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(PSOs) and Course Outcomes(COs) of the Programmes offered by the Institution.

FOCUS: SKILL DEVELOPMENT 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	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	USENA120	SBE I: English for Communication	Upgrades the caliber to approach socially and professionally	Emulate positive social values and exercise leadership qualities and team work.	Appreciate life, think critically, and develop positive, interpersonal relationship with fellow humans	Implement the strategies for effective speech communication.

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B.A English	USENA220	SBE II: Conversational English	Provides skills required to have a good command over the language	Effectively communicate general and discipline-specific information, ideas and opinions.	Apply the knowledge of form, structure, history and contextual cultural diversity and comprehend the applications of the English Language in practice	Apply communicative skills for conversational and academic purposes.
B.A English	UCENB20	English Pronunciation: Theory and Practice	The course introduces students to the sounds of English language to the effect that they remember, identify the speech sounds of English Language and appropriate their pronunciation to that of standard English Pronunciation, which is a key element in Effective Speaking Skills in English	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	Demonstrate understanding of the structural organization of speech sounds of English language and the subtle variations in its pronunciation. Illustrate, identify and label the parts of the human articulator system Remember the English vowels, consonants and diphthongs along with their corresponding (IPA) Phonetic symbols
B.A English	USENC320	SBE III: English for Competitive Examinations	Enables the reasoning and aptitude skills	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Formulate research questions and identify relevant approaches and sources to find answers/ solutions for questions/ problems related to Language,	Analyse different verbal and reasoning ability

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					Communication, Art and Culture.	
B.A English	USENC420	SBE IV: Journalism	Equip skills to write news articles, edit, proof read, and advertise	Attain knowledge and understand the principles and concepts in the respective discipline.	Apply the knowledge of form, structure, history and contextual cultural diversity and comprehend the applications of the English Language in practice	Discuss the role, duties and responsibilities of reporter, sub-editor and editor, the different press laws and acts
B.A English	UATOT20	Allied IV: Techniques of Translation	the course aims at impart the required translation skills students to become free-lance translators	Attain knowledge and understand the principles and concepts in the respective discipline.	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 non-literary texts
B.A English	USEND520	SBE: Theatre and Dramaturgy	the course aims to train students on the various skills in theatre art	Attain knowledge and understand the principles and concepts in the respective discipline.	Formulate research questions and identify relevant approaches and sources to find answers/solutions for questions/problems related to Language, Communication, Art and Culture.	Discuss theatre as a form of art referring to Classical, British, American and Indian stages

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B.A English	USEND620	SBE: Critical Approaches to Literature	the course aims to train students in critical reading of text and methods of analysing textual and cultural artefacts through various approaches relevant to the analysis of literature and culture	Attain knowledge and understand the principles and concepts in the respective discipline. Effectively communicate general and discipline-specific information, ideas and opinions.	Remember the principles of Literature in general and English Literature in particular and understand its typological, critical, socio-cultural aspects Apply the knowledge of form, structure, history and contextual cultural diversity and comprehend the applications of the English Language in practice	Understand key concepts under various approaches Apply critical theories for the interpretation of literary texts Compare and Contrast various critical theories
B.A English	UGENA617	Non- Major Elective II Communication and Soft Skills	Helps in the sustainable growth of acquaintance, healthy decision makings, resolve complexities and achieve goals	Attain knowledge and understand the principles and concepts in the respective discipline. Effectively communicate general and discipline-specific information, ideas and opinions.	Remember the principles of Literature in general and English Literature in particular and understand its typological, critical, socio cultural aspects	To adopt attitudinal changes while learning soft skills

