Mn and Fe groups. Summarize the various

				the society.		steps involved in metallurgical processes, and illustrate the preparation, properties and uses of Ti, Zr, U, Pt and Th. Recall the basic concepts of nuclear chemistry, and to explain the stability of nuclides by n/p ratio, mass defect and binding energy, packing fraction, magic numbers and natural radioactivity. Explain nuclear transmutation reactions, artificial radioactivity, nuclear fission and fusion reactions. Describe the biological importance of certain elements, chelate therapy, radio pharmaceuticals, contrast agents and toxicity of few metals.
B.Sc. Chemistry	UCCHH20	Organic Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Remember the concepts of stereoisomerism and apply it in identifying the configurations of the optical and geometrical isomers. Illustrate tautomerism and conformational analysis. Explain the preparation

						and synthetic uses of active methylene compounds, basic concepts of organic photochemistry and illustrate organic photochemical reactions. Apply the knowledge of various named reactions in organic synthesis. Summarize the different types of molecular rearrangements their mechanisms and applications.
B.Sc. Chemistry	UCCHI20	Physical Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Demonstrate the plausible mechanisms based on the study of the kinetics of chemical reactions. Describe the theories developed to understand the reaction kinetics of simple and complex reactions. Explain the basic principles of photo chemistry, deduce rate laws of photochemical reactions and discuss the applications of photo physical processes. Apply Phase rule to study one component and two component systems and

						interpret phase diagrams. Apply the knowledge gained about catalysis and adsorption to deduce the kinetics of homogeneous and heterogeneous surface reactions.
B.Sc. Chemistry	UECHA20	Elective I A Analytical Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Summarize the various steps involved in gravimetric analysis. Demonstrate the principles and techniques involved in paper, column, TLC and ion exchange chromatography and their applications. Explain the absorption laws, instrumentation and working of UV Visible spectrophotometers. Elaborate the principle, instrumentation of IR spectroscopy for the identification of simple organic molecules. Explain the principle involved in NMR and interpret NMR spectra of simple organic compounds, describe the principle, instrumentation of Mass spectroscopy and determine the molecular

						formulae of simple organic molecules.
B.Sc. Chemistry	UECHB20	Elective I B Basics of Computer Programming in C and its Applications in Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Define and relate software and hardware. Describe the various components of C language. Demonstrate the uses of functions, arrays and pointers. Apply C language for solving problems in chemistry. Apply C language to calculate specific terms in Chemistry.
B.Sc. Chemistry	UCCHL20	Practical III Physical Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Demonstrate practical skills in carrying out chemical reactions of different orders to arrive at reaction kinetics. Estimate quantitatively using conductometric and potentiometric titrations. Assess the meaning of values and calculations in experiments and learn the techniques of getting rate constants through graphical methods. Understand laboratory practices and safety/First aid rules. Handle electronic equipment's

						with technical skills
B.Sc. Chemistry	UCCHM20	Practical IV Gravimetric Estimation	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Quantitatively estimate metal ions using gravimetric analysis. Gain knowledge on the choice of precipitating methods, reagents, crucibles and filtration. Identify common errors in gravimetric analysis. Outline the favourable conditions for precipitation and factors affecting the particle size of the precipitate. Relate particle size of the precipitates with choice of crucibles used in gravimetric estimations.
B.Sc. Chemistry	UCCHN20	Practical V Organic Analysis and Preparation	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Apply the concepts of micro scale analysis in organic qualitative analysis. Develop skill to analyse systematically the given organic mixture and identify the functional group and special elements. Prepare simple organic compounds. Discuss the importance of laboratory practices and

						<p>safety/First aid rules for handling the organic chemicals.</p> <p>Explain the significance of organic reactions to understand the theory concepts of organic chemistry.</p>
B.Sc. Chemistry	USCHC20	SBE – V Small Scale Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	<p>Understand the laws, role and steps involved in starting small scale industries.</p> <p>Acquire skills to prepare soaps and detergents.</p> <p>Describe the characteristics and uses of cosmetics and perfumes.</p> <p>Gain skills in the manufacture of selected small-scale products.</p>
B.Sc. Chemistry	UCCHJ20	Coordination Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	<p>Define the terms involved in coordination chemistry and recall IUPAC nomenclature of coordination compounds and to explain the concept of chelation and illustrate the isomerism exhibited by coordination complexes.</p> <p>Explain and compare Werner, Sidgwick and Valence Bond theories of bonding in coordination</p>

						<p>compounds.</p> <p>Describe the various aspects of Crystal Field Theory and its applications.</p> <p>Explain the importance of MOT, construct molecular orbital diagrams and to compare MOT with CFT.</p> <p>Describe the synthesis, properties, uses, bonding, hybridization and structures of carbonyls of Ni, Cr, Fe, Co, Mn, Mo and W.</p>
B.Sc. Chemistry	UCCHK20	Electro Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	<p>Apply the laws on electrolysis and definitions of specific, equivalent and molar conductance to the working of electrolytic cells. Illustrate Debye Huckel's theory of strong electrolytes.</p> <p>Explain the use of electrical energy in bringing about chemical reactions and how chemical reactions can produce electrical energy so has to design cells and batteries.</p> <p>Apply chemical cells and</p>

						concentration cells for determining the valency of mercurous ion, transport number, solubility and solubility product. Demonstrate the knowledge gained in the study of irreversible electrode processes. And illustrate the principle and applications of fuel cells.
B.Sc. Chemistry	UECHC20	Elective II A Chemistry of Natural Products	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Explain the structural elucidation, properties and reactions of glucose, fructose, sucrose, maltose, starch and cellulose. Elaborate the preparation, properties and reactions of alpha aminoacids, synthesis of peptides and classification and structure of proteins. Explain the structure and applications DNA, RNA and processes like transcription and translation in protein synthesis. Illustrate the sources, properties and structural elucidation of alkaloids and terpenoids. Elaborate the sources,

						properties, structural elucidation and synthesis of flavonoids, carotenoids, anthocyanins and vitamins.
B.Sc. Chemistry	UECHD20	Elective II B Polymer Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Classify polymers and determine the molecular weights of polymers by physical and chemical methods. Describe the mechanisms of different types of polymerization reactions. Summarize the types and techniques involved in polymer degradation. Demonstrate the applications of industrial polymers and explain the role of conducting polymers. Illustrate the various polymer processing techniques.
B.Sc. Chemistry	UECHE20	Elective III A Applied Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Describe the digestion and absorption of carbohydrates, proteins and fats and describe the role of enzymes and physiological functions of hormones. Recall the definition, constituents and physicochemical

						<p>properties of milk and indicate the composition of creams, butter, ghee and ice creams.</p> <p>Demonstrate the chief processes involved in leather manufacture and treatment of tannery effluents</p> <p>Classify and enumerate the properties of soils.</p> <p>Determine the physicochemical properties of water and illustrate reverse osmosis and ion exchange methods.</p>
B.Sc. Chemistry	UECHF20	Elective III B Pharmaceutical Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	<p>Explain the basic pharmacological terms are used in pharmaceutical chemistry.</p> <p>Illustrate the selected Indian Medicinal plants and their uses.</p> <p>Elaborate the definition, properties and therapeutic uses of sulphonamides, antibiotics, antiseptics and disinfectants.</p> <p>Explain the role of analgesics and anesthetics.</p> <p>Analyse the causes, symptoms and drugs used for the treatment of</p>

						Cancer, AIDS, Epilepsy and Hypertension Summarize the characteristics and classifications of cardiovascular drugs. Identify the common organic pharmaceutical aids.
B.Sc. Chemistry	UCCHL20	Practical III Physical Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Demonstrate practical skills in carrying out chemical reactions of different orders to arrive at reaction kinetics. Estimate quantitatively using conductometric and potentiometric titrations Assess the meaning of values and calculations in experiments and learn the techniques of getting rate constants through graphical methods. Understand laboratory practices and safety/First aid rules. Handle electronic equipments with technical skills
B.Sc. Chemistry	UCCHM20	Practical IV Gravimetric Estimation	Our curriculum enhances the theoretical knowledge and	Pursue higher knowledge, qualify professionally, enhance	Develop an interest in pursuing higher studies in Chemistry and related subjects which	Quantitatively estimate metal ions using gravimetric analysis. Gain knowledge on the

			practical skills for employability.	entrepreneurial skills and contribute towards the needs of the society.	are relevant to employment and entrepreneurship.	choice of precipitating methods, reagents, crucibles and filtration. Identify common errors in gravimetric analysis. Outline the favourable conditions for precipitation and factors affecting the particle size of the precipitate. Relate particle size of the precipitates with choice of crucibles used in gravimetric estimations.
B.Sc. Chemistry	UCCHN20	Practical V Micro Scale Organic Analysis and Preparation	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Apply the concepts of micro scale analysis in organic qualitative analysis. Develop skill to analyse systematically the given organic mixture and identify the functional group and special elements. Prepare simple organic compounds. Discuss the importance of laboratory practices and safety/First aid rules for handling the organic chemicals. Explain the significance of organic reactions to

						understand the theory concepts of organic chemistry.
B.Sc. Chemistry	USCHD20	SBE – VI Food Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Apply simple analytical techniques for detecting food adulterants. Describe the role of food additives, preservatives, flavors, colours and antioxidants. Detect food poisons and apply first aid techniques. Distinguish between alcoholic and nonalcoholic beverages. Describe the importance of saturated and unsaturated fats in edible oils and the nutritive value of fruits and vegetables.
B.Sc. Chemistry	UGCHA20	Food And Nutrition Chemistry	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Explain the sources, classification, functions, deficiency diseases and metabolism of carbohydrates. Explain the sources, classification, functions, deficiency diseases and metabolism of proteins and fats. Outline the sources, functions and deficiency diseases of fat soluble and

						<p>water soluble vitamins. Describe the sources, functions, and deficiency diseases and RDA of essential and trace minerals.</p> <p>. Appreciate the nutritive values and evaluate the chemical changes and loss of nutrients during cooking and storage of fruits and vegetables.</p>
B.Sc. Chemistry	UGCHB20	Cosmetics And Dyes	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	<p>Define and classify cosmetics, deodorants, antiperspirants, perfumes, aerosols and identify the pros and cons of synthetic cosmetics.</p> <p>Describe the safety assessment methods used by FDA.</p> <p>Prepare and use fruits and vegetables based herbal cosmetics and evaluate the significance of aromatherapy and apply it to human health and beauty.</p> <p>Explain the properties of natural and synthetic dyes.</p> <p>Understand the impact of dyes used in textile and leather industry to</p>

						environmental pollution and analyse the importance of dyes in pharmaceutical and food industry.
B.Sc. Chemistry	UACHA20	Allied Chemistry I	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	<p>Understand and apply the concept of aromaticity, mechanism of electrophilic substitution reaction, and chemistry of heterocyclic compounds.</p> <p>Explain the terms involved in kinetics and methods of determination of order of the reaction, and understand the theories of reaction rates.</p> <p>Classify polymers and explain its preparation, properties and uses.</p> <p>Understand the concepts, types of chromatographic techniques, principles of volumetric analysis, and describe the separation and purification techniques.</p> <p>Understand the composition and uses of fuel gases, cement, glass, explosives and dyes.</p>

B.Sc. Chemistry	UACHB20	Allied Chemistry II	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Understand the nomenclature and theories of coordination compounds. Understand the concepts of isomerism and tautomerism. Explain the concepts of electrolytes and its types, buffer solutions, separation techniques, and construction of electrochemical cell. Understand the basic principles of photochemistry and kinetics of hydrogen chlorine reaction. Recall the basic terms in medicinal chemistry, and discuss the causes, symptoms and treatment of cancer, diabetes and AIDS.
B.Sc. Chemistry	UACHC20	Allied Chemistry Practicals II	Our curriculum enhances the theoretical knowledge and practical skills for employability.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop an interest in pursuing higher studies in Chemistry and related subjects which are relevant to employment and entrepreneurship.	Acquire skills in acid base titrations. Acquire skill in Permanganometry Acquire skill in determining hardness of water Analyse the elements presents in organic compounds.

						Analyse the functional groups presents in organic compounds
B.Sc. Computer Science	UCCSU20	Practical XI Project	Acquire practical knowledge on the implementation of the programming concepts learnt.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Be ethically and professionally responsible with the ability to relate IT applications to broader social context for the growth of the nation	To solve real life problems related to industry, academic institutions and research laboratories.
B.Sc. Computer Science	USCSA20	SBE Basics of Web Design	Analyze a web page and identify its elements and attributes	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Demonstrate the knowledge on appropriate theory, practices and tools for the specification, design and implementation.	Demonstrate competency in the use of common HTML code
B.Sc. Computer Science	USCSB20	SBE Design and Animation	To learn the basics and fundamentals of Multimedia.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Demonstrate the knowledge on appropriate theory, practices and tools for the specification, design and implementation.	Understand Multimedia components using various tools and techniques.
B.Sc. Computer Science	UCCSL20	Practical VII Python Programming	To Implement Object Oriented Programming concepts in Python	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Demonstrate the knowledge on appropriate theory, practices and tools for the specification, design and implementation.	Develop real world applications using oops, files and exception handling provided by python.

B.Sc. Computer Science	UCCSN20	.NET Programming in C#	Understand code solutions and compile C# projects within the .NET framework.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Utilize the practical skill to examine, plan and engineer the applications of technology using computing tools and techniques.	Create Windows Applications and Web based Applications
B.Sc. Computer Science	UECSD20	Elective II B Data Science	Understand the key concepts of data science and its applications.	Attain knowledge and understand the principles and concepts in the respective discipline.	Understand the basic concepts of system software, hardware and evolution of computer graphics.	Understand the key concepts in data science, its applications and the toolkit used by data scientists.
B.Sc. Computer Science	UECSE20	Elective III A Artificial Intelligence	Become familiar with basic principles of AI toward problem solving inference, perception, knowledge representation, and learning.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Utilize the practical skill to examine, plan and engineer the applications of technology using computing tools and techniques.	Understand different types of AI Agents and its Environments
B.Sc. Mathematics	UCMAA20	Algebra and Trigonometry	Course is designed to improve problem solving skills in Algebra and Trigonometry.	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills.	Capability to solve problems in computer graphics using concepts of linear algebra. Ability to provide new solutions using the domain knowledge of mathematics.	Perceive the fundamental concepts in the theory of equations. Solve various types of higher order equations. Know about matrices and their applications. Solve problems involving trigonometric functions. Analyse and relate hyperbolic and circular functions.

B.Sc. Mathematics	UCMAB20	Calculus	Course is designed to introduce the basic properties of integrals, understand the concepts of multiple integration and improve the analytical skills	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills.	Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study. Ability to employ critical thinking in understanding the concepts in every area of Mathematics. Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.	Calculate the radius of curvature, centre of curvature, Evolutes and Involutives. Understand and find the asymptotes of rational curves. Determine the area and volume by applying the technique of double and triple integrals. Determine and use various techniques to solve the variety of integration problems. Evaluate beta and gamma functions and apply beta and gamma functions in double and triple integrals.
B.Sc. Mathematics	UCMAC20	Vector Analysis and Fourier Series	Course is designed to understand the fundamental concepts of vector analysis and apply the various techniques of vector integration in solving volume and surface integrals; and also to define Fourier series and express	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills Effectively	Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.	Compute divergence, curl, directional derivatives and Gradients. Calculate the unit normal and tangent to the surface. Evaluate line integrals, surface integrals and volume integrals using vector integration. Verify and Apply Green's Theorem, Gauss divergence Theorem,

			<p>periodic functions as infinite series</p>	<p>communicate general and discipline specific information, ideas and opinions. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>Communication skills Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations. Ability to use mathematics as a precise language of communication in other branches of human knowledge and communicate long standing unsolved problems in mathematics. Ability to explain the development of mathematics in the civilizational context and its role as queen of all sciences. Problem solving Capability to solve problems in computer graphics using concepts of linear algebra. iv. Ability to provide new solutions using the</p>	<p>Stoke's Theorem. Understand the nature of the Fourier series and find the Fourier coefficients.</p>
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					domain knowledge of mathematics.	
B.Sc. Mathematics	UCMAD20	Differential Equations and Laplace Transforms	Course is designed to improve problem solving skills in Differential Equations and Laplace Transforms and To expose students to different techniques of finding solution to these equations.	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills Effectively communicate general and discipline specific information, ideas and opinions. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study. Communication skills Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations. Ability to show the importance of mathematics as precursor to various scientific developments since the beginning of the civilization. Ability to explain the development of mathematics in the	Solve the standard forms of first order differential equations. Solve the second order differential equations with constant coefficients and variable coefficients. Find the complete, singular and general integral of PDE. Analyze the properties of Laplace Transforms. Solve differential equations using Laplace Transforms.

					<p>civilizational context and its role as queen of all sciences.</p> <p>Problem solving</p> <p>iii. Ability to solve linear system of equations, linear programming problems and network flow problems.</p> <p>Ability to provide new solutions using the domain knowledge of mathematics.</p>	
B.Sc. Mathematics	UCMAE20	Solid Geometry	Solid Geometry	<p>To introduce various concepts of three dimensional Analytical Solid Geometry.</p> <p>To understand and deepen the knowledge related to three-dimensional Analytical Solid Geometry.</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills.</p> <p>Effectively communicate general and discipline specific information, ideas and opinions. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards</p>	<p>Disciplinary knowledge</p> <p>Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p> <p>i. Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations.</p> <p>ii. Ability to use mathematics as a precise language of communication in other branches of human</p>

					the needs of the society.	knowledge and communicate long standing unsolved problems in mathematics. Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics. Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics. Problem solving Ability to provide new solutions using the domain knowledge of mathematics.
B.Sc. Mathematics	UCMAF20	Statistics	To develop broad knowledge of Statistics and understanding of definitions, concepts, principles and theorems. To enhance the ability of learners to apply the knowledge and skills acquired by them during the course to solve	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills Effectively communicate	Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.	Familiarize with subject matter, which has been the single center, to which mathematicians, physicists, astronomers, and engineers were drawn together. Understand necessary conditions for the equilibrium of particles acted upon by various forces and learn the principle of virtual work

			<p>specific theoretical and applied problems in Statics.</p>	<p>general and discipline specific information, ideas and opinions. Appreciate biodiversity and enhance coconsciousness for sustainable development of the society. Emulate positive social values and exercise leadership qualities and team work. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>Communication skills Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations. Ability to use mathematics as a precise language of communication in other branches of human knowledge and communicate long standing unsolved problems in mathematics. Ability to show the importance of mathematics as precursor to various scientific developments since the beginning of the civilization. Ability to explain the development of mathematics in the civilizational context and its role as queen of all sciences.</p>	<p>for a system of coplanar forces acting on a rigid body. Understand the reduction of force system to a resultant force acting at a base point and a resultant couple, which is independent of the choice of base of reduction. Understand static friction that exists between a stationary object and the surface on which it is resting and apply the knowledge and skills to solve specific theoretical and applied problems. Construct center of gravity of some materialistic systems</p>
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					<p>Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics.</p> <p>Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.</p> <p>Problem solving Capability to solve problems in computer graphics using concepts of linear algebra.</p> <p>Capability to solve various models such as growth and decay models, radioactive decay model, drug assimilation, LCR circuits and population models using techniques of differential equations.</p> <p>Ability to solve linear system of equations, linear programming</p>	
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					problems and network flow problems. iv. Ability to provide new solutions using the domain knowledge of mathematics.	
B.Sc. Mathematics	UAMSA20	Mathematical Statistics I	Course is designed to study Statistics from a purely mathematical standpoint using Probability theory as well as other branches of Mathematics and to recognize the fundamental meanings of correlation and regression.	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills Effectively communicate general and discipline specific information, ideas and opinions. Appreciate biodiversity and enhance coconsciousness for sustainable development of the society. Pursue higher knowledge, qualify professionally,	Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study. Communication skills Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations. Ability to show the importance of mathematics as precursor to various scientific developments since the beginning of	Comprehend the fundamentals of probability. Know about random variables of one and two dimensions. Learn about the measures of central tendency and concepts of moments. Acquire knowledge about discrete and continuous distributions. Apply correlation and regression for the investigation of relationship between the variables

				enhance entrepreneurial skills and contribute towards the needs of the society.	the civilization. iv. Ability to explain the development of mathematics in the civilizational context and its role as queen of all sciences. Problem solving iv. Ability to provide new solutions using the domain knowledge of mathematics.	
B.Sc. Mathematics	UCMAG20	Operations Research	To apply problem solving skills to real life situations. To develop logical and analytical skills.	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills. Effectively communicate general and discipline specific information, ideas and opinions. Pursue higher knowledge, qualify professionally,	Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study. Communication skills Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations.	The learners will be able to Translate the real-world problems into linear programming problems and obtain solutions. Apply the transportation problem techniques for the optimization of cost. Solve the assignment problem which deals with the allocation of various sources to various destinations on one to one basis. Find the optimum strategies of the players and the value of the person games. Perform network planning using PERT & CPM

				<p>enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>Ability to use mathematics as a precise language of communication in other branches of human knowledge and communicate long standing unsolved problems in mathematics. Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics. Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics. Problem solving Ability to solve linear system of equations, linear programming problems and network flow problems. Ability to provide new solutions using the domain knowledge of mathematics.</p>	<p>techniques which provide a methodology for planning and controlling of a project.</p>
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B.Sc. Mathematics	UCMAH20	Dynamics	<p>To develop balanced knowledge of Dynamics and understanding of definitions, concepts, principles and theorems in Dynamics.</p> <p>To enhance the ability of learners to apply the knowledge and skills acquired by them during the course to solve specific theoretical and applied problems in Dynamics.</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Acquire and apply analytical, critical and creative thinking, and problem solving skills</p> <p>Effectively communicate general and discipline specific information, ideas and opinions.</p> <p>Appreciate biodiversity and enhance coconsciousness for sustainable development of the society.</p> <p>Emulate positive social values and exercise leadership qualities and team work.</p> <p>Pursue higher knowledge, qualify professionally, enhance</p>	<p>Disciplinary knowledge</p> <p>Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p> <p>Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations.</p> <p>Ability to use mathematics as a precise language of communication in other branches of human knowledge and communicate long standing unsolved problems in mathematics.</p> <p>Ability to show the importance of</p>	<p>Familiarize with subject matter, which has been the single centre, to which mathematicians, physicists, astronomers, and engineers were drawn together.</p> <p>Understand behaviour of motion of objects.</p> <p>Understand simple harmonic motion and projectiles.</p> <p>Express the effects of impact of spheres.</p> <p>Demonstrate methods to locate central orbits.</p> <p>Apply the knowledge and skills to solve specific theoretical and applied problems</p>
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				<p>entrepreneurial skills and contribute towards the needs of the society.</p>	<p>mathematics as precursor to various scientific developments since the beginning of the civilization.</p> <p>iv. Ability to explain the development of mathematics in the civilizational context and its role as queen of all sciences.</p> <p>Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics.</p> <p>Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.</p> <p>Problem solving Capability to solve problems in computer graphics using concepts of linear algebra.</p> <p>Capability to solve various models such as</p>	
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					<p>growth and decay models, radioactive decay model, drug assimilation, LCR circuits and population models using techniques of differential equations.</p> <p>iii. Ability to solve linear system of equations, linear programming problems and network flow problems.</p> <p>iv. Ability to provide new solutions using the domain knowledge of mathematics.</p>	
B.Sc. Mathematics	UAMSB20	Mathematical Statistics II	<p>Course is deigned to study the concept of likelihood and derive the likelihood and associated functions of interest for simple models, To construct confidence intervals for unknown parameters and To demonstrate understanding of how to design experiments and</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills Effectively communicate general and discipline specific</p>	<p>Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study. Communication skills Ability to</p>	<p>Know the basic concepts of some advanced distributions. Apply estimation theory to estimate the values of parameters. Use appropriate sampling distributions for testing of hypothesis. Apply chisquare test to find out the significant difference between expected and observed frequencies in one or more categories.</p>

			surveys for efficiency.	information, ideas and opinions. Appreciate biodiversity and enhance coconsciousness for sustainable development of the society. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	communicate various concepts of mathematics effectively using examples and their geometrical visualizations. Ability to show the importance of mathematics as precursor to various scientific developments since the beginning of the civilization. Ability to explain the development of mathematics in the civilizational context and its role as queen of all sciences. Problem solving Ability to provide new solutions using the domain knowledge of mathematics.	Use Ftest to compare statistical model that has been fitted to a data that best fits the population from which the data was sampled.
B.Sc. Mathematics	UCMAI20	Abstract Algebra	To introduce the concepts of abstract algebra. To enable understanding of fundamental algebraic structures.	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical	Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more	The learners will be able to Understand the concepts of groups and sub groups. Know about normal subgroups, quotient groups, homomorphisms

				<p>and creative thinking, and problem solving skills. Effectively communicate general and discipline specific information, ideas and opinions. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>disciplines which form a part of an undergraduate programme of study. Communication skills Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations. Ability to use mathematics as a precise language of communication in other branches of human knowledge and communicate long standing unsolved problems in mathematics. Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics. Analytical thinking Ability to analyze the results and apply them in various problems</p>	<p>and isomorphisms. Understand the concepts of automorphisms for constructing new groups from the given groups. Have knowledge on concepts of ring theory. . Understand the concepts of maximal ideals, Euclidean rings and particular integral domain.</p>
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					<p>appearing in different branches of mathematics.</p> <p>Problem solving</p> <p>Ability to provide new solutions using the domain knowledge of mathematics.</p>	
B.Sc. Mathematics	UCMAJ20	Real Analysis – I	<p>Course is designed to familiarize the students to concepts of sequences, limits of sequences, limits of functions and continuity and to introduce the concepts of convergent, divergent and bounded sets.</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Acquire and apply analytical, critical and creative thinking, and problem solving skills</p> <p>Effectively communicate general and discipline specific information, ideas and opinions.</p>	<p>Disciplinary knowledge</p> <p>Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p> <p>Ability to show the importance of mathematics as precursor to various scientific developments since the beginning of the civilization.</p> <p>Ability to explain the development of mathematics in the civilizational context and its</p>	<p>Know the basic properties of the real line and real number system.</p> <p>Understand the fundamentals of sequences and to calculate their limits.</p> <p>Recognize the arithmetic properties of convergence and divergence of sequence and series.</p> <p>Learn the properties of metric space and its type.</p> <p>Know about continuous function and its reformulation.</p>

					<p>role as queen of all sciences.</p> <p>Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics.</p> <p>Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.</p>	
B.Sc. Mathematics	UCMAK20	Complex Analysis	<p>Course is designed to introduce the fundamental ideas of the functions of complex variable and to impart the basic knowledge of holomorphic functions, Cauchy's integral formula and the residue theorem.</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Acquire and apply analytical, critical and creative thinking, and problem solving skills</p> <p>Effectively communicate general and discipline specific information, ideas and opinions.</p>	<p>Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p> <p>iii. Ability to show the importance of mathematics as precursor to various scientific developments</p>	<p>Know to define and give some of the important properties of complex analytic functions.</p> <p>Learn certain elementary functions with special reference to the correspondence between certain portions of the z-plane and w-plane as determined by the relation between the function w and the independent variable z.</p> <p>Become familiar with the integrals of analytic functions where many properties from calculus is</p>

					<p>since the beginning of the civilization.</p> <p>Ability to explain the development of mathematics in the civilizational context and its role as queen of all sciences.</p> <p>Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics.</p> <p>Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.</p>	<p>carried over to complex case.</p> <p>Expand the concept of sequence and series which plays a major part of calculus to the complex domain.</p> <p>Learn to compute residues, which allow the determination of general contour integrals.</p>
B.Sc. Mathematics	UEMAA20	Elective I A Programming in C	<p>To introduce students to the concept of basic programming, thereby enhancing the logical thinking of the students with regard to programming.</p> <p>To train the students to apply the</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Acquire and apply analytical, critical and creative thinking, and problem solving skills.</p>	<p>Disciplinary knowledge</p> <p>Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate</p>	<p>The learners will be able to Understand the basics of programming in C such as tokens, data types, operators etc.</p> <p>Use the Decision making branching and looping statements in C programming.</p> <p>Handle the concept of arrays and the concept of</p>

			<p>programming concepts of C to mathematical investigations and problem solving. To enhance the ability of students to work independently and do in depth study of various notions of programming.</p>	<p>Effectively communicate general and discipline specific information, ideas and opinions. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>programme of study. Communication skills i. Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations. Ability to use mathematics as a precise language of communication in other branches of human knowledge and communicate long standing unsolved problems in mathematics. Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics. Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics. Problem</p>	<p>the user defined functions. Express the uses of structures and pointers Understand and apply the programming concepts of C to problem solving.</p>
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					<p>solving</p> <p>iv. Ability to provide new solutions using the domain knowledge of mathematics.</p> <p>Digital literacy</p> <p>Capability to understand and apply the programming concepts of C to mathematical investigations and problem solving.</p>	
B.Sc. Mathematics	UEMAB20	Elective Practical IC	<p>To introduce students to the concept of basic programming, thereby enhancing the logical thinking of the students with regard to programming.</p> <p>To train the students to apply the programming concepts of C to mathematical investigations and problem solving.</p> <p>To construct the ability of students to work independently and do in-depth</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Acquire and apply analytical, critical and creative thinking, and problem solving skills.</p> <p>Effectively communicate general and discipline specific information, ideas and opinions.</p> <p>Pursue higher knowledge, qualify professionally,</p>	<p>Disciplinary knowledge</p> <p>Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p> <p>Ability to communicate various concepts of mathematics effectively using examples and their geometrical</p>	<p>The learners will be able to</p> <p>Implement programs with branching and looping statements.</p> <p>Write programs that perform operations using derived data types and functions.</p> <p>Demonstrate a thorough understanding of arrays by designing and implementing programs that search and sort arrays.</p> <p>Perform Matrix operations using C.</p> <p>Use structures and pointers in C programs.</p>

			study of various notions of programming.	enhance entrepreneurial skills and contribute towards the needs of the society.	<p>visualizations.</p> <p>ii. Ability to use mathematics as a precise language of communication in other branches of human knowledge and communicate long standing unsolved problems in mathematics.</p> <p>Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics.</p> <p>Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics. Problem solving Ability to provide new solutions using the domain knowledge of mathematics.</p> <p>Digital literacy Capability to understand and apply the programming</p>	
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					concepts of C to mathematical investigations and problem solving.	
B.Sc. Mathematics	UEMAC20	Elective I B Number Theory	Course is designed to introduce students the concept of number theory, thereby enhancing the logical thinking of the students with regard to applications in security system and to construct the ability of students to work independently and do in-depth study of various notions of number theory.	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills Effectively communicate general and discipline specific information, ideas and opinions.	Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study. Communication skills iii. Ability to show the importance of mathematics as precursor to various scientific developments since the beginning of the civilization. iv. Ability to explain the development of mathematics in the civilizational context and its role as queen of all sciences.	Learn about some important results in the theory of numbers including the prime number theorem, Chinese remainder theorem, Wilson's theorem and their consequences. Learn about number theoretic functions, modular arithmetic and their applications. Familiarize with modular arithmetic and find primitive roots of prime and composite numbers. Know about open problems in number theory, namely, the Goldbach conjecture and twin prime conjecture. Apply public crypto systems, in particular, RSA.

					<p>Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics.</p> <p>Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.</p>	
B.Sc. Mathematics	USMAC20	SBE V Mathematics for Competitive Examinations	Course is designed to improve the numerical ability and logical thinking of the students and to prepare the students for various competitive examinations.	<p>Acquire and apply analytical, critical and creative thinking, and problem solving skills</p> <p>Effectively communicate general and discipline specific information, ideas and opinions.</p>	<p>Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics.</p> <p>Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.</p> <p>Problem solving iv. Ability to provide new solutions using the domain knowledge of mathematics.</p>	<p>Apply the concepts of average, percentage, ratio and proportion to solve real life problems.</p> <p>Think critically and solve problems.</p> <p>Improve their creative thinking and make decisions in real life situations.</p> <p>Determine the number of possible outcomes in a problem and calculate the probability of events for more complex outcomes.</p> <p>Analyse and compare the given data to use analytic techniques that are simple and effective to solve problems.</p>

B.Sc. Mathematics	UCMAL20	Linear Algebra	<p>To introduce the concepts of linear algebra.</p> <p>To familiarize the concepts of linear transformation and their matrices.</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Acquire and apply analytical, critical and creative thinking, and problem solving skills.</p> <p>Effectively communicate general and discipline specific information, ideas and opinions.</p> <p>Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p> <p>Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations.</p> <p>Ability to use mathematics as a precise language of communication in other branches of human knowledge and communicate long standing unsolved problems in mathematics. Critical thinking</p> <p>Ability to employ critical thinking in</p>	<p>The learners will be able to</p> <p>Understand the concepts of basis, linear dependence and independence.</p> <p>Analyze the concepts of dual spaces in vector space and inner product space.</p> <p>Understand the concepts of linear transformation, characteristic roots and characteristic vectors.</p> <p>Obtain the matrix for linear transformations.</p> <p>. Acquire knowledge about determinants, trace and transpose by linear transformations.</p>
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					<p>understanding the concepts in every area of Mathematics.</p> <p>Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.</p> <p>Problem solving Capability to solve problems in computer graphics using concepts of linear algebra.</p> <p>Ability to provide new solutions using the domain knowledge of mathematics.</p>	
B.Sc. Mathematics	UCMAM20	Real Analysis II	Course is designed to create an interest and to deepen the knowledge of students in concepts of real analysis, to make the students think logically and objectively and to make the students understand the difference between the Riemann and	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Acquire and apply analytical, critical and creative thinking, and problem solving skills</p> <p>Effectively communicate</p>	<p>Disciplinary knowledge</p> <p>Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p>	<p>Understand some properties of metric spaces like openness, closedness, boundedness and totally boundedness.</p> <p>Know the fundamental concepts of complete and compact metric space.</p> <p>Apply the properties of Riemann integrable functions.</p> <p>Assimilate the concept of partition on an interval in</p>

			Lebesgue integrability.	general and discipline specific information, ideas and opinions.	<p>iii. Ability to show the importance of mathematics as precursor to various scientific developments since the beginning of the civilization.</p> <p>iv. Ability to explain the development of mathematics in the civilizational context and its role as queen of all sciences.</p> <p>Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics.</p> <p>Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.</p>	R and understand about lebesgue integrability. Acquire knowledge about measurable functions and their properties.
B.Sc. Mathematics	UEMAD20	Elective II A Graph Theory	Course is designed to introduce the students to the beautiful and elegant theory of graphs and to study and develop	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply	Disciplinary knowledge Capability to demonstrate comprehensive knowledge of	Understand the basic graph theory concepts Analyse the connectedness in graphs using vertices and edges. Identify the uniqueness of

			<p>the concepts of different graphs.</p>	<p>analytical, critical and creative thinking, and problem solving skills</p> <p>Effectively communicate general and discipline specific information, ideas and opinions.</p> <p>Appreciate biodiversity and enhance ecoconsciousness for sustainable development of the society.</p> <p>Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p> <p>iii. Ability to show the importance of mathematics as precursor to various scientific developments since the beginning of the civilization.</p> <p>iv. Ability to explain the development of mathematics in the civilizational context and its role as queen of all sciences.</p> <p>Critical thinking</p> <p>Ability to employ critical thinking in understanding the concepts in every area of Mathematics.</p> <p>Analytical thinking</p> <p>Ability to analyze the results and apply them in various problems appearing in different branches of mathematics. Digital</p>	<p>paths using tree concepts.</p> <p>Acquire wide knowledge of mathematical principles of graphs</p> <p>Understand the emerging research topics based on graphs</p>
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					literacy i. Capability to understand and apply the programming concepts of C and C++ to mathematical investigations and problem solving.	
B.Sc. Mathematics	UEMAE20	Elective II B Discrete Mathematics	Course is designed to introduce students to the concept of basic discrete mathematics, thereby enhancing the logical thinking of the students with regard to discrete domain, to train the students in the applications of the discrete mathematical structures and to construct the ability of students to work independently and do in-depth study of various notions of discrete mathematics.	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills Effectively communicate general and discipline specific information, ideas and opinions. Appreciate biodiversity and enhance ecoconsciousness for sustainable development of the society. Pursue higher	Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study. Communication skills iii. Ability to show the importance of mathematics as precursor to various scientific developments since the beginning of the civilization. iv. Ability to explain the development of mathematics in the civilizational context and its	Learn about partially ordered sets. Understand lattices and their types. Understand Boolean algebra and Boolean functions, logic gates, switching circuits and their applications. Solve real-life problems using finite state and Turing machines. Assimilate various graph theoretic concepts and familiarize with their applications.

				knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	role as queen of all sciences. Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics. Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.	
B.Sc. Mathematics	UEMAF20	Elective III Object Oriented Programming Using C++	To introduce students to the concept of object oriented programming with C++, thereby enhancing the logical thinking of the students with regard to programming. To train the students to apply the programming concepts of C++ to mathematical investigations and problem solving. To construct the	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills. Effectively communicate general and discipline specific information, ideas and opinions. Pursue higher	Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study. Communication skills Ability to communicate various concepts of mathematics effectively using	The learners will be able to Understand the basics of programming in C++ such as tokens, data types, operators etc. Use the Decision making branching and looping statements in C++ programming. Handle the concept of arrays and the concept of the user define functions. Express the uses of structures and pointers. Understand and apply the programming concepts of C++ to problem solving.