B.A History	USHIA321	SBE- Museology	To help the learners to know about origin, emergence and concepts of Museology	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society	Widen their knowledge of History, Administration, Art, Architecture, political system, Religion, and culture and enhance their critical and creative skills to pursue career options to engage as educators and researchers in historical sites and Museums	Identify the job opportunities for the study of museology.
B.A History	USHIC620	SBE- Archives Keeping	To help the students to know the importance and maintenance of Historical records	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society	Widen their knowledge of History, Administration, Art, Architecture, political system, Religion, and culture and enhance their critical and creative skills to pursue career options to engage as educators and researchers in historical sites and Museums	List out the importance of the History of Indian Archives Keeping, and its significance

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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	UCBAN20	Banking and Insurance	Course impart the knowledge of banking system and its services	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.	Gain the knowledge as to how to open and operate accounts in bank and also maintaining relationship with bankers
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 bring up the economically challenged, socially backward young women to be competent with today's expectation of the competitive world for their sustenance	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.

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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	UGBAA520	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	USBAE520	Campus to Corporate	Course is designed to build confidence, develop self-esteem, and to bring positive changes in the attitude & behaviour of the students	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 acquire the basic and managerial communications skills to gain professionalism.	Proactively manage the transition from being the student to the employee
B.B.A	USBAF520	Application 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 multi-disciplinary 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

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B.B.A	USBAA120	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	USBAB120	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	USBAD320/ USBAD420	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

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B.B.A	USBAC320/ /USBAC420	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	UCCAB20	Fundamentals of Information Technology	The main objective is to introduce Information Technology in a Simple Language to all undergraduate students regardless of their specialization.	Attain knowledge and understand the principles and concepts in the respective discipline.	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.	Understand the fundamental concepts of computers with the present level of knowledge of the students.
B.C.A	USCSG520	Skill-Based Elective V: R Programming	Understand the usage of R programming interactive environment.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Ability to analyze social and environmental aspects with professional values, ethics and equity to transform the	To use R for analytical programming.

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					knowledge, skills and expertise to the community.	
B.C.A	USCSF620	Skill-Based Elective VI: Data Analytics Using Data Visualization Tools	To Understand the different data format and its graphical representation	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Ability to analyze social and environmental aspects with professional values, ethics and equity to transform the knowledge, skills and expertise to the community.	Design effective data visualizations in order to provide new insights into a research question or communicate information to the viewer.
B.Com	USCOD520	Consumer Guide and Empowerment	Acquired conceptual knowledge on consumer act, RTI act and FSSAI.	Excel as a socially committed individual having empathy for the needs of the society through value-based education.	Practical Applications gained over the year in the field of auditing	Students will be able to appreciate the emerging questions and policy issues in consumer law for future research
B.Sc. Biochemistry	UCBCA20	Bioorganic Chemistry	To provide a clear note on the bioorganic compounds.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Outline the structure, properties and biological importance of carbohydrates.
B.Sc. Biochemistry	UCBCC20	Main Practical-I	To provide a wide practical knowledge on Qualitative and Quantitative Analysis.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Identify the carbohydrate and amino acids qualitatively

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B.Sc. Biochemistry	UCBCB20	Cell Biology	To provide a deep knowledge about cell – the basic unit of life.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Examine clearly about the mechanism of transport across the membrane
B.Sc. Biochemistry	UCBCD20	Biochemical techniques	To study about the principles and applications of biochemical techniques.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Compare the difference between various methods of chromatography
B.Sc. Biochemistry	UCBCE20	Physiology and Nutrition	To understand the homeostatic mechanism of each organ.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Identify the nutrients in food and their functions in maintaining health
B.Sc. Biochemistry	UCBCF20	Main Practical-II	To inculcate practical skill in Biochemistry.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Analyse, interpret and report the results of their biochemical experiments
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	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Understand the common health problems of women
B.Sc. Biochemistry	UCBCG20	Enzymes & Intermediary metabolism	To impart knowledge about the enzymes and the metabolism of biomolecules and its interrelationship.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Discuss the kinetics of enzyme catalyzed reactions, enzyme immobilization and applications of enzymes and their future potential