			<p>ability of students to work independently and do in-depth study of various notions of programming.</p>	<p>knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>examples and their geometrical visualizations. Ability to use mathematics as a precise language of communication in other branches of human knowledge and communicate long standing unsolved problems in mathematics. Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics. Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics. Problem solving Ability to provide new solutions using the domain knowledge of mathematics. Digital literacy Capability to</p>	
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					understand and apply the programming concepts of C++ to mathematical investigations and problem solving.	
B.Sc. Mathematics	UEMAG20	Elective Practical II C++	To introduce students to the concept of basic programming, thereby enhancing the logical thinking of the students with regard to programming. To train the students to apply the programming concepts of C++ to mathematical investigations and problem solving. To enhance the ability of students to work independently and do in-depth study of various notions of programming.	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills. Effectively communicate general and discipline specific information, ideas and opinions. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study. Communication skills Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations. Ability to use mathematics as a precise language of communication in other branches of human knowledge and	The learners will be able to Implement programs with class and constructors. Write programs that perform operations using derived data types and functions. Demonstrate a thorough understanding of arrays by designing and implementing programs that search and sort arrays. Use inheritance properties that promote code reuse in C++. Overload functions and operators in C++.

					<p>communicate long standing unsolved problems in mathematics.</p> <p>Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics.</p> <p>Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics. Problem solving</p> <p>iv. Ability to provide new solutions using the domain knowledge of mathematics.</p> <p>Digital literacy Capability to understand and apply the programming concepts of C++ to mathematical investigations and problem solving.</p>	
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B.Sc. Mathematics	USMAD20	SBE VI Fuzzy Set Theory	Course is designed to explain the emergence of fuzzy set from an historical perspective and to introduce the basic concepts of the existing research topic fuzzy sets.	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Acquire and apply analytical, critical and creative thinking, and problem solving skills</p> <p>Effectively communicate general and discipline specific information, ideas and opinions.</p>	<p>Disciplinary knowledge</p> <p>Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p> <p>Ability to show the importance of mathematics as precursor to various scientific developments since the beginning of the civilization.</p> <p>Ability to explain the development of mathematics in the civilizational context and its role as queen of all sciences.</p> <p>Critical thinking</p> <p>Ability to employ critical thinking in understanding the concepts in every area of Mathematics.</p>	<p>Distinguish between classical crisp set and fuzzy set using characteristic function and membership function respectively. Understand the operations on the fuzzy set which are generalization of crisp set operations. Represent the notion of fuzzy relational equations based upon the maxmin composition.</p> <p>Model fuzzy graphs which provides provision to represent different types of relationships</p> <p>Know about the fuzzy number which is a special form of a fuzzy set on the set of real numbers.</p>
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					Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.	
B.B.A	UCBAB20	Business Mathematics and Statistics I	Course is designed to introduce mathematical applications in business and management, thereby enhancing the logical thinking of the students with regard to problem solving and to train the students to apply statistical techniques in business and management, thereby enhancing the decision making skills of the students.	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills Effectively communicate general and discipline specific information, ideas and opinions. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study. Communication skills Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations. Ability to use mathematics as a precise language of communication in other branches of	Apply the concept of matrices in solving business problems. Analyse and demonstrate differentiation skills in economics and business. Apply graphical methods to interpret statistical data. Apply the statistical techniques in business. Solve a range of problems using the techniques covered.

					<p>human knowledge and communicate long standing unsolved problems in mathematics.</p> <p>Ability to show the importance of mathematics as precursor to various scientific developments since the beginning of the civilization.</p> <p>Ability to explain the development of mathematics in the civilizational context and its role as queen of all sciences.</p> <p>Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics.</p> <p>Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.</p> <p>Problem solving Capability to solve</p>	
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					<p>problems in computer graphics using concepts of linear algebra.</p> <p>Ability to solve linear system of equations, linear programming problems and network flow problems.</p> <p>Ability to provide new solutions using the domain knowledge of mathematics.</p>	
B.B.A	UCBAD20	Business Mathematics and Statistics II	<p>Course is designed to introduce mathematical applications in business and management, thereby enhancing the logical thinking of the students with regard to problem solving and to train the students to apply statistical techniques in business and management, thereby enhancing the decision making skills of the students.</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills</p> <p>Effectively communicate general and discipline specific information, ideas and opinions.</p> <p>Pursue higher knowledge, qualify professionally,</p>	<p>: Disciplinary knowledge</p> <p>Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p> <p>Ability to communicate various concepts of mathematics effectively using examples and their geometrical</p>	<p>Understand mathematical applications in finance. Demonstrate mathematical skills like integration required in economics and business. Comprehend critical thinking and problem solving skills in correlation and regression. Interpret numerical information that forms the basis of index numbers in business. Analyze the theoretical concepts, tools and methods of probability.</p>

				<p>enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>visualizations. Ability to use mathematics as a precise language of communication in other branches of human knowledge and communicate long standing unsolved problems in mathematics. Ability to show the importance of mathematics as precursor to various scientific developments since the beginning of the civilization. Ability to explain the development of mathematics in the civilizational context and its role as queen of all sciences. Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics. Analytical thinking Ability to analyze the</p>	
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					<p>results and apply them in various problems appearing in different branches of mathematics.</p> <p>Problem solving Capability to solve problems in computer graphics using concepts of linear algebra. Ability to solve linear system of equations, linear programming problems and network flow problems.</p> <p>Ability to provide new solutions using the domain knowledge of mathematics.</p>	
B.B.A	UCBAG20	Operations Research I	<p>The course is designed to understand the quantitative methods and techniques for effective decision making and examine the aspects of business and marketing with respect to operations research</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Acquire and apply analytical, critical and creative thinking, and problem solving skills</p> <p>Effectively communicate</p>	<p>Disciplinary knowledge</p> <p>Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Critical thinking</p>	<p>Understand and solve linear programming problems.</p> <p>Identify and develop the operational research models such as graphical and simplex method.</p> <p>Comprehend advanced linear programming problems using Big M method.</p> <p>Construct and solve transportation models and</p>

				<p>general and discipline specific information, ideas and opinions. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>Ability to employ critical thinking in understanding the concepts in every area of Mathematics. Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics. Ability to provide new solutions using the domain knowledge of mathematics.</p>	<p>assignment models. Analyze and evaluate assignment models.</p>
B.B.A	UCBAI20	Operations Research II	<p>The course is designed to improve the problem solving skills of students and improve the knowledge in Sequencing Problems, Queuing theory and Network Analysis.</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills Effectively communicate general and discipline specific information, ideas and opinions.</p>	<p>Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study. Critical thinking Ability to employ critical thinking in understanding the concepts in every area</p>	<p>Utilize the concepts of Operation research in real life experiments. Plan the Sequencing of jobs through machines. Evaluate the critical path and project duration in CPM Acquire the solutions for Game of two players in Game theory. Analyze the queuing theory for single channel problems.</p>

				Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	of Mathematics. Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics. Ability to provide new solutions using the domain knowledge of mathematics.	
B.Com/B&I	UCBMA20	Business Mathematics and Statistics	To provide an opportunity to master mathematical applications in Economics, Finance, Commerce and Management. To develop the ability of students to deal with numerical and quantitative issues in business. To have a strong understanding of statistical applications in Economics and Management. To enable the use of statistical techniques wherever relevant.	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills Effectively communicate general and discipline specific information, ideas and opinions. Appreciate biodiversity and enhance ecoconsciousness for	Ability to provide new solutions using the domain knowledge of mathematics.	Apply the knowledge in matrices in solving business problems. Analyze and demonstrate differentiation skills in economics and business. Apply statistical and graphical techniques wherever relevant. Apply the concepts, tools and techniques in business statistical analysis. Solve a range of problems using the techniques covered.

				<p>sustainable development of the society.</p> <p>Emulate positive social values and exercise leadership qualities and team work.</p> <p>Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>		
B.Com/B&I	UASOR20	Business Statistics and Operations Research	<p>To deepen the knowledge of statistical concepts and to introduce the concepts of Operations Research.</p> <p>To demonstrate and apply the concepts of probability and game theory.</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>Ability to provide new solutions using the domain knowledge of mathematics.</p>	<p>Gain practical knowledge of correlation and regression.</p> <p>Understand the basic concepts of index numbers.</p> <p>Learn the ideas of possible outcomes.</p> <p>Develop mathematical skills to optimize transportation and assignment problem.</p> <p>Propose the best strategy using decision making methods under uncertainty and game theory.</p>

B.Sc. Chemistry / B.SC Physics	UAMAA20	Allied Mathematics I	<p>To introduce the basic concepts of matrices</p> <p>To improve problem solving skills in Trigonometry</p> <p>To introduce various methods to solve equations</p> <p>To introduce differential and integral calculus</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Acquire and apply analytical, critical and creative thinking, and problem solving skills</p> <p>Effectively communicate general and discipline specific information, ideas and opinions.</p> <p>Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>Disciplinary knowledge</p> <p>Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p> <p>Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations.</p>	<p>Understand the basic concepts of matrices</p> <p>Apply the theory of equations and find roots using Newton's and Horner's method.</p> <p>Acquire problem solving skills in trigonometry.</p> <p>Compute radius of curvature, centre of curvature, evolutes and involutes.</p> <p>Apply the techniques of integral calculus.</p>
B.Sc. Chemistry / B.SC Physics	UAMAB20	Allied Mathematics II	<p>To introduce concepts of vector calculus</p> <p>To teach methods of solving partial differential equations</p> <p>To introduce Laplace transforms</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Acquire and apply analytical, critical and creative</p>	<p>Disciplinary knowledge</p> <p>Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more</p>	<p>Understand the use of vector calculus in science and engineering.</p> <p>Understand the applications of Green's, Gauss divergence and Stoke's Theorems.</p> <p>Find the complete,</p>

			<p>and Fourier Series</p> <p>To introduce concepts of vector calculus</p> <p>To teach methods of solving partial differential equations</p> <p>To introduce Laplace transforms and Fourier Series</p>	<p>thinking, and problem solving skills</p> <p>Effectively communicate general and discipline specific information, ideas and opinions.</p> <p>Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p> <p>Ability to communicate various concepts of mathematics effectively using example and their geometrical visualizations.</p>	<p>singular and general integral of partial differential equations.</p> <p>Understand the basic concepts of Laplace Transforms.</p> <p>. Determine the nature of the Fourier series and find its coefficients</p>
B. Sc. Computer Science	UANAA20	Numerical Analysis – I	<p>Course is designed to introduce the concepts of Numerical Analysis and to provide suitable and effective methods called numerical methods, for obtaining approximate representative numerical results of problems.</p>	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Acquire and apply analytical, critical and creative thinking, and problem solving skills</p> <p>Effectively communicate general and discipline specific information, ideas</p>	<p>Disciplinary knowledge</p> <p>Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p> <p>iii. Ability to show the importance of mathematics as</p>	<p>Understand the operators and their properties, form a forward and backward difference table.</p> <p>Execute interpolation methods using forward and backward differences when the data is equally distributed.</p> <p>Exhibit interpolation procedures using central differences when the data is equally distributed.</p> <p>Use divided differences for interpolation when the data is unequally</p>

				and opinions.	precursor to various scientific developments since the beginning of the civilization. iv. Ability to explain the development of mathematics in the civilizational context and its role as queen of all sciences. Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics. Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.	distributed. Implement curve fitting and method of moments.
B. Sc. Computer Science	UANAB20	Numerical Analysis – II	Course is designed to familiarize the students with finding root of equations, solving systems of linear algebraic equation, numerical integration and differentiation and to	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and	Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form	Obtain numerical solutions of algebraic and transcendental equations. Find numerical solutions of system of linear equations. Use numerical methods to do differentiation. Use numerical methods to

			<p>solve differential equation with boundary value problems.</p>	<p>problem solving skills Effectively communicate general and discipline specific information, ideas and opinions.</p>	<p>a part of an undergraduate programme of study. Communication skills iii. Ability to show the importance of mathematics as precursor to various scientific developments since the beginning of the civilization. Ability to explain the development of mathematics in the civilizational context and its role as queen of all sciences. Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics. Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.</p>	<p>do integration. Solve ordinary differential equations using numerical methods.</p>
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BCA	UACAA20	Mathematical Foundations	Course is designed to provide basic mathematical concepts required for computer applications, to introduce the notion of relations and functions and to learn simple methods in algebra	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills.	Capability to solve problems in computer graphics using concepts of linear algebra. Ability to provide new solutions using the domain knowledge of mathematics.	Understand the concepts of Mathematical logic and compute the operators of Symbolic logic. Acquire knowledge about relations and functions. Assess real life simple problems with permutation, combination, and probability. Know about matrices and their types. Differentiate standard functions.
B.C.A	UAMGA20	Statistical Methods	Course is designed to enrich the knowledge of students on statistical methods which play a major role in computer applications and to demonstrate sampling techniques and to employ statistical methods of analysis to make inference	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills.	Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study. Ability to employ critical thinking in understanding the concepts in every area of Mathematics. PS0: Ability to analyze the results and apply them in various problems appearing in different	Analyze the statistical data using measures of central tendency and graphs. Provide an overall description of a set of data using measures of dispersion. Apply the concept of regression and correlation in business problems. Make decisions using hypothesis testing. . Apply the Chisquare test for independence as well as goodness of fit.

					branches of mathematics.	
B. Sc. Microbiology	UABSA20	Biostatistics – I	Course is designed to deepen the knowledge in various statistical concepts which play an important role in the field of biological sciences, recognize the importance data collection and its role in determining scope of inference and to apply appropriate statistical methods for analyzing one or two variables.	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Acquire and apply analytical, critical and creative thinking, and problem solving skills</p> <p>Effectively communicate general and discipline specific information, ideas and opinions.</p> <p>Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>Disciplinary knowledge</p> <p>Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p> <p>Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations.</p>	<p>Frame a relevant frequency distribution for a given biological data.</p> <p>Determine mean, median, mode for biological data.</p> <p>Compute measures of dispersion.</p> <p>Understand probability concepts.</p> <p>Gain knowledge of correlation and regression and its applications.</p>

B. Sc. Microbiology	UABSB20	Biostatistics II	Course is designed to deepen the knowledge in various statistical concepts which play an important role in the field of biological sciences, to understand interval estimation and hypothesis testing and to interpret statistical results effectively in real life problems.	<p>Attain knowledge and understand the principles and concepts in the respective discipline.</p> <p>Acquire and apply analytical, critical and creative thinking, and problem solving skills</p> <p>Effectively communicate general and discipline specific information, ideas and opinions.</p> <p>Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>Disciplinary knowledge</p> <p>Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of an undergraduate programme of study.</p> <p>Communication skills</p> <p>Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations.</p>	<p>Apply probability distributions such as Binomial, Poisson and Normal to solve real life problems.</p> <p>Recognize the importance of data collection and its role in determining scope of inference.</p> <p>Execute the test of hypothesis for large and small samples drawn from a normal population.</p> <p>Perform and apply Chisquare test</p> <p>Carry out analysis of variance using F test.</p>
B.B.A (Hospital Administration)	UAMST20	Medical Statistics	<p>To introduce the basic concepts of statistics.</p> <p>To make decisions based on statistical representation related to hospital administration.</p>	<p>Acquire and apply analytical, critical and creative thinking, and problem solving skills.</p> <p>Effectively communicate</p>	<p>Communication skills</p> <p>Ability to communicate various concepts of mathematics effectively using examples and their geometrical</p>	<p>Solve basic mathematical problems using matrices</p> <p>Use various differentiation techniques.</p> <p>Give graphical representation of statistical data.</p> <p>Understand the concepts</p>

				<p>general and discipline specific information, ideas and opinions. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>visualizations. ii. Ability to use mathematics as a precise language of communication in other branches of human knowledge and communicate long standing unsolved problems in mathematics. Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics. Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics. Problem solving Ability to provide new solutions using the domain knowledge of mathematics.</p>	<p>related to statistics Analyze problems related to statistical measures</p>
B.B.A (Hospital Administration)	UAORA20	Operations Research	To introduce the techniques of solving problems in the field	Acquire and apply analytical, critical and creative thinking, and	Communication skills Ability to communicate various concepts of	Understand the basic operations research concepts and solve linear programming problems.

			<p>of industry, marketing and finance To create awareness about optimization in the utility of resources</p>	<p>problem-solving skills. Effectively communicate general and discipline specific information, ideas and opinions. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.</p>	<p>mathematics effectively using examples and their geometrical visualizations. Ability to use mathematics as a precise language of communication in other branches of human knowledge and communicate long standing unsolved problems in mathematics. Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics. Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics. Problem solving Ability to provide new solutions using the domain knowledge of mathematics.</p>	<p>Analyze real life situation using transportation models. Assign jobs to different machines using assignment models. Use knowledge of Network Analysis in Hospital Administration. Acquire wide knowledge in Game Theory.</p>
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BSC Mathematics	UGMAAn20	Mathematics for Competitive Examinations	Course is designed to revitalize the basic knowledge of mathematics and problem solving skills, to enhance logical, analytical and critical thinking of learners, to help the learners to acquire satisfactory competency using verbal and nonverbal reasoning and to help the students to prepare for various competitive examinations.	Acquire and apply analytical, critical and creative thinking, and problem solving skills Effectively communicate general and discipline specific information, ideas and opinions.	Critical thinking Ability to employ critical thinking in understanding the concepts in every area of Mathematics. Analytical thinking Ability to analyze the results and apply them in various problems appearing in different branches of mathematics. Problem solving Ability to provide new solutions using the domain knowledge of mathematics.	Gain critical thinking and numerical ability to solve problems. Apply the concepts of quantitative aptitude to solve real life problems. Interpret and use data represented in different forms Reason out verbally and nonverbally Write various competitive exams for higher studies and jobs
B.Sc. Microbiology	UCMBC20	Basic Techniques in Microbiology	The course is designed to train students in the basic microbiological technique as a requisite to get employment in Microbiology laboratory	Attain knowledge and understand the principles and concepts in the respective discipline.	Realize the application oriented aspects of Microbiology and assimilate the technical skills in basic, medical and applied Microbiology.	Perform cleaning, sterilization of glassware and prepare culture media. Examine the different morphological forms of microbes. Analyze and employ different staining methods for the identification of bacteria. Competently cultivate bacteria in different types of media and identify their sensitivity and resistance. Use Classical techniques

						for the identification of bacteria based on their biochemical properties.
B.Sc. Microbiology	UCMBF20	Basic and Applied Immunology	The course focuses on training on various immunological techniques to work in Haematology and immunology sections	Attain knowledge and understand the principles and concepts in the respective discipline.	Realize the application oriented aspects of Microbiology and assimilate the technical skills in basic, medical and applied Microbiology.	Identify the ABO blood groups and its Rh types. Enumerate and observe various granulocytic and agranulocytic cells of immune system. Perform serological diagnosis for the detection of typhoid, syphilis, rheumatoid factor and anti-streptolysin 'o'. Demonstrate the direct and indirect pregnancy testing procedure. Quantitate the antigens and antibodies by performing immunodiffusion techniques.
B.Sc. Microbiology	UCMBL20	Medical Microbiology	The course is designed to train students in the field of medicines and pursue their diagnostic ability to be employed in hospitals	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Realize the application oriented aspects of Microbiology and assimilate the technical skills in basic, medical and applied Microbiology.	Demonstrate collection, transport and processing of clinical specimens. Perform staining techniques for the identification of bacteria. Isolate and identify the bacterial pathogens from various clinical specimens. Prepare culture media for the cultivation of microorganisms.

						Analyze the clinical specimens for the examination of pathogenic fungi and parasites.
B.Sc. Microbiology	UCMBM20	Ecology, food and dairy Microbiology	The course is designed to train students in applied aspects of Microbiology to be placed in industries and as Quality controllers.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Realize the application oriented aspects of Microbiology and assimilate the technical skills in basic, medical and applied Microbiology.	Assess the microbiological quality of raw milk by MBRT and Standard Plate Count test. Identify and enumerate bacteria and fungi from the spoiled foods and Rhizosphere soil. Apply the technique for the isolation of yeast from food sources. Analyze the potability of water by MPN test. Perform the microbial test to detect soil fertility and isolate, cultivate Rhizobium from root nodule.
B.Sc. Microbiology	USMBB20	Bioinstrumentation	The course focuses on various Laboratory instruments which aids the students to obtain lab oriented works	Attain knowledge and understand the principles and concepts in the respective discipline.	Realize the application oriented aspects of Microbiology and assimilate the technical skills in basic, medical and applied Microbiology.	Outline the working principles of various laboratory equipment. Demonstrate various types of centrifugation. Discuss on the different techniques of gel electrophoresis and comprehend the methods of blotting Compile the techniques of

						chromatography. Explain principle and usage of various spectrophotometres.
B.Sc. Microbiology	USMBC20	Diagnostic Microbiology	The course provides the learners an overview on clinical Microbiology, laboratory organization and various diagnostic approaches from traditional to molecular methods.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Realize the application oriented aspects of Microbiology and assimilate the technical skills in basic, medical and applied Microbiology.	Explain general safety regulations and guidelines of Microbiology laboratory. Apply procedures in the collection and transport of clinical specimens. Examine and identify the pathogenic microorganisms from clinical specimens. Perform serological and molecular methods for the diagnosis of diseases. Determine the sensitivity and resistance pattern of bacterial pathogens to various antibiotics.
B.Sc. Microbiology	USMBE20	Cosmetology	To provide adequate knowledge on cosmeceuticals, personal care and hygiene products and familiarize with the skills in formulation science required to scientifically design and develop products.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Attain higher knowledge by developing competency in the field of Microbiology assuring and enhancing entrepreneurial skills for the betterment of the society.	Give information about significance of cosmetics and adulteration of natural products. Formulate face packs, hair oils for different types of skin and hair. Analyze the structure, function and types of skin. Outline the biology of hair, hair growth cycle and

						scalp hygiene and utilize the natural herbs for skin, hair and oral care preparations. Communicate the cosmeceutical applications of micro and macroalgae.
B.Sc. Physics	UCPHB20	Thermal Physics	To acquire knowledge about law of thermodynamics and their applications, classical and quantum theory of radiation.	Attain knowledge and understand the principles and concepts in the respective discipline	Students are expected to acquire knowledge in physics, including the major remises of Properties of matter and sound, Thermal Physics, Classical and quantum mechanics, electricity and Magnetism, electronics, optics, Relativity and modern physics.	The learners will be able to be familiar with various thermodynamic process and work done in each of these processes.
B.Sc. Physics	UCPHK20	Relativity and Quantum Mechanics	To make the students understand the inadequacy of classical mechanics and the birth of quantum mechanics.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Prepare the student to successfully compete for employment and to offer a wide range of applications.	Gain the knowledge about the postulates and the basic principles of quantum mechanics and operator formulation.
B.Sc. Visual Communication	UCVEB20	Practical I – Drawing and Design	To develop basic drawing and modeling skills in students and to enable them to expand their visual expression skills.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	To become competent enough to undertake the professional job as per the demands and requirements of the media and Entertainment	Practicing Colors Using Watercolor and Poster colors

					Industry.	
B.Sc. Visual Communication	UAHCA20	Allied – I Human Communication	To enable students, understand the basic concepts of Human communication and the evolution of communication skills.	Effectively communicate general and discipline specific information, ideas and opinions.	To become a socially responsible citizen with a global vision.	Applying the Communication Skills in Public Speaking.
B.Sc. Visual Communication	UCVCC20	Basic Photography	To inculcate in students an in-depth knowledge on the theoretical aspects of photography including concepts and techniques used in photography.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	To become competent enough to undertake the professional job as per the demands and requirements of the media and Entertainment Industry.	Acquiring an in-depth knowledge about the characteristics of light, color and various lighting setup.
B.Sc. Visual Communication	UCVCD20	Practical II – Professional Photography	To enable students to try firsthand, the basic techniques of photography and to develop the skills for a good photographer	Attain knowledge and understand the principles and concepts in the respective discipline.	To make women professionals in media and attain professional portfolios to become entrepreneurs to increase employability.	Acquiring knowledge in lighting and exposure techniques
B.Sc. Visual Communication	USCMA20/ USCMA20	SBE Basic Drawing	To develop basic drawing and modeling skills in students and to enable them to expand their visual expression skills.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	To become competent enough to undertake the professional job as per the demands and requirements of the media and Entertainment Industry.	Practicing Colors Using Watercolor and Poster colors

B.Sc. Visual Communication	UCVCE20	Television Production	To introduce to the students, the field of television media and to train them to produce any type of television programmes	Acquire and apply analytical, critical and creative thinking, and problem solving skills	To become competent enough to undertake the professional job as per the demands and requirements of the media and Entertainment Industry.	Analyze the lighting techniques and production management.
B.Sc. Visual Communication	UCVCF20	Practical III Computer Graphics	To equip the students to design basic layout designs in print media using Adobe Photoshop software.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	To make women professionals in media and attain professional portfolios to become entrepreneurs to increase employability.	Creating print advertisements like brochures, pamphlet, banners and magazine with the usage of proper techniques.
B.Sc. Visual Communication	UASWA20	Allied Script writing	To make students understand the guidelines and techniques of script writing and to give them practice in writing scripts for various media	Acquire and apply analytical, critical and creative thinking, and problem solving skills	To become competent enough to undertake the professional job as per the demands and requirements of the media and Entertainment Industry.	Learning the various forms of writing for visual mediums.
B.Sc. Visual Communication	UCVCH20	Practical IV Post Production Editing	To teach students the art of editing videos through Adobe Premier CC software and to complete basic exercises in editing.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	To make women professionals in media and attain professional portfolios to become entrepreneurs to increase employability.	Create a short film or documentary using editing techniques.

B.Sc. Visual Communication	UAJLA20	Allied IV Journalism	<ul style="list-style-type: none"> To introduce the field of Visual Nature of journalism in various media and to develop journalistic skills in students 	Emulate positive social values and exercise leadership qualities and team work.	To become ethically committed media professionals and entrepreneur by adhering to human values, Indian, and the Global culture.	Evaluating the role of journalist in the stream of electronic media.
B.Sc. Visual Communication	USCMB20	Skill Based Elective Introduction to Art Direction	This course focuses on the introduction to set design and the basics of set construction, and design visualization.	Effectively communicate general and discipline specific information, ideas and opinions.	To Acquire Fundamental knowledge of Visual communication and the related study area.	Acquiring in-depth knowledge about the creation of set models.
B.Sc. Visual Communication	UCVCK20	Digital Public Relations	To initiate students to the field of Public Relations by giving them a background, trends and techniques in PR	Emulate positive social values and exercise leadership qualities and team work.	To become competent enough to undertake the professional job as per the demands and requirements of the media and Entertainment Industry.	Evaluating the Process of PR and acquiring the profound knowledge in Public relation writing.
B.Sc. Visual Communication	UCVCL20	Practical V –D Animation	To enable students to learn the art of D animation using Adobe Animate CC software	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	To make women professionals in media and attain professional portfolios to become entrepreneurs to increase employability.	Acquiring the knowledge in basic Animation Techniques.

B.Sc. Visual Communication	UCVCM20	Practical VI Internship	To train students in the field of television production with firsthand experience working in a television news organization for a month as an internee.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	To become ethically committed media professionals and entrepreneur by adhering to human values, Indian, and the Global culture.	Acquiring an in-depth knowledge in the Respective Media Industry.
B.Sc. Visual Communication	UCVCN20	Project Documentary Production	To train students in short film making or documentary making by putting into practice the techniques learned in television production and script writing through team work.	Emulate positive social values and exercise leadership qualities and team work.	To make women professionals in media and attain professional portfolios to become entrepreneurs to increase employability.	Presenting the Documentation with Master Copy.
B.Sc. Visual Communication	USCMD520	Skill Based Elective E-Content Production	To enable students know about the production process and techniques of e-content development, implementing effective e-content material for education field.	Effectively communicate general and discipline specific information, ideas and opinions.	To get equipped with ICT competencies including Digital literacy.	Executing and publishing the e-contents for formal education.
B.Sc. Visual Communication	UCVCP20	Introduction to ICT and New Media	To give students a brief idea of the evolution of the Communication and Information Technology, its effects on Economics	Effectively communicate general and discipline specific information, ideas and opinions.	To get equipped with ICT competencies including Digital literacy.	Implementing the ICT tools and techniques in New Media.

			and working in the New Media.			
B.Sc. Visual Communication	UCVCQ20	Practical VII Web Designing	To teach students the art of designing basic websites using Adobe Dreamweaver software	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	To make women professionals in media and attain professional portfolios to become entrepreneurs to increase employability.	Creating the Webpage and Making Links.
B.Sc. Visual Communication	UEVCA20	Elective II A E-Content Development	To enable students, know about the production process and techniques of e-content development, implementing effective e-content material for education field.	Effectively communicate general and discipline specific information, ideas and opinions.	To get equipped with ICT competencies including Digital literacy.	Evaluating the E-learning platforms and technologies
B.Sc. Visual Communication	UEVCB20	Elective II B Media Management	To offer an understanding of the working of media organizations and the function and ethics of media professionals	Emulate positive social values and exercise leadership qualities and team work.	To become ethically committed media professionals and entrepreneur by adhering to human values, Indian, and the Global culture.	Acquiring the knowledge in Structure of News Media Companies.
B.Sc. Visual Communication	UCVCR20	Project – Short Film Production	To train students in short film making or documentary making by putting into practice the techniques learned in television production	Emulate positive social values and exercise leadership qualities and team work.	To make women professionals in media and attain professional portfolios to become entrepreneurs to increase employability.	Presenting the Documentation with Master Copy.

			and script writing.			
B.Sc. Visual Communication	USCMD20	Skill Based Elective Digital Publishing	To learn the basic principles of printing and methodologies used for printing and print finishing.	Attain knowledge and understand the principles and concepts in the respective discipline.	To get equipped with ICT competencies including Digital literacy.	Acquiring the Knowledge in final Printing Process.
B.Sc. Zoology	UEZOA20	Elective IA Economic Zoology	Help the students to know economic importance of animals and create job opportunities.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop skills that are relevant to wage employment, self-employment and entrepreneurship.	Demonstrate culture techniques of apiculture, sericulture, lac culture and vermiculture. Illustrate the preparation and management of fish culture ponds. Differentiate breeds of fowl and describe poultry and piggery management. Discuss Dairy farming and tanning process. Explain processing of wool, fur and obtains insight of pharmaceutical products from animals.
B.Sc. Zoology	UEZOB20	Elective IB Vermiculture	Help the students to understand the production and importance of organic fertilizers and motivate self-employment.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop skills that are relevant to wage employment, self-employment and entrepreneurship.	Identify various groups of earthworms and impact of earthworm on soil. Describe large and small scale composting methods. Explain the factors affecting vermicomposting and preparation of vermined. Discuss the use of vermicompost and Verm

						wash in agriculture and horticulture. Elaborate the role of earthworm in agriculture, fishing, medicine and pollution and promotion of vermiculture.
B.Sc. Zoology	USZOD20	SBE Poultry Keeping	Enable the students to understand the methods for successful poultry keeping and motivate self-employment.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop skills that are relevant to wage employment, self-employment and entrepreneurship.	Acquire Knowledge on different types of breeds of Fowls Describe the essentials and maintenance of a good house Compare the different types of rearing methods Discuss the feeding requirements and its management Explain the nutritive value and products of poultry. Identify Poultry diseases and vaccination Schedule.
B.Sc. Zoology	USZOC320	SBE Sericulture	Course designed to meet the requirements to start a small scale sericulture and Mariculture unit	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Develop skills that are relevant to wage employment, self-employment and entrepreneurship.	Enlist different variety of silkworms and their economic status Explain about mulberry cultivation Expand knowledge on utilizing silkworm rearing appliances. Elucidate an indulgent of silkworm mounting, silkworm rearing, and

						silkworm reeling operations. Indicate and identify diseases in silkworms and recognize their enemies to take necessary control measures.
B.Sc. Psychology	UAOBA22	Organizational behaviour	Understanding the fundamental concepts connected with organizational behaviour	Pursue higher knowledge , qualify professionally , enhance entrepreneurial skills and contribute towards the needs of the society	Ability to gain employment and be successful in their chosen occupation which benefits the recipients, the work force, the community and themselves.	Improves a person's ability to understand and respond to events that take place in a work setting
B.Sc. Psychology	UEPYC22	Substance use and counseling	To develop an understanding on various substances used, addiction and gain skills used in managing substance abuse	Appreciate biodiversity and enhance ecoconsciousness for sustainable development of the society and to Emulate positive social values and exercise leadership qualities and team work.	Ability to work independently and do in-depth study of various concepts of Psychology and to learn independently through self-reflection and evaluation of one's strengths and weaknesses	Explain theories and concepts related to addiction and describe the management techniques and therapy.
B.Sc. Psychology	USPYF22	Consumer behaviour	To understand the nature, attitude, and behaviour of consumers and their communication process.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute	Ability to gain employment and be successful in their chosen occupation which benefits the recipients, the	Define consumer behaviour and the different kinds of consumers and to relate factors influencing consumer behaviour to exist marketing strategies

				towards the needs of the society.	workforce, the community and themselves.	of brands and advertisements.
B.Com (B&I)	UCBIF20	Cost Accounting	Acquire knowledge of Costing techniques to optimize the utilization of resources	Acquire and apply analytical, critical and creative thinking, and problem solving skills	To understand and apply the knowledge of Accounting & finance in the domain of Commerce, Banking and Insurance	Evaluates profit or loss of a contract
B.Com (B&I)	UCBIS20	Tally Practical	Provide Practical Knowledge based on accounts, stock summary, and GST liability in TALLY Software	Attain knowledge and understand the principles and concepts in the respective discipline.	Engaging in Lifelong Learning, apply ethical principles and excel as a socially committed individual having empathy for the needs of the society.	Analyze and prepares Final Accounts in Tally software
B.Com (B&I)	UCBIP20	Analytical skills for Banking and Insurance Examination	Develop the skills to crack all the competitive examination across the nation	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Engaging in Lifelong Learning, apply ethical principles and excel as a socially committed individual having empathy for the needs of the society.	To Provide coaching to the students to attempt Banking and other Competitive Examinations
B.Com (B&I)	UCBIN20	Practical Auditing	It is an practical approach in verification and valuation of various books of accounts to prepare the audit report	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Engaging in Lifelong Learning, apply ethical principles and excel as a socially committed individual having empathy for the needs of the society.	To make the students aware of the Principles and practices of Auditing

B.B.A (Hospital Administration)	USHAB20	Communication Skills in English	To gain knowledge about the concepts of communication.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Contribute to the sustainable development to the society through professional and entrepreneurial skills.	Be able to write discharge summary and consent form related to hospitals. Also prepare the students for group discussions and role plays.
B.B.A (Hospital Administration)	UCHAG20	Accounting for Hospital Administrators I	To understand the accounting concepts, principles and framework to analyse and effectively communicate information to a variety of stakeholders.	Attain knowledge and understand the principles and concepts in the respective discipline.	Apply appropriate quantitative and qualitative techniques in solving business problems.	Understand the purpose of balance sheet, prepare financial statements in accordance with appropriate standards and report the results of a firm.
B.B.A (Hospital Administration)	UCHAJ20	Introduction to Research Methodology	To understand and apply research approaches techniques and strategies in the appropriate manner for managerial decision making.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Apply appropriate quantitative and qualitative techniques in solving business problems.	Understand the various types of research and apply it in real life study.
B.B.A (Hospital Administration)	UCHAK20	Accounting for Hospital Administrators – II	To apply and analyze various tools and techniques of management accounting and determine optimal managerial decision.	Attain knowledge and understand the principles and concepts in the respective discipline.	Apply appropriate quantitative and qualitative techniques in solving business problems.	Gain knowledge in basic concepts, tools and techniques of management accounting.