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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.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Identify the various endocrine glands, morphology and their relevant hormones secreted
B.Sc. Biochemistry	UEBCA20	Elective IA: Immunology	To help the students to understand the components of Immune system	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Identify the role of MHC antigens
B.Sc. Biochemistry	UEBCB20	Elective IB: Environmental Toxicology	To understand the basics in toxicological aspects that effect the environment.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Use clinical and laboratory findings in the treatment of acute toxic exposures
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.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Assess the presence and absence of abnormalities in urine

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.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	To obtain practical skills in basic hematological techniques.
B.Sc. Biochemistry	USBCCn20	Skill Based Elective: III: Entrepreneurial Biochemistry	To understand the concept of entrepreneurship	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Explain the theory of entrepreneurship and its practical implementation
B.Sc. Biochemistry	UCBCI20	Molecular Biology	To make a study on life and the information centers called genes.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Demonstrate the features of Genetic code and mechanism of Translation
B.Sc. Biochemistry	UEBCC20	Elective IIA: Clinical Biochemistry	To understand the biochemical basis of various diseases and disorders	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Describe the types of jaundice and serum enzyme activities in diseases
B.Sc. Biochemistry	UEBCD20	Elective IIB: Pharmacology	To make detailed study of drugs, and their actions on living systems	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Outline the clinical applications, side effects and toxicities of cardiovascular drugs

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B.Sc. Biochemistry	UEBCE20	Elective IIIA: Biotechnology	To explore the applications and future potential of Biotechnology	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Explain the principles of plant tissue and animal cell culture and summarize the methods used to produce transgenic plants and animals
B.Sc. Biochemistry	UEBCF20	Elective IIIB: Plant Biochemistry	To explore the applications of plant and their products	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	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	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Demonstrate about the blood transfusion method
B.Sc. Biochemistry	USBCAn20	Skill Based Elective: II - Nutritional Biochemistry	To make a note on nutrients and its role on metabolism.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	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	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Outline the properties and structural organization of proteins
B.Sc. Biochemistry	UABCB20	Allied Biochemistry - II	To understand the basic of metabolic pathway	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Describe and identify the main characteristics of diagnosis, screening and prognosis of disease

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B.Sc. Biochemistry	UABCC20	Allied Biochemistry Practical	To acquire knowledge on the structure and the function of biomolecules	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Demonstrate separation of protein by electrophoresis
B.Sc. Biochemistry	UGBCAn20	NME: Disease and Treatment	To provide a basic knowledge about common diseases and its treatment.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	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.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Attain skills to tackle issues and apply knowledge to find solutions for the problem	Acquire knowledge on the medicinal therapy for various health conditions and function of medicinal plants as therapeutics
B.Sc. Chemistry	UCCHC20	Practical - I: Inorganic Qualitative Analysis	This course enables students to develop skill to analyse systematically and apply the concepts of semimicro analysis in inorganic qualitative analysis.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Apply laboratory skills, carry out experiments, record observations and inferences and analyze the results and follow the correct procedures and regulations for safe handling and usage of chemicals. Integrate the knowledge and skills developed in multidisciplinary environments and function effectively as an individual or a	Recall the principles of inorganic qualitative analysis.

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					leader and contribute towards the needs of the society.	
B.Sc. Chemistry	UCCHF20	Practical – II: Volumetric Estimation	This course helps them to apply volumetric principles to carry out quantitative estimations.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Apply laboratory skills, carry out experiments, record observations and inferences and analyze the results and follow the correct procedures and regulations for safe handling and usage of chemicals. Integrate the knowledge and skills developed in multidisciplinary environments and function effectively as an individual or a leader and contribute towards the needs of the society.	Use double titration method in volumetric analysis. Prepare standard solutions.
B.Sc. Chemistry	USCHA320	Skill Based Elective – III Industrial Chemistry	This course helps the students to enhance the reasoning skills and understand the working of industrial processes.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards	Apply laboratory skills, carry out experiments, record observations and inferences and analyze the results and follow the correct procedures and regulations for	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