B.B.A (Hospital Administration)	UCHAP20	Project	To enable students to use analytical techniques and provide suitable solutions for the problems.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Attain practical experience through analyzing the past and existing trends.	Document and provide feasible solutions which will promote the organisation growth and the student's career growth.
B.B.A (Hospital Administration)	UCHAR20	Internship (Months)	To integrate theory and practice.	Attain knowledge and understand the principles and concepts in the respective discipline.	Attain practical experience through analyzing the past and existing trends.	Develop communication, interpersonal and other critical skills for employability.
B.B.A (Hospital Administration)	UGHAB20	Non Major Elective II Practical Advanced Excel	To enable the students to explore and acquire skills in respect of most sophisticated computerized data analysis and documentation procedures and practices so as to help 7 them serve better in an organization.	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Attain practical experience through analyzing the past and existing trends.	Be trained in creating worksheet, enter data set and can perform all arithmetic operations using formulas.
Allied Botany	UBBTA20/ UABTA20	Optional Allied Botany I/ Allied Botany I	It's a supportive course for the students to excel in life sciences and an allied course for other major students. They are also given the knowledge to become agripreneurs.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.		Outline the general characters, life cycle and economic importance of Algae and Fungi. Distinguish the general characters of Bacteria and Virus Understand the general characters and life cycle of Bryophyta,

			Students are enabled to apply for applied sciences.			Pteridophyta and Gymnosperms. Upgrade the knowledge in Cell biology and Genetics .Identify the pathogens and the applications of Plants in agriculture.
Allied Botany	UBBTB20 /UABTB20	Optional Allied Botany II/ Allied Botany II	It's a supportive course for the students to excel in life sciences and an allied course for other major students. They are also given knowledge to become agripreneurs. Students are enabled to apply for applied sciences.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.		Classify Angiosperms and identify the family with the characters. Identify and analyse the histology of Plants. Gain knowledge on Embryology of Plants. Understand the key process of Plant Physiology. Integrate the knowledge of Horticulture in growing Plants.
M.A. English	UTOT20	Allied IV Techniques of Translation	The course aims at equipping students with the theoretical knowledge in translation in view of the growing need for translation across the country and the globe	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills	Attain fluency, accuracy and a good command in the four skills (listening, speaking, reading and writing) of English Language Apply the knowledge of form, structure, history and contextual cultural diversity and comprehend the applications of the	Apply theoretical approaches to translate literary and nonliterary texts Analyse the practicality of translation and use it to develop awareness of academic writing requirements.

					English Language in practice.	
M.A. English	PEENH20	Elective IV B: Comprehensive Study of Literature	the course prepares students to get qualified for jobs in higher education institutions as Lecturers, Research Assistants and Assistant Professors	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills	Attain fluency, accuracy and a good command in the four skills (listening, speaking, reading and writing) of English Language Apply the knowledge of form, structure, history and contextual cultural diversity and comprehend the applications of the English Language in practice	Apply theoretical approaches to translate literary and nonliterary texts Analyse the practicality of translation and use it to develop awareness of academic writing requirements.
M.A. English	PIENA20	Independent Elective I B Literary skills for employability I	The course aims at preparing students for eligibility tests and also make them proficient in discipline knowledge making them eligible candidates for employment	Acquire and apply analytical, critical and creative thinking, and problem solving skills	Innovate and apply the skills of oral, written communication and analytical skills in the prospective areas of teaching, training, writing, editing, translating, publishing, advertising etc.	Demonstrate knowledge in Application oriented areas like Research Methodology, Translation and English Language Teaching Develop effective strategies to prepare for competitive examinations
M.A. English	PIENB20	Independent Elective I B Technical and Business Writing	The course aims at enhancing the communicative skills through written discourse applicable in various fields		Innovate and apply the skills of oral, written communication and analytical skills in the prospective areas of teaching, training, writing, editing,	Analyze an audience, both domestic and international, and write effective technical and business documents for that audience and locate, evaluate, and incorporate

					translating, publishing, advertising etc.	pertinent information
M.A. English	PIENC20	Independent Elective II A Literary skills for employability II	The course aims at preparing students for eligibility tests and also make them proficient in discipline knowledge making them eligible candidates for employment	Assimilate and apply principles and concepts towards skill development and employability.	Innovate and apply the skills of oral, written communication and analytical skills in the prospective areas of teaching, training, writing, editing, translating, publishing, advertising etc.	Discover interest and demonstrate knowledge in literature in English outside Britain and America Demonstrate knowledge in Application oriented areas like Research Methodology, Translation and English Language Teaching
M.A. English	PEENG20	Elective III B Literature for Academic and Professional purposes	The Course aims at improving the understanding, and application of literary ideas associated with academics and other professional purposes	Assimilate and apply principles and concepts towards skill development and employability.	Innovate and apply the skills of oral, written communication and analytical skills in the prospective areas of teaching, training, writing, editing, translating, publishing, advertising etc.	Develop subject specific academic writing skill, critical thinking and writing Skills Demonstrate the mastery of answering the question in a competitive examination in English Literature Acquaint with secondary sources in Literature and to demonstrate strategies for research
M.A. English	PIENE20	Independent Elective III A Literary skills for employability IIIA	The course aims at preparing students for eligibility tests and also make them proficient in discipline knowledge making them eligible	Assimilate and apply principles and concepts towards skill development and employability.	Innovate and apply the skills of oral, written communication and analytical skills in the prospective areas of teaching, training, writing, editing,	Demonstrate knowledge in Application oriented areas like Research Methodology, Translation and English Language Teaching

			candidates for employment		translating, publishing, advertising etc.	
M.A. English	PIENF20	Independent Elective III B Content writing	In a digital era that constantly demands for content writers for, students are prepared entrepreneurship	Assimilate and apply principles and concepts towards skill development and employability.	Innovate and apply the skills of oral, written communication and analytical skills in the prospective areas of teaching, training, writing, editing, translating, publishing, advertising etc.	Display skills in publication and advertising
M.A. English	PIENG20	Independent Elective IV A Literary skills for employability IV	The course aims at preparing students for eligibility tests and also make them proficient in discipline knowledge making them eligible candidates for employment	Assimilate and apply principles and concepts towards skill development and employability.	Innovate and apply the skills of oral, written communication and analytical skills in the prospective areas of teaching, training, writing, editing, translating, publishing, advertising etc.	Demonstrate knowledge in Application oriented areas like Research Methodology, Translation and English Language Teaching
M.A. English	PEENF20	Elective III A Translation Studies	The course aims at producing competent learners in the areas of editing and technical writing	Assimilate and apply principles and concepts towards skill development and employability.	Innovate and apply the skills of oral, written communication and analytical skills in the prospective areas of teaching, training, writing, editing, translating, publishing, advertising etc.	Demonstrate knowledge in Application oriented areas like Research Methodology, Translation and English Language Teaching

M.A. English	PCENO20	English Language Teaching	Students are introduced to various techniques and methods in English Language Teaching so as to make them stand a better chance of being employable	Assimilate and apply principles and concepts towards skill development and employability.	Innovate and apply the skills of oral, written communication and analytical skills in the prospective areas of teaching, training, writing, editing, translating, publishing, advertising etc.	Design activities that allow learners to practice academic language and to develop second language acquisition at the best of the student's ability.
M.A. English	PEENF20	Elective III A Translation studies	The course aims at producing students who will qualify as translators thus creating opportunities for employment.	Assimilate and apply principles and concepts towards skill development and employability.	Innovate and apply the skills of oral, written communication and analytical skills in the prospective areas of teaching, training, writing, editing, translating, publishing, advertising etc.	Translate literary and nonliterary works
M.S.W	PCSWB20	Social Case Work	Dealing with individuals in solving problem using skills and techniques	Assimilate and apply principles and concept towards skill development and Employability	To enhance the individuals to help themselves with the scientific knowledge about the dynamics of problem and social issues.	Become aware of the emergence, growth and development of social work as a profession
M.S.W	PCSWC20	Social Group Work	To understand social group work as a method of social work	Assimilate and apply principles and concept towards skill development and Employability	To utilize the opportunity and of professionalism in the development process	Examine the role of Group Worker in different settings

M.S.W	PISWB20	Women and Development	To develop an understanding of the perspective of Women and Development in Indian Society.	Assimilate and apply principles and concept towards skill development and Employability	To utilize the opportunity and of professionalism in the development process	Implement the planning skills on development of women and know about the national policies related to women empowerment
M.S.W	PSHRB20	Human Resource Management	To understand the various functions of Human Resource Management	Assimilate and apply principles and concept towards skill development and Employability	To utilize the opportunity and of professionalism in the development process	Acquire and build appropriate knowledge based on Human Resource Management
MSW	PSMSA20	Medical Social work	To develop a holistic and integrated approach to social work practice in the field of health	Develop research skills through multi/inter/transdisciplinary perspectives.	To utilize the available resources for the empowerment of vulnerable groups and critically analyze the problems, needs to create impact in society	Enhance their ability to identify and arrange community supports and resources to facilitate discharge from hospital/transfer to alternative care.
M.S.W	PESWE20	Project Formulation	To assess and apply the process of project and project cycle	Assimilate and apply principles and concepts towards skill development and employability	To utilize the opportunity and of professionalism in the development process	Analyzing the elements and significance of project development
M.S.W	PSCDD20	Entrepreneurship Development	To understand the role and contribution of professional social work in the field of entrepreneurship	Assimilate and apply principles and concepts towards skill development and employability	To utilize the opportunity and of professionalism in the development process	Analyze and understand the scope of small scale industries for employment opportunities
M.S.W	PESWG20	Administration of Service Organization	To develop the skills to start an NGO	Assimilate and apply principles and concepts towards skill development and employability	To utilize the opportunity and of professionalism in the development process	Application of administration process in service organizations

MBA	PCBAA20	Management Process	Develop research skills through multi/inter/trans-disciplinary perspectives.	Integrate issues of social relevance in the field of study.	Students develop self-learning skills, and remain updated on contemporary management practices and can leverage their learning to provide solutions to business problems.	Be confident on the planning and decision making process involved in organization as well as in personal life.
MBA	PCBAD20	Accounting For Management	To give practical knowledge over the most important tools of analysis and interpretation of Financial Statements	Integrate issues of social relevance in the field of study.	Students develop self-learning skills, and remain updated on contemporary management practices and can leverage their learning to provide solutions to business problems.	Gains knowledge on the concepts of management and cost accounting techniques, preparation of cost. sheet, valuation of stock, pricing of material issues and prepare accounting for stage wise production under different process.
MBA	PCBAF20	Management Information System And Technology	To master in developing the information system and technology to work in an organization as a team or to start an enterprise.	Assimilate and apply principles and concepts towards skill development and employability.	Students gain the ability to synthesize knowledge with skills in the areas of Business and Management and can provide innovative and entrepreneurial solutions to job-related problems.	Be able to classify the different functional business systems using information system and technology and can implement in their organization.
MBA	PJBAA20	Business Lab – I: English For Professional Communication	To improve professional etiquette in business negotiations, telephone	Assimilate and apply principles and concepts towards skill development and employability.	Students gain the ability to synthesize knowledge with skills in the areas of Business and Management and	Increase employability quotient with professional and ethical responsibilities.

			conversations, written reports and emails, and professional presentations.		can provide innovative and entrepreneurial solutions to job-related problems.	
MBA	PJBAB20	Practical – I: Ms Office And Advanced Excel	To use advanced excel for data analysis purposes in business environment	Assimilate and apply principles and concepts towards skill development and employability.	Students gain the ability to synthesize knowledge with skills in the areas of Business and Management and can provide innovative and entrepreneurial solutions to job-related problems.	Enhance and develop their ability to solve using conditionals and lookup functions in advanced excel.
MBA	PCBAI20	Human Resource Management	To familiarize the methods to retain the skilled professionals within the Organization.	Assimilate and apply principles and concepts towards skill development and employability.	Students gain the ability to synthesize knowledge with skills in the areas of Business and Management and can provide innovative and entrepreneurial solutions to job-related problems.	Understand the formation of the concept of Best Fit Employee for a job
MBA	PCBAH20	Marketing Management	To identify the needs and ways of building relationship with customers and to study the distribution system	Assimilate and apply principles and concepts towards skill development and employability.	The students can function effectively as an individual and in a group with the capacity to be a team leader, as an entrepreneur, and administrator.	Updated with the recent types of marketing and will be motivated towards marketing research

MBA	PCBAJ20	Financial Management	To enable the students understand the working capital and enable them to estimate working capital requirements.	Attain an in-depth knowledge in the respective domains augmented through self-learning.	At the end of the course the students shall be able to conceptualize, critically analyse, provide solutions to problems challenging real-life situations, gain practical exposure in Business and Management.	Gain both theoretical and practical knowledge on working capital management including receivables, payables, inventory and cash management.
MBA	PCBAL20	Enterprise Resource Planning	To integrate emerging technologies into ERP systems including supply chain management and customer relationship management	Assimilate and apply principles and concepts towards skill development and employability.	The students can function effectively as an individual and in a group with the capacity to be a team leader, as an entrepreneur, and administrator.	Be able to classify the legacy system with ERP system and able to apply various transition strategies according to the organization
MBA	PJBAD20	Accounting Software	To acquaint students with the accounting concept, tools and techniques influencing business organization will be liable for preparation of financial statements in the modern technological era.	Assimilate and apply principles and concepts towards skill development and employability.	The students can function effectively as an individual and in a group with the capacity to be a team leader, as an entrepreneur, and administrator.	Understand how to create and maintain cost categories, cost centres of a product for easy processing of sales and purchase inventories.

MBA	PJBAE20	Stock Trading	To practice trading in a virtual stock market game	Assimilate and apply principles and concepts towards skill development and employability.	The students can function effectively as an individual and in a group with the capacity to be a team leader, as an entrepreneur, and administrator.	Learn the mutual funds and its investment modes
MBA	PCBAM20	Business Law	To inhibit knowledge on valuable information Act and Tax to enforce a Profitable Business	Assimilate and apply principles and concepts towards skill development and employability.	The students can function effectively as an individual and in a group with the capacity to be a team leader, as an entrepreneur, and administrator.	Understand the concepts and scope of Value Added Tax and Information Act
MBA	PCBAO20	Production And Operations Management	To apply various tools of TQM.	Assimilate and apply principles and concepts towards skill development and employability.	The students can function effectively as an individual and in a group with the capacity to be a team leader, as an entrepreneur, and administrator.	To understand techniques of location and facility planning; line balancing; job designing; and capacity planning in operations management.
MBA	PIBAD20	Event Management	To Evaluate the Tourism Growth and Travel Industry Fairs	Assimilate and apply principles and concepts towards skill development and employability.	The students can function effectively as an individual and in a group with the capacity to be a team leader, as an entrepreneur, and administrator.	Attain the skills in event management and Customer care management
MBA	PIBAE20	Family Business Management	To Develop a Diagnostic and Conceptual Understanding of Family Business	Assimilate and apply principles and concepts towards skill development and employability.	The students can function effectively as an individual and in a group with the capacity to be a team leader, as	Understand the emergence and needs of Family Business

					an entrepreneur, and administrator.	
MBA	PIBAF20	Mall Management	To evolve comprehensive information on shopping mall	Assimilate and apply principles and concepts towards skill development and employability.	The students can function effectively as an individual and in a group with the capacity to be a team leader, as an entrepreneur, and administrator.	Understand the Emergence and Development of Shopping Mall
MBA	PEMKA20	Retail Marketing	To acquire the knowledge of various fund based and fee based financial services	Assimilate and apply principles and concepts towards skill development and employability.	At the end of the course the students shall be able to conceptualize, critically analyse, provide solutions to problems challenging real-life situations, gain practical exposure in Business and Management.	Acquire the financial evaluation technique of leasing, venture capital and hire purchase
MBA	PEFNC20	Risk Management And Derivatives	To manage the assets and liabilities of private enterprises, banks, insurance companies, pension funds, and other financial institutions	Develop research skills through multi/inter/trans-disciplinary perspectives.	Students gain the ability to synthesize knowledge with skills in the areas of Business and Management and can provide innovative and entrepreneurial solutions to job-related problems.	Gain knowledge in the derivatives markets in India