				the needs of the society.	safe handling and usage of chemicals. Integrate the knowledge and skills developed in multidisciplinary environments and function effectively as an individual or a leader and contribute towards the needs of the society.	manufacture of leathers and leather products.
B.Sc. Chemistry	USCHB420	Skill Based Elective – IV Agricultural chemistry	This course makes the students understand the scope of Agriculture in India and gain knowledge about the certification of organic products.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Apply laboratory skills, carry out experiments, record observations and inferences and analyze the results and follow the correct procedures and regulations for safe handling and usage of chemicals. Integrate the knowledge and skills developed in multidisciplinary environments and function effectively as an individual or a leader and contribute towards the needs of the society.	Understand the scope of agriculture in India and Tamil Nadu. Explain the physical and chemical properties of soil.

B.Sc. Chemistry	UCCHL20	Practical - III: Physical Chemistry	This course enables the students to demonstrate practical skills in carrying out chemical reactions and handle electronic equipment's with technical skills	Acquire and apply analytical, critical and creative thinking, and problem-solving skills Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Apply laboratory skills, carry out experiments, record observations and inferences and analyze the results and follow the correct procedures and regulations for safe handling and usage of chemicals. Integrate the knowledge and skills developed in multidisciplinary environments and function effectively as an individual or a leader and contribute towards the needs of the society.	Demonstrate practical skills in carrying out chemical reactions of different orders to arrive at reaction kinetics. Estimate quantitatively using conductometric and potentiometric titrations
B.Sc. Chemistry	UCCHM20	Practical - IV: Gravimetric Estimation	This course enables the students to apply basic principles of solubility to quantitative estimations.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Apply laboratory skills, carry out experiments, record observations and inferences and analyze the results and follow the correct procedures and regulations for safe handling and usage of chemicals. Integrate the	Quantitatively estimate metal ions using gravimetric analysis. Gain knowledge on the choice of precipitating methods, reagents, crucibles and filtration.

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					knowledge and skills developed in multidisciplinary environments and function effectively as an individual or a leader and contribute towards the needs of the society.	
B.Sc. Chemistry	UCCHN20	Practical - V: Organic Analysis and Preparation	This course helps the students to develop skill to analyse systematically and apply the concepts of micro scale analysis in organic qualitative analysis.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Apply laboratory skills, carry out experiments, record observations and inferences and analyze the results and follow the correct procedures and regulations for safe handling and usage of chemicals. Integrate the knowledge and skills developed in multidisciplinary environments and function effectively as an individual or a leader and contribute towards the needs of the society.	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.

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B.Sc. Chemistry	USCHC520	SBE – V: Small Scale Chemistry	This course enables the students to acquire skills in the manufacture of various small-scale products.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Apply laboratory skills, carry out experiments, record observations and inferences and analyze the results and follow the correct procedures and regulations for safe handling and usage of chemicals. Integrate the knowledge and skills developed in multidisciplinary environments and function effectively as an individual or a leader and contribute towards the needs of the society.	Understand the laws, role and steps involved in starting small scale industries. Acquire skills to prepare soaps and detergents.
B.Sc. Chemistry	USCHD620	SBE – VI: Food Chemistry	This course enables students to impart elementary ideas for detecting food adulterants by simple analytical techniques.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Apply laboratory skills, carry out experiments, record observations and inferences and analyze the results and follow the correct procedures and regulations for safe handling and usage of chemicals. Integrate the	Apply simple analytical techniques for detecting food adulterants. Describe the role of food additives, preservatives, flavours, colours and antioxidants.

					knowledge and skills developed in multidisciplinary environments and function effectively as an individual or a leader and contribute towards the needs of the society.	
B.Sc. Computer Science	USCSA320	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	USCSB420	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	USCSF520	SBE: R Programming	Understand the usage of R programming interactive environment	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 the basics in R and Studio Programming

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B.Sc. Computer Science	USCSE620	SBE: Data Analytics Using Data Visualization Tools	Understand the behavior of data. To implement Data Analytics efficiently.	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.	Apply the recent technology in multidisciplinary domains and evaluate the methods to implement it, to create high level design and implement robust software applications using latest technological skills.
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. Mathematics	USMAA20	SBE III: Numerical Methods	To apply various concepts of Numerical methods and obtain the approximate solutions to mathematical problems.	Attain knowledge and understand the principles and concepts in the respective discipline. Acquire and apply analytical, critical and creative thinking, and problem solving skills.	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.	Understand the operators of finite differences and express any value of y in terms of the forward differences of y0 and the backward differences of yn.

				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.	Familiarize the basics of programming in R such as vectors, arrays, data frames, etc.
B.Sc. Mathematics	USMABn20	SBE: R Programming Language	To introduce students to the concept of basic R programming, thereby enhancing the logical thinking of the students with regard to programming. To train the students to apply the programming concepts of R to statistical investigations and problem solving			
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	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	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.	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.

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			decision-making skills of the students.	opinions. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.		
B.B.A	UCBAD20	Business Mathematics and Statistics - II	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		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.
B.B.A	UCBAG20	Operations Research-I	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	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	Understand and solve linear programming problems. Identify and develop the operational research models such as graphical and simplex method. Comprehend advanced linear programming problems using Big M

				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.	an undergraduate programme of study. 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. Ability to provide new solutions using the domain knowledge of mathematics.	method. Construct and solve transportation models and assignment models. Analyze and evaluate assignment models.
B.B.A	UCBAI20	Operations Research-II	The course is designed to improve the problem solving skills of students and improve the knowledge in Sequencing Problems, Queuing theory and Network Analysis.	Attain knowledge and understand the principles and concepts in the respective discipline. 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.	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.

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B.Com/ B & I	UABMA20	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.	Attain knowledge and understand the principles and concepts in the respective discipline.	Ability to provide new solutions using the domain knowledge of mathematics.	Apply the knowledge in matrices in solving business problems.
B.Com/ B & I	UASOR20	Business Statistics and Operations Research	To deepen the knowledge of statistical concepts and to introduce the concepts of Operations Research. To demonstrate and apply the concepts of probability and game theory.	Attain knowledge and understand the principles and concepts in the respective discipline. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Ability to provide new solutions using the domain knowledge of mathematics	Gain practical knowledge of correlation and regression.
B.Sc. Chemistry / B.SC Physics	UAMAA20	Allied Mathematics I	To introduce the basic concepts of matrices To improve problem solving skills in Trigonometry	Attain knowledge and understand the principles and concepts in the respective discipline.	Disciplinary knowledge Capability to demonstrate comprehensive knowledge of Mathematics and understand one or more disciplines which form a part of	Understand the basic concepts of matrices

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					an undergraduate programme of study.	
B.Sc. Chemistry / B.SC Physics	UAMAB20	Allied Mathematics II	To introduce concepts of vector calculus To teach methods of solving partial differential equations	Attain knowledge and understand the principles and concepts in the respective discipline.	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.	Understand the use of vector calculus in science and engineering.
B. Sc. Computer Science	UANAA20	Numerical Analysis – I	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.	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.	Understand the operators and their properties, form a forward and backward difference table. Execute interpolation methods using forward and backward differences when the data is equally distributed. Exhibit interpolation procedures using central differences when the data is equally distributed. Use divided differences for interpolation when the data is unequally distributed. Implement curve fitting and method of moments.

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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 solve differential equation with boundary value problems.	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.	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 do integration. Solve ordinary differential equations using numerical methods.
B.C.A	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.