MBA	PEHRA20	Compensation Management	To acquire the knowledge about the design and examine the pay level based on the person competencies.	Assimilate and apply principles and concepts towards skill development and employability.	At the end of the course the students shall be able to conceptualize, critically analyse, provide solutions to problems challenging real-life situations, gain practical exposure in Business and Management.	Acquire the knowledge about the design and examine the pay level based on the person competencies.
MBA	PEHRB20	Training And Development	Impart the concept and approaches to training	Integrate issues of social relevance in the field of study.	Students develop self-learning skills, and remain updated on contemporary management practices and can leverage their learning to provide solutions to business problems.	Integrate various training methods in classroom and professional environment
MBA	PEHRC20	Industrial Relations	To imbibe the methods of maintaining harmony within the Industry.	Integrate issues of social relevance in the field of study.	Students develop self-learning skills, and remain updated on contemporary management practices and can leverage their learning to provide solutions to business problems.	It enables learners to gain in depth acquaintance on resolution of Disputes and

MBA	PESSA20	Cloud Computing	Able to understand Cloud architecture, design, development and implementation	Assimilate and apply principles and concepts towards skill development and employability.	At the end of the course the students shall be able to conceptualize, critically analyse, provide solutions to problems challenging real-life situations, gain practical exposure in Business and Management.	Come with awareness on various cloud providers
MBA	PESSC20	Decision Support And Business Intelligence	To implement the conceptual and practical decision making in the workplace	Develop research skills through multi/inter/trans-disciplinary perspectives.	Students gain the ability to synthesize knowledge with skills in the areas of Business and Management and can provide innovative and entrepreneurial solutions to job-related problems.	Understand the modeling approaches of decision making and can implement in their organization
MBA	PESSB20	Digital Business And E Commerce	To gain domain knowledge in all aspects of Digital and E-Commerce environment.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Students gain the ability to synthesize knowledge with skills in the areas of Business and Management and can provide innovative and entrepreneurial solutions to job-related problems.	Analyze various technologies used to develop digital business environment

MBA	PEHCA20	Hospital Design And Operation Management	To identify, differentiate and evaluate the functions and requirements for clinical, engineering and support services in the hospital	Assimilate and apply principles and concepts towards skill development and employability.	At the end of the course the students shall be able to conceptualize, critically analyse, provide solutions to problems challenging real-life situations, gain practical exposure in Business and Management.	Gain the knowledge in the functions and requirements of various clinical services in the hospital
MBA	PEHCB20	Hospital Materials And Equipment Management	To understand the structure and overall functioning of the materials management	Integrate issues of social relevance in the field of study.	Students develop self-learning skills, and remain updated on contemporary management practices and can leverage their learning to provide solutions to business problems.	Understand and interpret the role of materials management in the hospital. To understand, recognize and interrelate the components of purchase system in materials management
MBA	PELMC20	Green Supply Chain and Logistics Management	To describe how the various green supply chain practices can actually save money, increases efficiency and reduce delivery time.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Students gain the ability to synthesize knowledge with skills in the areas of Business and Management and can provide innovative and entrepreneurial solutions to job-related problems.	Understand the concepts in green manufacturing and its challenges.

M.Com	PCCOP20	Enterprise Resource Planning and Tally	To provide an introduction to the operation of Enterprise Resource Planning and the related technologies	Apply critical and scientific approaches to address problems and find solutions.	To make students employable as per the requirements of different types of business organizations through projects and Internship Training Programme.	Gain knowledge about the various Enterprise Resource Planning soft wares
M.Com	PCCOQ20	Tally	To provide knowledge of the advanced operations of Tally ERP 9 and its practical application	Assimilate and apply principles and concepts towards skill development and employability.	To introduce the students to career oriented courses like Enterprise Resource Planning and Tally	Post transactions in Tally Software and generate required reports and financial statements
M.Com	PCCOR20	Project	To develop an interest for research among students and expose them to the practical aspects in Business, Trade and Industry	Develop research skills through multi/inter/ trans disciplinary perspectives.	To make students employable as per the requirements of different types of business organizations through projects and Internship Training Programme.	. Conduct a survey about a topic on Commerce, Marketing, Finance or Social Sciences
M.Sc. Biochemistry	PCBCA20	Biomolecules	To understand the salient features of biomolecules in the organization of life.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	List out the significance of vitamins, its deficiency diseases and about the porphyrin ring containing molecules in living system
M.Sc. Biochemistry	PCBCB20	Human Physiology and Nutrition	To study about the Physiological system of human body and Nutrients with their deficiencies.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent	Utilize knowledge on nutrients with their deficiencies

					responsibilities.	
M.Sc. Biochemistry	PCBCC20	Cell Biology	To understand the Cell, Cell organelles structure, function and metabolism	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Discuss about the various subcellular components of cells and its functions in the biological system
M.Sc. Biochemistry	PCBCG20	Practical I Main Practical I	To help students to expertise in the Biomolecules, Cell Dynamics and biochemical techniques.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	
M.Sc. Biochemistry	PCBCH20	Practical II Main Practical II	To learn about the analytical techniques and enzymology experiments.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	
M.Sc. Biochemistry	PEBCA20	Elective IA Biophysical Chemistry	To make the students to understand the concepts of bioenergetics and techniques.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Demonstrate the concept of bioenergetics and its importance
M.Sc. Biochemistry	PEBCB20	Elective IB Pharmaceutical Biochemistry	To make the students aware of uses and abuse of drugs.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Use the medicinal plants in drugs as a curative

M.Sc. Biochemistry	PCBCD20	Analytical Biochemistry	To understand the principles and applications of analytical techniques.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Pursue knowledge about centrifugation and radioactivity and critically assess advances with in the field
M.Sc. Biochemistry	PCBCE20	Enzymology	To learn the methodology involved in assessing the enzyme activity and mechanism of enzyme action.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Explain various industrial and clinical applications of enzymes as a catalyst in industries and also as a therapeutic aid
M.Sc. Biochemistry	PCBCF20	Intermediary Metabolism	To make the students to understand the reactions catalyzed by different enzymes and their metabolic pathways.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Interpret how plants convert energy to nourish themselves
M.Sc. Biochemistry	PEBCC20	Elective IIA Ecology, Evolution and Developmental Biology	The course enables the students to understand and analyze the role of ecological and evolutionary modifications in the development of organisms and their survival.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Apply the concept of evolution in population genetics
M.Sc. Biochemistry	PEBCD20	Elective II B Toxicology	The course gives a detailed understanding and identification of toxic substances,	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent	Discuss the effects of toxic substances on molecular and cellular levels

			dose response, tests conducted and its impact on cellular activities.		responsibilities	
M.Sc. Biochemistry	PCBCI20	Advanced Endocrinology	The course describes in detail about the role of endocrine glands, their secretion, its metabolic effect on target cells involving various signaling pathways and signal chain proteins.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	
M.Sc. Biochemistry	PCBCJ20	Advanced Immunology	To help the students to understand the components of immune system and it's functioning.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Compare and contrast innate and adaptive immunity
M.Sc. Biochemistry	PCBCK20	Advanced Biotechnology	To learn how to apply the knowledge of genetic engineering in problem solving and in practice.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Categorize how plant and animal cells are cultured and genetically manipulated in laboratory
M.Sc. Biochemistry	PCBCN20	Practical II Main Practical III	The course is aimed to enable the student interpret hormonal i. M.B.A lance and clinical conditions and also to provide in-depth practical	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Analyse the prevalence and impact of endocrine hormone in regulating health

			knowledge and skill in performing immune techniques and cell culture techniques.			
M.Sc. Biochemistry	PCBCO20	Practical II Main Practical IV	To help students to expertise in the molecular biology and clinical Biochemistry techniques.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	
M.Sc. Biochemistry	PEBCE20	Elective III A Microbiology	To understand the importance of applications of microorganisms.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Recall the taxonomy, morphological features and division process of microbes
M.Sc. Biochemistry	PEBCF20	Elective III B Research Methodology	To addresses the issues inherent in selecting a research problem and discuss the techniques and tools to be employed in completing a research project	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Practice the concepts of animal studies and CPCSEA guidelines in research
M.Sc. Biochemistry	PCBCL20	Molecular Biology	The course will enable the student to learn the molecular events occurring in gene and its application in field of biomedical and genetic research.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Demonstrate the nature and role of Gene in life activity.

M.Sc. Biochemistry	PCBCM20	Advanced Clinical Biochemistry	To gain concepts of assessing the human physiology using biological fluid.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	
M.Sc. Biochemistry	PEBCG20	Elective IVA Plant Biochemistry	To help the students to understand the plant metabolites and their application in the field of medicine.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Identify various natural and artificial ways to propagate plants
M.Sc. Biochemistry	PEBCH20	Elective IV B Herbal Therapy	To help students to understand the concepts in pharmacognosy and the role of medicinal plants.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Predict the Herbal medicines for Human ailments
M.Sc. Biochemistry	PIBCA20	IEC Organic Farming	To help students to understand the concepts and importance of organic farming and use it as a source of income generation	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Relate the importance of plant protection
M.Sc. Biochemistry	PIBCB20	IEC Food Preservation	To enable students to understand the concepts of food preservation and methods involved	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Apply the general methods for preserving fruits and vegetables

M.Sc. Biochemistry	PIBCC20	IEC Horticulture	To emphasis on the significance and concepts of horticulture and the techniques involved.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Outline the impact of soil nature on horticulture
M.Sc. Biochemistry	PIBCD20	IEC Cancer Biology	To help students to understand the biology, diagnosis and treatment involved in cancer.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	
M.Sc. Biochemistry	PIBCE20	IEC Nanobiotechnology	The course aims to provide an interdisciplinary knowledge on Nano materials and their applications in biosciences.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	Identify the role of plants in Nanoparticle synthesis
M.Sc. Biochemistry	PIBCF20	IEC Stem cell Technology	The course gives in depth knowledge on stem cell biology, regulation of stem cell differentiation, tools to study and its utilization in treating various disorders	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	
M.Sc. Biochemistry	PIBCG20	IEC Psychology	The course is aimed to enhance the psychological skills for the students to acquire factual knowledge and	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	

			ability to conceptualize and apply in their life.			
M.Sc. Biochemistry	PIBCH20	IEC Entrepreneurial Biochemistry	The course provides detailed knowledge on ideas, opportunities and components necessary for bio-entrepreneurship.	Persist in lifelong learning for personal and societal progress	Demonstrate understanding of the societal, health, safety, legal and cultural issues and consequent responsibilities	
M.Sc. Chemistry	PCCHA20	Stereo Chemistry and Conformational Analysis	These courses are designed to enhance the theoretical knowledge and practical skills of students for employability.	Assimilate and apply principles and concepts towards skill development and employability.	Assimilate and apply principles and concepts towards skill development, employability, critical and scientific approaches to address the problems and find solutions.	Assign the configuration of stereoisomers including those with no stereogenic carbon centre and classify the stereospecific and stereoselective reactions. principles of Optical Rotatory Dispersion and Circular Dichroism for various applications."
M.Sc. Chemistry	PCCHB20	Structural Inorganic Chemistry	These courses are designed to enhance the theoretical knowledge and practical skills of students for employability.	Assimilate and apply principles and concepts towards skill development and employability.	Assimilate and apply principles and concepts towards skill development, employability, critical and scientific approaches to address the problems and find solutions.	Assimilate and apply principles and concepts towards skill development, employability, critical and scientific approaches to address the problems and find solutions.
M.Sc. Chemistry	PCCHC20	Kinetics and Photo Chemistry	These courses are designed to enhance the theoretical knowledge and	Assimilate and apply principles and concepts towards skill development	Assimilate and apply principles and concepts towards skill development,	Describe Activated Complex Theory in terms of translational and vibrational partition

			practical skills of students for employability.	and employability	employability, critical and scientific approaches to address the problems and find solutions.	functions and apply it to derive the kinetics of reactions in solutions, Hammett and Taft equations and kinetic isotope effects in studying the mechanism of chemical reactions. Discuss the concepts and kinetics of homogeneous and heterogeneous catalysis and explain adsorption isotherms of Langmuir and BET.
M.Sc. Computer Science	PECSB20	Elective I B Cyber Security	Understand key terms and concepts in cyber law, intellectual property and cybercrimes, trademarks and domain theft.	Apply critical and scientific approaches to address problems and find solutions.	To design, implement, and evaluate a computer based system, process, component, or program for various applications.	Assess cyber security risk management policies in order to adequately protect an organization's critical information and assets.
M.Sc. Computer Science	PCCSD20	Practical I Java Programming Lab	Create a full set of UI widgets and other components, including windows, menus, buttons, Checkboxes, text fields, scrollbars and scrolling lists, using Abstract Windowing Toolkit (AWT) & Swings.	Assimilate and apply principles and concepts towards skill development & employability	To apply fundamental knowledge of computing and science relevant to the discipline	Design and develop GUI applications using Abstract Windowing Toolkit (AWT), Swing and Event Handling.

M.Sc. Computer Science	PCCSF20	Machine Learning	To understands complexity of Machine Learning algorithms and their limitations.	Assimilate and apply principles and concepts towards skill development & employability	Ability to learn & apply advance concepts to generate novel solutions for solving complex computational problems.	Understand the basics of Machine Learning
M.Sc. Computer Science	PCCSG20	Open Source Programming	Understand how server side programming works on the web	Assimilate and apply principles and concepts towards skill development & employability	Ability to learn & apply advance concepts to generate novel solutions for solving complex computational problems.	Familiar with basis syntax of PHP, common PHP scripts elements and creating of the server side scripting using PHP, implement PHP database connectivity, perform operation on database and open source database management system.
M.Sc. Computer Science	PCCSH20	Wireless Communications and Networks	To provide an overview of Wireless Communication Networks area and its applications	Attain an in-depth knowledge in the respective domains augmented through self-learning.	To design, implement, and evaluate a computer based system, process, component, or program for various applications.	Classify different technologies followed in various generation of cellular networks
M.Sc. Computer Science	PECSC20	Elective II A Cryptography and Network Security	To know about various encryption techniques	Apply critical and scientific approaches to address problems and find solutions.	To design, implement, and evaluate a computer based system, process, component, or program for various applications.	Apply the knowledge of cryptographic checksums and evaluate the performance of different message digest algorithms for verifying the integrity of varying message sizes.

M.Sc. Computer Science	PCCSJ20	Practical III Machine Learning	To work on important concepts of Machine Learning.	Assimilate and apply principles and concepts towards skill development & employability	To apply fundamental knowledge of computing and science relevant to the discipline	Be capable of confidently applying common Machine Learning algorithms in practice and Implementing their own.
M.Sc. Computer Science	PCCSK20	Practical IV Open Source Programming Lab	Demonstrate different open source technology like Linux, PHP & MySQL with different packages	Assimilate and apply principles and concepts towards skill development & employability	To apply fundamental knowledge of computing and science relevant to the discipline	Explore different open source technology like Linux, PHP & MySQL with different packages.
M.Sc. Computer Science	PECSF20	Elective III B Multimedia Communication	Understanding the Multimedia Communications Systems, Application and Basic Principles	Assimilate and apply principles and concepts towards skill development & employability.	To apply fundamental knowledge of computing and science relevant to the discipline.	Understand the system design principles of multimedia communications systems
M.Sc. Electronic Media	PCEMA20	Mass Communication and Journalism	To introduce the broad field of mass communication and journalism to students including the models, theories and ethics in the field of media	Attain an in-depth knowledge in the respective domains augmented Through self-learning.	To obtain wide Knowledge in the area of Electronic Media Production and demonstrate Clear and coherent communication skills.	Review the Basics of Communication and Mass Culture.
M.Sc. Electronic Media	PCEMC20	Videography	To acquire the knowledge and skill to select and apply those aesthetic elements to translate significant ideas into significant messages through	Assimilate and apply principles and concepts towards skill development And employability.	To Assimilate and apply Video and Audio editing techniques, Multimedia, and Web Designing Projects towards skill development and	Evaluate the Camera Operation and Lighting Techniques in Indoor Production.

			Videography.		employability.	
M.Sc. Electronic Media	PCEMD20	Practical I – Video Production	To give a hands-on experience to students in the handling of video-cameras and practice the techniques of Video Production.	Assimilate and apply principles and concepts towards skill development And employability.	To Assimilate and apply Video and Audio editing techniques, Multimedia, and Web Designing Projects towards skill development and employability.	Evaluate the Camera Operation and Lighting Techniques in Indoor Production.
M. Sc. Mathematics	PCMAA20	Modern Algebra	Course designed to demonstrate problem solving skills in the context of Modern Algebra which includes groups and fields.	Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions. Develop research skills through multi/inter/trans disciplinary	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results. Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics. Acquire profound knowledge in Mathematics to	Assess the properties of Groups and Sylow's theorem. Apply field extension property in Algebraic extensions. Get the knowledge of Transcendence e and roots of polynomial. Know about the Galois Theory. Have the knowledge on the concepts of solvability by radicals.