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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. Ability to analyze the results and apply them in various problems appearing in different branches of mathematics.	Analyze the statistical data using measures of central tendency and graphs.
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	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	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.	Frame a relevant frequency distribution for a given biological data.

			methods for analyzing one or two variables.	information, ideas and opinions. Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.		
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.	Attain knowledge and understand the principles and concepts in the respective discipline.	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.	Apply probability distributions such as Binomial, Poisson and Normal to solve real life problems. Recognize the importance of data collection and its role in determining scope of inference.
B.B.A (Hospital Administration)	UAMST20	Medical Statistics	To introduce the basic concepts of statistics. To make decisions based on statistical representation related to hospital administration.	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	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.	Solve basic mathematical problems using matrices Use various differentiation techniques

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					and contribute towards the needs of the society.	
B.B.A (Hospital Administration)	UAORA20	Operations Research	To introduce the techniques of solving problems in the field of industry, marketing and finance To create awareness about optimization in the utility of resources	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 Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations.	Understand the basic operations research concepts and solve linear programming problems. Analyze real-life situation using transportation models.
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	Acquire and apply analytical, critical and creative thinking, and problem solving skills Effectively communicate general and discipline-specific information, ideas and	Ability to analyze the results and apply them in various problems appearing in different branches of mathematics. Problem solving Ability to provide	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

			help the learners to acquire satisfactory competency using verbal and nonverbal reasoning and to help the students to prepare for various competitive examinations.	opinions.	new solutions using the domain knowledge of mathematics.	forms Reason out verbally and non-verbally 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 glasswares 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	Identify the ABO blood groups and its Rh types. Enumerate and observe various granulocytic and agranulocytic cells of immune system. Perform serological

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					applied Microbiology.	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	USMBA20	Mushroom Technology	The course is designed to provide adequate hands-on experience in handling and cultivation of edible mushrooms to start a small-scale Mushroom unit	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.	Formulate media used for cultivation of mushroom and select the appropriate methods for spawn production. Demonstrate mushroom cultivation technology and its preservation
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.	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.

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					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.	Formulate face packs, hair oils for different types of skin and hair. Communicate the cosmeceutical applications of micro and macroalgae
B.Sc. Physics	UCPHD20	Mathematical Methods and Classical Mechanics	To introduce the students the basic methods of applied mathematics to solve the physical problems that arises in conventional physics such as electricity and magnetism, classical and quantum mechanics and spectroscopy	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Students are also expected to develop skills in Physics for competitive Examinations.	The students acquire the mathematical skills in solving the basic numerical problems.
B.Sc. Physics	UEPHE20	Microprocessor 8085	To understand the concept of microprocessor bus structure and architecture of 8085.	Attain knowledge and understand the principles and concepts in the respective discipline.	Prepare the student to successfully compete for employment and to offer a wide range of applications.	Enable the learners to get an in-depth knowledge in microprocessor and how to execute an instruction using processor.

B.Sc. Physics	USPHA120	Everyday Physics	To make students aware of the concepts of Physics involved in day-to-day life.	Attain knowledge and understand the principles and concepts in the respective discipline	Analyze physical problems and develop correct solutions using natural laws.	Appraise the importance of Physics in daily life.
B.Sc. Physics	USPHB320	Electrical Appliances -I	To make the students apply the concepts of Physics and its application in electrical appliances.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society	Prepare the student to successfully compete for employment and to offer a wide range of applications.	Learn the effect of electric current and Safety precautions to be taken when working with electricity
B.Sc. Physics	USPHC420	Electrical Appliances -II	Study the construction, working and applications of domestic appliances.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society	Analyze physical problems and develop correct solutions using natural laws.	Study the behaviour electrical appliances
B.Sc. Physics	USPHD520	Physics for Competitive Examinations	To prepare the students for various Entrance examinations.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Students are also expected to develop skills in Physics for competitive Examinations.	To know the basic laws in Physics and its applications
B.Sc. Physics	USPHE620	Mobile Communications	To make the students acquire knowledge about mobile phones	Attain knowledge and understand the principles and concepts in the respective discipline.	Students will realize and develop an understanding of the impact of physics and science on society	To understand the multiple access techniques in communication.
B.Sc. Physics	UGPHAn20	NME: Fundamentals of Physics	To impart Knowledge of Heat and Temperature	Attain knowledge and understand the principles and concepts in the respective discipline.	Students are also expected to develop skills in Physics for competitive Examinations.	Attain knowledge and understand the principles and concepts in the respective discipline.

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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 Industry.	Practicing Colors Using Watercolor and Poster colors
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 first-hand, 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 become competent enough to undertake the professional job as per the demands and requirements of the media and Entertainment Industry.	Acquiring knowledge in lighting and exposure techniques

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B.Sc. Zoology	USZOD420	SBE- Poultry Keeping	Develop skills for successful poultry keeping.	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	Sericulture	Develop skills for Mulberry Cultivation and Rearing of Silk Worms	Utilize the opportunities to conceptualize, nurture and accomplish the dream to be entrepreneur/leaders.	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.

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B.Sc. Zoology	USZOE520	Ornamental Fish Keeping	Develop the skills for Aquarium maintenance	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.	Discuss the importance, design and maintenance of an aquarium. Explain the aquarium plants and usage of various accessories required for an aquarium. Discuss the feed requirement, formulation and various live bearing fishes. Differentiate the Egg laying fishes, marine fishes and other organisms in an aquarium. Attain understanding on loan availability and export potential.
B.Sc. Zoology	UCZOC20	Core Practical -I	Enable the students to obtain practical skills and understand the evolutionary significance and skeletal structures of animals.	Attain knowledge and understand the principles and concepts in the respective discipline.	Demonstrate comprehensive knowledge on the complexity of life process, their molecular, cellular and physiological process, their genetics, evolution, behaviour and their interrelationship with the environment.	Acquire knowledge about the digestive, circulatory and nervous system of arthropods and vertebrates. Prepare mounting of the mouth arts of insects. Analyze the biological significance of invertebrates and vertebrates. Distinguish structure and function of invertebrates and vertebrates. Justify the importance of evolutionary significance

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						of animals, osteology and dentition in mammals.
B.Sc. Zoology	UCZOF20	Core Practical -II	Enable the students to prepare the slides and understand the principles in genetics and bioinstrumentation.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Undertake further studies in Zoology or Multidisciplinary areas.	Observe the structure of different types of tissue and the stages of cell division. Demonstrate preparation of buccal smear and squash preparation of onion root tip. Demonstrate the skill of focusing, calibrating a microscope and learn the principle, working of laboratory instruments. Enumerate the Differential count of WBC, total count of WBC and RBC. Identify the blood group, simple Mendelian traits and syndromes. Observe and study the life cycle of drosophila, polytene giant chromosome and the common mutants.

Program	Course Code	Course Name				
B.Sc. Zoology	UCZOL20	Core Practical -III	Enable the students to do experiments in Physiology, identify the developmental stages in Developmental Biology and apply the knowledge in rearing techniques.	Effectively communicate general and discipline-specific information, ideas and opinions.	Undertake further studies in Zoology or Multidisciplinary areas.	Demonstrate experiments in Physiology. Demonstrate expertise in handling instruments. Identify developmental stages, placenta and histology in development biology. Apply equipment's used in rearing techniques. Discuss the economic importance of animals.
B.Sc. Zoology	UCZOM20	Core Practical -IV	Enable the students to do practical's in Ecology, Immunology and Biotechnology and apply it in medical field.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Undertake further studies in Zoology or Multidisciplinary areas.	Demonstrate procedures in Ecology and immunology. Identify the adaptation of animals in the ecosystem. Apply the principle, working and application of instruments used biotechnology. Discuss microbes and the disease caused by them. Describe Lymphoid organs and immunoglobulins.
B.Sc. Psychology	USPYA321	Stress Management	Introduce practical coping strategies to manage stress.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Learn independently through self-reflection and evaluation of one's strengths and weaknesses	Basic concepts related to stress, body and emotion, mind and spirit, practice coping strategies and relaxation techniques.