				<p>perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET. Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	
M. Sc. Mathematics	PCMAB20	Real Analysis I	<p>The course is designed to provide the concepts of Modern analysis which include Euclidean space of n dimension, metric space, functions of</p>	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results. Develop a deep interest</p>	<p>Understand ndimensional space R_n and the metric space whose topology is uniquely determined by the algebraic structure. Deal with the functions of bounded variations and some of their properties.</p>

			<p>bounded variation, RS integral, and Lebesgue integral.</p>	<p>skill development and employability. Apply critical and scientific approaches to address problems and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics. Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET. Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global</p>	<p>Know about the RiemannStieltjes integral and its properties which is a generalization of the Riemann integral. Recognize the necessary and sufficient conditions for the existence of the RS integral. Grasp the class of Lebesgue integrable functions which is defined in terms of upper and lower bounds using the Lebesgue measure of a set.</p>
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					level and meet social needs.	
M. Sc. Mathematics	PCMAC20	Complex Analysis	Course designed to demonstrate problem solving skills in the context of Complex analysis which includes analyticity, CauchyRiemann relations and harmonic functions.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary perspectives.</p> <p>Persist in lifelong learning for personal and societal progress.</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET.</p> <p>Inculcate research level</p>	<p>Understand the elementary theory of power series and conformality to perform the linear transformation.</p> <p>Solve the integration in the complex plane by using the fundamental theorems.</p> <p>Be familiar with Cauchy's Integral Formula and the properties of analytical functions.</p> <p>Determine the local mapping and learn the general form of Cauchy's theorem.</p> <p>Have the knowledge on the concepts of solvability by radicals</p>

					<p>thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p> <p>Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	
M. Sc. Mathematics	PCMAD20	Differential Equations	<p>Course designed to demonstrate problem solving skills in the context of Differential Equation which includes Ordinary differential equation and dynamical problems.</p>	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Acquire profound</p>	<p>Understand ordinary differential equations of various type, their solutions, and fundamental concepts about their existence.</p> <p>Obtain solutions of the Homogeneous equation with constant coefficient and Homogeneous equation with analytic coefficient.</p> <p>Comprehend the Bessel functions, Legendre equation, Legendre polynomials and Regular</p>

				<p>multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET. Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	<p>singular points. Know Picard's method of obtaining successive approximations of solutions of first order differential equations. Understand Eigen values and Eigen functions of SturmLiouville systems, and obtain the solutions of initial and boundary value problems.</p>
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M. Sc. Mathematics	PEMAA20	Elective I A Differential Geometry	Course designed to understand the concept of curvature of a space curve, signed curvature of a plane curve and to compute the curvature and torsion of space curves.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary perspectives.</p> <p>Persist in lifelong learning for personal and societal progress.</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET.</p> <p>Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p>	<p>Understand the line integrals, deal with differential forms and calculate arc length, curvature of surfaces.</p> <p>Analyze involutes, evolutes and fundamental existence theorem for space curves. Apply problem solving with differential geometry to diverse situations in physics, engineering and in other mathematical contexts. Evaluate the fundamental forms of a surface. Compute the Gaussian curvature, the mean curvature, the curvature lines and the asymptotic lines</p>
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					Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.	
M. Sc. Mathematics	PEMAB20	Elective I B Mathematical Modelling	Course designed to improve the ability to solve problems, including applications outside of mathematics, by means of intuition, creativity, guessing and the experience gained through the study of particular examples and mathematical models	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary perspectives.</p> <p>Persist in lifelong learning for personal and societal progress.</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve real life problems.</p> <p>Inculcate research level</p>	<p>Understand the mathematical basis of common algorithms, and the ability to calculate accurately and efficiently.</p> <p>Demonstrate the use of mathematical reasoning by justifying and generalizing patterns and relationships between the variables in the mathematical models.</p> <p>Formulate and qualitatively analyze mathematical models of a wide range of systems and processes.</p> <p>Recognize the types of Mathematical models and the complexity in each system.</p> <p>Recognize the power of mathematical modelling and analysis and be able to</p>

					<p>thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p> <p>Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	<p>apply their understanding to their further studies.</p>
M. Sc. Mathematics	PIMAA20	Independent Elective I A Fundamentals of Group Theory	<p>Course designed to demonstrate problem solving skills in the context of fundamentals of groups which includes groups and subgroups.</p>	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF,</p>	<p>Understand the importance of various types of Groups. Extend the knowledge in some important groups (Homomorphism and Isomorphism)</p> <p>Understand the concepts of fundamentals of finite abelian groups.</p> <p>Acquire benefits of Sylow's theorem and classify the Class equations.</p> <p>Solve various objective type problems using simple concepts.</p>

				multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.	GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.	
M. Sc. Mathematics	PIMAB20	Independent Elective I B Quantitative Aptitude for Competitive Examinations I	Course designed to enhance the problem solving abilities and improve the basic mathematical skills	Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results. Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and	Understand the concepts of Number System and aptitude problems. Recollect the formulae and solve problems on profit and loss, Interest and Time and Work. Demonstrate basic understanding on data interpretation and exhibit eloquence in verbal reasoning. Identify and respond effectively to questions on clerical ability. Recognize the type of questions and answer them confidently with efficiency in grammar.

				progress.	enhance self-learning & lifelong learning to compete at the global level and meet social needs.	
M. Sc. Mathematics	PCMAE20	Linear Algebra	Course designed to demonstrate problem solving skills in the context of Linear Algebra which includes linear transformation and finite fields.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/transdisciplinary perspectives.</p> <p>Persist in lifelong learning for personal and societal progress.</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET.</p> <p>Inculcate research level</p>	<p>Have knowledge on Modules and Canonical form.</p> <p>Analyze Jordan and Rational canonical form.</p> <p>Understand the concepts of linear transformation and apply it on linear operators.</p> <p>Understand the concepts of finite division ring.</p> <p>Know about division rings having the field in their centers.</p>

					<p>thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p> <p>Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	
M. Sc. Mathematics	PCMAF20	Real Analysis II	<p>The course is designed to provide the concepts of Modern analysis which deals with double sequence and series, Fourier series, sequences, and series of functions.</p>	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Acquire profound</p>	<p>Understand the theory of double sequences and double series which is an extension of the single or ordinary sequences and series and identify the convergence and divergence of infinite product.</p> <p>Determine the properties of the Fourier coefficient and solve the problem for the orthonormal system of functions.</p> <p>Identify the Convergence of a sequence and series of</p>

				<p>multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET. Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	<p>functions. Link the multiplication of power series, reciprocal of power series, and real power series. Deal with the concepts of Directional derivative, Total derivative, Chain rule, Inverse function, and Implicit function theorems.</p>
M. Sc. Mathematics	PCMAG20	Partial Differential Equations and Integral Partial Differential Equations	Course designed to apply partial derivative equation techniques to predict the behavior of certain phenomena	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and</p>	<p>Apply specific methodologies, techniques and resources to conduct research and produce innovative results. Solve problems of heat</p>

				<p>apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary perspectives.</p> <p>Persist in lifelong learning for personal and societal progress.</p>	<p>simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET.</p> <p>Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p> <p>Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning</p>	<p>conduction equation by using initial and boundary conditions.</p> <p>Use the knowledge of PDEs, to solve one dimensional wave equation by canonical equation.</p> <p>Solve practical PDE and integral PDE problems with finite difference methods.</p> <p>Develop mathematical skills to solve problems involving convolutions.</p>
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					& lifelong learning to compete at the global level and meet social needs.	
M. Sc. Mathematics	PCMAH20	Mechanics	Course designed to demonstrate problem solving skills in the context of Mechanics which includes Physics concepts and its applications to Mathematics.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary perspectives.</p> <p>Persist in lifelong learning for personal and societal progress.</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET.</p> <p>Inculcate research level thinking in the field of pure and applied</p>	<p>Define and understand basic mechanical concepts related to discrete and continuous mechanical systems.</p> <p>Describe and understand the motion of a mechanical system using Lagrange's equation.</p> <p>Use Euler Lagrange equation to find stationary paths and understanding the theory of variational principles.</p> <p>Acquire knowledge on Hamilton's principle and Hamilton's equation.</p> <p>Study the concepts of canonical transformations and solve the transformations by using Lagrange and Poisson brackets.</p>

					<p>mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p> <p>Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	
M. Sc. Mathematics	PEMAC20	Elective II A LaTeX and MATLAB	<p>Course designed to demonstrate the ability to type research papers in Latex Software in a fluent manner and to use and write the script files using MATLAB software</p>	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary</p>	<p>Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve real life problems.</p> <p>Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p> <p>Develop teaching, research, and technical skills in Mathematics</p>	<p>Understand the mathematical basis of common algorithms in Latex.</p> <p>Demonstrate the use of mathematical equations, tables and figures in Latex.</p> <p>Demonstrate understanding and use of MATLAB software</p> <p>Construct one dimensional array, two dimensional arrays and basic functions in MATLAB.</p> <p>Recognize the power of mathematical modelling and analysis using MATLAB and be able to</p>

				<p>perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	<p>apply their understanding to their further studies.</p>
M. Sc. Mathematics	PEMAD20	Elective II B Fluid Dynamics	<p>Course designed to understand the concepts of fluid motion, equations of motion of a fluid, three dimensional flows and viscous flows and apply it in practical situations.</p>	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results. Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics. Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET. Inculcate research level</p>	<p>Understand the concepts of fluid flow Identify pressure of fluid in different kind of Motion Analyse the topics of AxiSymmetric Flows, Stoke's Stream Function Determine the Stream Function, the Complex Potential for Two Dimensional, Irrotational, Incompressible Flow. Explain the concepts the Rate of Strain Quadric and Principal Stresses, Stress Analysis in Fluid Motion, the Coefficient of Viscosity and Laminar Flow, the NavierStokes Equations of Motion of a Viscous Fluid.</p>

					<p>thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p> <p>Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	
M. Sc. Mathematics	PIMAC20	Independent Elective A Fundamentals of Ring Theory	<p>Course designed to demonstrate problem solving skills in the context of Fundamentals of Ring theory which includes Rings, Sub rings and Types of Rings.</p>	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF,</p>	<p>Demonstrate various characteristic of Rings.</p> <p>Extend the knowledge in Ideals, Fields of Quotients and polynomial rings.</p> <p>Validate primitive polynomials and Irreducible Polynomials.</p> <p>Acquire the knowledge in Field theory.</p> <p>Solve various types of problems in finite fields.</p>

				multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.	GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.	
M. Sc. Mathematics	PIMAD20	Independent Elective B Quantitative Aptitude for Competitive Examinations II	Course designed to introduce quantitative methods and techniques for effective decisions-making and solve aptitude problems.	Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results. Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and	Understand and solve aptitude problems. Identify and develop the techniques to solve the problems using different methods. Demonstrate procedural fluency with real number arithmetic operations and use those operations to represent real world scenarios and to solve stated problems. Solve linear equations, graph and interpret linear models, and read and apply formulas. Ability to face the competitive examinations with a clear approach.

				progress.	enhance self-learning & lifelong learning to compete at the global level and meet social needs.	
M. Sc. Mathematics	PCMAI20	Topology	To introduce the topological spaces which provide a general framework for the study of convergence, continuity, and compactness and to train the students to develop analytical thinking.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary perspectives.</p> <p>Persist in lifelong learning for personal and societal progress.</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET.</p> <p>Inculcate research level thinking in the field of pure and applied</p>	<p>Understand basis as a collection of basic open sets and the concepts of continuous functions and their properties in topological spaces.</p> <p>Determine the topology generated by the given basis, connectedness, path connectedness of the product of an arbitrary family of spaces. Grasp the concept of compactness which is the generalization to topological spaces of the property of closed and bounded subsets of the real line.</p> <p>Deal with the countability and separation axioms</p> <p>Know the theorems with the conditions under which a topological space can be embedded in metric space.</p>

					<p>mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p> <p>Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	
M. Sc. Mathematics	PCMAJ20	Numerical Analysis	To develop the skills in solving Numerical problems and apply them in other disciplines and in wider areas of research.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Acquire profound knowledge in Mathematics to</p>	<p>Find the solution in Numerical, Algebraic and transcendental equations.</p> <p>Solve the set of algebraic equations by direct and iterative methods.</p> <p>Analyze the values of a function for any intermediate value of the independent variable.</p> <p>Compute the numerical solution of various types of ordinary differential equations.</p> <p>Acquire the numerical solution of Partial Differential Equations.</p>

				<p>perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET. Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	
M. Sc. Mathematics	PCMAK20	Probability Theory	To understand the concept of random variables, characteristic functions, probability distribution, and limit theorem and to solve real world	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results. Develop a deep interest</p>	<p>Characterize probability models and function of random variables based on single and multiple random variables. Evaluate and apply expected value, moments and understand the concept</p>

			problems.	<p>skill development and employability. Apply critical and scientific approaches to address problems and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics. Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET. Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global</p>	<p>of Chebyshev inequality. Analyze the concepts of characteristic functions and its properties. Apply probability distribution to solve the real world problems. Understand the concept of limit theorem and its applications.</p>
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					level and meet social needs.	
M. Sc. Mathematics	PCMAL20	Operations Research	To understand the mathematical tools used in Operations Research that are needed to solve the optimization problems which plays important role in business management.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary perspectives.</p> <p>Persist in lifelong learning for personal and societal progress.</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET.</p> <p>Inculcate research level</p>	<p>Determine the feasible solution using Revised simplex method, Duality and bounded variable algorithm. Understand the theoretical background of queuing systems and solve the real world problems. Analyze the Inventory models and solve EOQ models.</p> <p>Apply dynamic programming to solve real world problems. Solve constrained and unconstrained optimization problems using Hookes and Jeeves algorithm, Gradient projection, Lagrange multipliers, KuhnTucker conditions etc.</p>

					<p>thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p> <p>Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	
M. Sc. Mathematics	PEMAE20	Elective III A Programming with Java	To develop knowledge in a platform independent High Level Programming Language Java to handle complex projects in advanced technologies.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through</p>	<p>Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve real life problems.</p> <p>Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p> <p>Develop teaching,</p>	<p>Understand the benefits and applications of OOP and distinguish C++ and JAVA.</p> <p>Gain knowledge about operators and its types.</p> <p>Define decision making statements and solve problems based on it.</p> <p>Develop the program by manipulating classes and methods in the Java programming language.</p> <p>Explore the Java programming by using arrays.</p>

				<p>multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	
M. Sc. Mathematics	PEMAG20	Elective III B Programming with R	<p>To learn the advanced language R that performs various complex statistical computations and calculations.</p>	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve real life problems. Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social</p>	<p>Familiarize with basics of R software and built in function of R.. Identify the characteristics of datasets and plot the datasets in R using graphical methods. Demonstrate understanding and use of for loop, if statement and break. Implement the learning techniques and computing environment that are suitable for the applications under consideration. Compute vectors and matrices, matrix inverse, eigen values and eigen vectors.</p>

					needs.	
M. Sc. Mathematics	PEMAF20	Elective Practical Java	To design and program standalone Java applications.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary perspectives.</p> <p>Persist in lifelong learning for personal and societal progress.</p>	<p>Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve real life problems.</p> <p>Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p> <p>Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	<p>Implement programs with classes.</p> <p>Write programs that perform operations using arrays.</p> <p>Develop the program by decision making statements and solve problems based on it.</p> <p>Illustrate basic programming concepts such as program flow and syntax of a high-level general-purpose language.</p> <p>Take a problem, figure out the algorithm to solve it and write the code.</p>

M. Sc. Mathematics	PEMAH20	Elective Practical R	To use R for descriptive statistics and write simple programs in R.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary perspectives.</p> <p>Persist in lifelong learning for personal and societal progress.</p>	<p>Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve real life problems.</p> <p>Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p> <p>Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	<p>Familiarize with basics of R software and built in function of R. Identify the characteristics of datasets and plot the datasets in R using graphical methods.</p> <p>Demonstrate understanding and use data frames.</p> <p>Implement the learning techniques and computing environment that are suitable for the applications under consideration.</p> <p>Compute vectors and matrices, matrix inverse, eigen values and eigen vectors.</p>
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M. Sc. Mathematics	PIMAE20	Independent Elective A Skill Enhancement in Real and Complex Analysis I	To develop in-depth knowledge in analysis and problem solving skills to work out unsolved problems using various tricks to clear CSIR NET, SET, JRF, and GATE examinations. Also, to train the students in self-paced independent learning.	Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results. Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.	Utilize the basics of set theory and number system. Acquire the knowledge of Sequences and Series. Compute the Limit, Continuity and Differentiation of functions. Analyze the Transcendental functions such as Exponential, Trigonometric and Hyperbolic Functions. Evaluate the integral by Cauchy's Integral formula.
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M. Sc. Mathematics	PIMAF20	Independent Elective B Fundamentals of Research Methodology and Statistics I	To develop in-depth knowledge in analysis and problem solving skills to work out unsolved problems using various tricks to clear CSIR NET, SET, JRF, and GATE examinations. Also, to train the students in self-paced independent learning.	Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results. Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve real life problems. Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.	Utilize the basic concepts of Research. Prepare the review of literature. Plan the various types of survey studies and sampling design. Study the case of Historical methods and Philosophical methods. Classify the experimental procedure and case study of various groups.
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M. Sc. Mathematics	PCMAM20	Functional Analysis	To introduce the main structure theorems of functional analysis and to study the concepts of Banach space, Hilbert space, Banach algebra, and commutative Banach algebra.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary perspectives.</p> <p>Persist in lifelong learning for personal and societal progress.</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET.</p> <p>Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p>	<p>Gain the knowledge of complete normed linear space and the Hahn Banach theorem.</p> <p>Understand the open mapping theorem, closed graph theorem, and uniform boundedness theorem and determine the concept of complete inner product space and its properties.</p> <p>Classify the operators into adjoint, self-adjoint, unitary and normal.</p> <p>Know the basic properties of Banach Algebra and the spectrum of an element in a Banach algebra.</p> <p>Represent commutative Banach algebras as algebras of continuous functions.</p>
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					Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.	
M. Sc. Mathematics	PCMAN20	Calculus of Variations	To develop an understanding of variational problems with fixed boundaries and moving boundaries.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary perspectives.</p> <p>Persist in lifelong learning for personal and societal progress.</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like</p>	<p>Understand the functional and its applications. Also use the EulerLagrange equation to find the differential equations for stationary paths.</p> <p>Describe Du Bois Reymond problem and solve it.</p> <p>Solve differential equations for stationary paths subject to boundary conditions.</p> <p>Give an account of the foundations of calculus of variations and its applications in Mathematics and Physics.</p> <p>Apply direct methods to solve variational problems.</p>

					<p>CSIRNET, JRF, GATE, and SET.</p> <p>Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p> <p>Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	
M. Sc. Mathematics	PCMAO20	Mathematical Statistics	To impart knowledge of statistics in various areas and to apply problem solving techniques to solve real world events.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various</p>	<p>Understand the sample moments and their functions and analyze chisquare, Studentt, FishersZ distributions.</p> <p>Demonstrate the knowledge of the properties of parametric testing procedures.</p> <p>Construct tests and estimators, and derive their properties.</p> <p>Estimate population</p>

				<p>and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>branches of Mathematics. Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET. Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	<p>parameters from data sets and use the sampling distributions to compute confidence intervals for these population parameters. Learn the basic components of hypothesis testing and perform hypothesis test on population means. Understand the basic terms used in design of experiments and use appropriate experimental designs to analyze the experimental data.</p>
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M. Sc. Mathematics	PCMAP20	Project	Project based learning gives an opportunity for the students to self-study. It encourages critical, analytical, and logical thinking in student, and expand their knowledge to gain an accurate and deep understanding of their work.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary perspectives.</p> <p>Persist in lifelong learning for personal and societal progress.</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET.</p> <p>Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p>	
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					Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.	
M. Sc. Mathematics	PEMAI20	Elective IV A Graph Theory	To understand the graph theoretical concepts that can model and study many real world problems which can be applied in a wide range of disciplines and in the area of research.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems and find solutions.</p> <p>Develop research skills through multi/inter/trans disciplinary perspectives.</p> <p>Persist in lifelong learning for personal and societal progress.</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various branches of Mathematics.</p> <p>Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like</p>	<p>Identify subgraphs, cycles, paths and connection in graphs.</p> <p>Analyse the cut vertices, cut edges and bonds in trees.</p> <p>Distinguish between the Hamiltonian and Eulerian graph.</p> <p>Explain the concepts of matchings and coverings in bipartite graphs.</p> <p>Understand the concepts of colouring and planar graphs.</p>

					<p>CSIRNET, JRF, GATE, and SET.</p> <p>Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX.</p> <p>Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	
M. Sc. Mathematics	PEMAJ20	Elective IV B Fuzzy Set Theory	To make use of a special fuzzy set to model reality better than traditional theories and to develop a research approach that can deal with problems relating to ambiguous situations.	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning.</p> <p>Assimilate and apply principles and concepts towards skill development and employability.</p> <p>Apply critical and scientific approaches to address problems</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p> <p>Develop a deep interest in Advanced Mathematics and have the capability to understand the outcomes in various</p>	<p>Distinguish between crisp set and fuzzy set through bivalued logic and infinite valued logic.</p> <p>Know about the most widely used standard fuzzy set operations.</p> <p>Formulate the fuzzy number which is a special case of a convex, normalized fuzzy set of the real line.</p> <p>Explore the fuzzy relation</p>

				<p>and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>branches of Mathematics. Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET. Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	<p>and its operations which is the generalization of crisp relation. Analyze the methods of decision making in fuzzy environment and their applications in LPP.</p>
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M. Sc. Mathematics	PIMAG20	Independent Elective A Skill Enhancement in Real and Complex Analysis II	Understand the basic concepts of the research methodology to analyze real life problems using Statistical concepts. Also, to train the students in self- paced independent learning.	Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results. Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIRNET, JRF, GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.	Analyze the theory of Partial derivatives. Compute Riemann Sum and Riemann integral. Evaluate the concepts of Lebesgue measure and Lebesgue integral. Identify the Connectedness and Compactness. Calculate the Residues of functions and improve the knowledge of conformal mappings.
M. Sc. Mathematics	PIMAH20	Independent Elective B Fundamentals of Research Methodology and Statistics II	Understand the basic concepts of the research methodology to analyze real life problems using	Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and	Analyze the needs and purpose of Experimental design. Prepare and Analyze the Questionnaire and compute the Statistical

			<p>Statistical concepts. Also, to train the students in self-paced independent learning.</p>	<p>apply principles and concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>simulation results. Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve real life problems. Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	<p>analysis of data. Analyze the statistical data and research report. Acquire the knowledge of Action research and Educational research. Understand the basic measures of variability, dispersion and correlation.</p>
M.B.A	PCBAE20	Statistical Methods for Research	<p>Course designed to introduce the basic concepts of research in business and to make decisions based on scientific methods</p>	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results.</p>	<p>Understand the basic concepts in statistics. Solve different statistical concepts related to management. Acquire wide knowledge of different statistical</p>

				<p>concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve real life problems. Inculcate research level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	<p>analysis. Understand and apply different ethics in business research. Get a basic knowledge about data collection and report writing.</p>
M.B.A	PCBAK20	Resource Management Techniques	Course designed to learn and understand the methodical approach of solving problem in the field of industries, marketing, finance	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards</p>	<p>Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real life examples and simulation results. Inculcate research level</p>	<p>Understand the basic Operation Research concepts related to management. Analyse the real life situation using Transportation and Assignment problems.</p>

				<p>skill development and employability. Apply critical and scientific approaches to address problems and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives. Persist in lifelong learning for personal and societal progress.</p>	<p>thinking in the field of pure and applied mathematics and apply theoretical knowledge to write the dissertation using the Mathematical software LaTeX. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & lifelong learning to compete at the global level and meet social needs.</p>	<p>Acquire wide knowledge in Game Theory and replacement models that are used in management. Solve any practical issues using Queuing Theory and decision making. Impart the knowledge in Network Analysis that are used in Management.</p>
M.Sc. Physics	PCPHA20	Mathematical Physics – I	<p>To inculcate to the students the mathematical concepts for solving physical problems which arise in many branches of Physics To prepare the students for solving the problems of mathematical physics in competitive examinations</p>	<p>Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill development and employability.</p>	<p>Understand the various methods in the respective field. Inculcate the mathematical concepts for solving problems. Become Skilled to face competitive examinations.</p>	<p>Understand the basic Operation Research concepts related to management. Analyse the real life situation using Transportation and Assignment problems. Acquire wide knowledge in Game Theory and replacement models that are used in management. Solve any practical issues using Queuing Theory and decision making. Impart the knowledge in</p>

						Network Analysis that are used in Management.
M.Sc. Physics	PCPHB20	Classical Mechanics	To gain knowledge about the fundamental principles of small theory of oscillations and its applications.	Develop research skills through multi/inter/trans disciplinary perspectives	:Attain interest for higher education and research	<p>Acquire knowledge about the fundamental concepts of dynamics of system of particles</p> <p>Use D'Alembert's principle and calculus of variations to derive the Lagrange Hamilton formalism applicable to solve the equation of motion for any mechanical system</p> <p>Understand the essential features of canonical transformations and their applications to various systems.</p> <p>Describe the HamiltonJacobi equation and develop the skills to use them to set and solve the appropriate physical problems.</p> <p>Gain knowledge about the fundamental principles of small theory of oscillations and its applications.</p>

M.Sc. Physics	PCPHC20	Statistical Mechanics	To understand the fundamental principles of thermodynamics and statistical mechanics to perform a quantitative calculations on ideal systems.	Integrate issues of social relevance in the field of study. Persist in lifelong learning for personal and societal progress.	Attain in depth knowledge on various areas of Physics. Understand the various methods in the respective field. Inculcate the mathematical concepts for solving problems.	Formulate theories and microscopic models to explain the properties of complex system. (Ising model, BoseEinstein condensation, liquid helium II)
M.Sc. Physics	PEPHA20	Elective I A Electronic Devices and Applications	Analyze about the fabrication of various Integrated circuits and semiconductor devices	Attain interest for higher education and research	Understand the various methods in the respective field. Gain knowledge about various applications.	To understand the concepts of combinational circuits and sequential circuits and A/D –D/A converters used to design advanced digital system.
M.Sc. Physics	PIPHA20	IEP Physics for Set/Net – Paper I	Students attains knowledge to face competitive examination towards higher studies and employment	Apply critical and scientific approaches to address problems and find solutions. Develop research skills through multi/inter/trans disciplinary perspectives.	Gain knowledge about various applications. Become Skilled to face competitive examinations. Attain interest for higher education and research.	Ability to identify the properties of substances on property diagrams and obtain the data from property tables. To acquire knowledge about classical and Quantum statistical mechanics.
M.Sc. Physics	PIPHB20	IEP Astro Physics	To propose, plan, and conduct astronomical observations with professional telescopes	Attain an in-depth knowledge in the respective domains augmented through self-learning. Persist in lifelong learning for personal and societal progress.	Attain in depth knowledge on various areas of Physics Attain interest for higher education and research.	In-depth knowledge within the defined area of astrophysics Develop observation skills to be able to explain astronomical features and observations obtained via telescopic observations.

M.Sc. Physics	PCPHD20	Mathematical Physics – II	To inculcate to the students the mathematical concepts for solving physical problems which arise in many branches of Physics.	Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill development and employability.	Understand the various methods in the respective field. Inculcate the mathematical concepts for solving problems. Gain knowledge about various applications. Become Skilled to face competitive examinations.	Apply concepts of complex analysis to evaluate definite integrals. Explain various operations of tensors and apply in many branches of science. Apply Laplace/Fourier transforms to solve mathematical problems and use Fourier transforms as an aid for analysing experimental data.
M.Sc. Physics	PCPHE20	Electromagnetic Theory	To make the students understand the principles and theory of electrostatics, magneto statics.	Develop research skills through multi/inter/trans disciplinary perspectives.	Understand the various methods in the respective field. Gain knowledge about various applications. Become Skilled to face competitive examinations.	Able to understand and apply the basic principles of electrostatics Analyses the properties of magnetostatic field through current distribution with the application of various laws and conditions. Able to perceive the propagation and interaction of electric and magnetic fields through free space and matter Imbibes the widespread knowledge about radio communication with its mathematical applications. Acquires the comprehensive knowledge of the various applications

						of antennas.
M.Sc. Physics	PIPHC20	IEP Physics For Set/Net Paper II	Students attains knowledge to face competitive examination towards higher studies and employment	Assimilate and apply principles and concepts towards skill development and employability.	Become Skilled to face competitive examinations.	Recall and apply the concepts and methods in mathematical physics and solve relevant problems in any competitive exams.
M.Sc. Physics	PIPHD20	IEP Medical Physics and Instrumentation Techniques	Students attains knowledge to face competitive examination towards higher studies and employment	Assimilate and apply principles and concepts towards skill development and employability.	Become Skilled to face competitive examinations.	Explain the application of electricity and magnetism in medicine.
M.Sc. Physics	PCPHI20	Spectroscopy	Students attains knowledge to face competitive examination towards higher studies and employment	Assimilate and apply principles and concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions.	Become Skilled to face competitive examinations. Attain interest for higher education and research.	Analyse rotational and vibrational (microwave, IR& Raman) spectra to determine the molecular structure and physical constants. Interpret NMR, NQR, ESR and Mossbauer spectra to obtain the information about the chemical, structural and magnetic properties of the material.
M.Sc. Physics	PCPHK20	Microprocessor and Microcontroller	Students acquire knowledge in programming using microprocessor & microcontroller to get employment in software companies	Assimilate and apply principles and concepts towards skill development and employability	Attain in depth knowledge on various areas of Physics. Gain knowledge about various applications.	Develop programs using 808 Microprocessor Instruction set and addressing modes. Describe and perform different types of peripheral interfaces to 808 Microprocessor.

						Explain hardware, instruction set and addressing modes of Microcontroller 80 and develop programming for basic operations.
M.Sc. Physics	PEPHE20	Elective III A Numerical Methods and C Programming	Students acquire knowledge in C programming to get employment in software companies	Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill development and employability.	Attain in depth knowledge on various areas of Physics. Gain knowledge about various applications.	Develop simple programs using C language along with computational tools
M.Sc. Physics	PIPHE20	IEP Physics For Set/Net Paper III	Students attains knowledge to face competitive examination towards higher studies and employment	Assimilate and apply principles and concepts towards skill development and employability	:Become Skilled to face competitive examinations	Understand about Schrödinger equation, ladder operators and the concepts of time independent theory to solve Eigen value problems Describe the properties of relativistic quantum mechanics and solve the problems using Fermi's Gold rule. Understand the energy levels and structure of hydrogen atom and to solve the problems using ESR, NMR and

						FrankCondon Principle. Attain the basic concepts and theories in basic elements of atomic and molecular spectroscopy, classical/Quantum description of electronic, vibrational and rotational spectra and solve the problem related to that. Gain the knowledge to solve the problems by using the theory of Raman, NMR and Spin resonance spectroscopy in order to face competitive exams and for perusing higher research work.
M.Sc. Physics	PCPHP20	Practical IV Microprocessor, Microcontroller & C Programming	Students acquire knowledge in programming using microprocessor & microcontroller and C language to get employment in software companies	Assimilate and apply principles and concepts towards skill development and employability	Attain in depth knowledge on various areas of Physics. Gain knowledge about various applications.	Develop and perform peripheral interface programs with 808 Microprocessor Write C program for any basic operations Solve any physical problems using C language along with numerical techniques
M.Sc. Physics	PEPHH20	Elective IV B Advanced Material Science	To impart knowledge about crystallography and wide knowledge about properties of	Attain an in-depth knowledge in the respective domains augmented through self-learning	:Attain in depth knowledge on various areas of Physics. Become Skilled to face competitive	Understand the building unit of structure of crystal and their symmetry. Interpret about the magnetic properties and

			materials.	Develop research skills through multi/inter/trans disciplinary perspectives. Integrate issues of social relevance in the field of study.	examinations. Attain interest for higher education and research	effects on materials Attain the knowledge of superconducting materials and problem solving. Pick up the ideas in lasing action, optical resonators and its applications. Get introduced all about smart, nano and magnetic materials and its application useful to carry out the research work and fabricating the devices for public utility.
M.Sc. Physics	PIPHG20	IEP Physics For Set/Net Paper IV	Students attains knowledge to face competitive examination towards higher studies and employment	Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill development and employability.	Become Skilled to face competitive examinations. Attain interest for higher education and research.	Understand the basic properties of nucleus and nuclear models. Gain the knowledge about the elementary particles and quantum numbers. Impart knowledge of finding solutions to any differential equations and Interpolation by using Newton's method, Simn's and Trapezoidal rules. Attain the basic concepts and theories in crystals and magnetism and develop the skills to solve the problems in the respective filed for performing higher studies and research.

						Understand the basic concepts in superconductors.
M.Sc. Zoology	PEZOF20	Elective IV B Aquaculture and Farm Management	Enable the students to know different types of fish culture techniques and motivate self-employment.	Assimilate and apply principles and concepts towards skill development and employability.	Gain ability to develop research aptitude/creative thinking in contemporary and current fields of interest.	Describe parameters of aquatic environment for aquaculture and farm management. Elucidate biological criteria and economic significance of cultivable species. Discuss seed production and hatchery management of commercially important cultivable fishes. Explain different types of fish cultures techniques. Analyse water quality parameters and biotechnological tools in disease diagnosis of culture fishes.
M.Sc. Microbiology	PCMBH20	Practical Medical Microbiology	The course is designed to enable the students to get hands on training on various aspects of Clinical Microbiology and to start their own diagnostic laboratory.	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate practical skills in the use of tools, technologies and methods common to Microbiology, and apply the scientific method and hypothesis testing in the design and execution of experiments.	Demonstrate collection, transport and processing of clinical specimens. Identify the bacterial pathogens from various clinical samples and detect their antimicrobial activity. Analyse the clinical specimens for the examination and cultivation of pathogenic

						<p>fungi. Estimate worm burden stool for the identification of parasite. Enumerate blood cells.</p>
M.Sc. Microbiology	PCMBN20	Genetic Engineering	<p>The course provides hands on training and acquires adequate skill required to isolate, demonstrate and quantitate nucleic acids, transfer DNA to bacteria and separate biomolecules by electrophoresis to enable the learners to be employed in R & D sections.</p>	<p>Assimilate and apply principles and concepts towards skill development and employability.</p>	<p>Demonstrate practical skills in the use of tools, technologies and methods common to Microbiology, and apply the scientific method and hypothesis testing in the design and execution of experiments.</p>	<p>Utilize technical skills in isolation of DNA, their quantification and plasmid. Analyse gene transfer mechanism and protein. Use the basic skill on blotting techniques & PCR. Select methods for the immobilization of enzymes. Demonstrate the process of induction of mutation.</p>
M.Sc. Microbiology	PCMBO20	Textile and cosmetic Microbiology	<p>The course is designed to provide hands on training and acquire adequate skill required for testing the quality of cosmetics and textile materials.</p>	<p>Assimilate and apply principles and concepts towards skill development and employability.</p>	<p>Demonstrate practical skills in the use of tools, technologies and methods common to Microbiology, and apply the scientific method and hypothesis testing in the design and execution of experiments.</p>	<p>Utilize the techniques for decolourization of textile industrial waste. Estimate of BOD, COD and total solids in effluent sample. Demonstrate the antimicrobial activity of textile materials. Evaluate the antifungal property of treated textile materials. Enumerate microorganisms in</p>

						cosmetics, perfumes and essential oils.
M.Sc. Microbiology	PCMBF20	Industrial and Pharmaceutical Microbiology	The course is prepared to provide an in depth understanding about industrially important organisms, strain improvement and for the learners to be placed in industries	Develop research skills through multi/inter/trans disciplinary perspectives.	Demonstrate practical skills in the use of tools, technologies and methods common to Microbiology, and apply the scientific method and hypothesis testing in the design and execution of experiments.	Outline the importance of production strain in industries. Discuss on fermenters and fermentation process. Describe the upstream and downstream processing. Analyse the steps involved in vaccine, toxoid and antisera production and evaluate the standardization of antiseptics and disinfectants. Assess good practice and regulation involved in utilizing microbial product for pharmaceutical applications.
M.Sc. Microbiology	PCMBM20	Bioethics and Biosafety	The course is designed to educate the learners on Biosafety concerns at the level of individuals, institution, society, region, country and the world.	Apply critical and scientific approaches to address problems and find solutions.	Incorporate effective career with marketing, project management, business development or venture capital within the biotech, pharmaceutical, medical technology or related fields.	Outline the principles of bioethics and explain the biosafety concerns with safeguard measures. Compile the BSA statement for the industrial production of pharmaceuticals. Adapt the WHO quality standards in food process technology.

						Discuss on the global scenario of patenting. Comprehend the forms of patents, patentability and process of patenting.
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Sr. Tiger Sush - a

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