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B.Sc. Psychology	USPYD21	Emotional Intelligence	To understand the concept of emotional intelligence and learn ways of developing it.	Attain knowledge and understand the principles and concepts in the respective discipline	Ability to handle various life situations confidently and competently.	Learn some basic techniques to manage emotions.
B.Sc. Psychology	USPYE522	Communication Skills	To equip the students with necessary competence in communication skills for today's professional world.	Effectively communicate general and discipline specific information ideas and opinions.	Use effective and fluent written, oral and visual communication to convey ideas and concept.	Understand basic components of communication and skills required for communication and different modes of communication efficiently.
B.Sc. Psychology	USPYF622	Consumer Behavior	To understand the nature, attitude, and behaviour of consumers and their communication process.	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 workforce, the community and themselves.	Define consumer behaviour and the different kinds of consumers and to relate factors influencing consumer behaviour to exist marketing strategies of brands and advertisements.
B.Sc. Psychology	UAVCB21	Media, culture and society	To understand the theories of media and the impact of media on society and culture	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Use effective and fluent written, oral and visual communication to convey ideas and concept	Comprehend interaction between individuals in different social groups significant physical, psychological and social transitions in growth
B.Com (B&I)	USBIC20	Skill Based Elective III: Banking and Insurance Practical	Impart practical knowledge about filling forms	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Identify, analyse and synthesize problems related to the field of Banking and Insurance.	Able to fill the forms related to banking sector

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B.Com (B&I)	USBID20	Skill Based Elective IV: Human Resource Management	Make understand the need for Human resource management	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society	To encourage teamwork and skills for effective collaboration towards the changing needs of the environment.	Identifies various motivational factors
B.Com (B&I)	USBIF620	Skill Based Elective-VI: Banking and Business Correspondence	To understand techniques of effective communication and provide knowledge on preparation of resume and self -assessment.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Engaging in Lifelong Learning, apply ethical principles and excel as a socially committed individual having empathy for the needs of the society.	To develop communication skills related to banking, Insurance and personality development of students
B.Com (B&I)	USBIE620	Skill Based Elective V: Practical Aspects of Income Tax and E filing	To impart knowledge on submitting tax returns via internet for various assessees across the nation	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society.	Engaging in Lifelong Learning, apply ethical principles and excel as a socially committed individual having empathy for the needs of the society.	Able to identify E-filing from regular filing returns.
B.B.A (Hospital Administration)	USHAA120	Life Skills	To understand the importance of Basic Life Support (BLS)	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Demonstrate managerial knowledge and analytical skills in healthcare sector through reflective learning.	Acquire knowledge on the Fire Safety and Disaster Management and practical exposure to handle fire extinguishers.

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B.B.A (Hospital Administration)	USHAB220	Skill Based Elective II: Practical: Communication Skills In English	To develop English language skills in listening, speaking, reading and writing by having learners engage in a range of communicative tasks and activities.	Effectively communicate general and discipline-specific information, ideas and opinions.	Attain practical experience through analyzing the past and existing trends.	Develop the skill of communicating through drafting various types of letters for business and banking correspondence.
B.B.A (Hospital Administration)	USHAD420	Skill Based Elective IV: Practical: Communication Skill in Hindi	To gain knowledge about basic words and phrases and to develop public speaking abilities	Effectively communicate general and discipline-specific information, ideas and opinions.	Attain practical experience through analyzing the past and existing trends.	Develop the skill to use appropriate terms and statements in Hindi.
B.B.A (Hospital Administration)	USHAE520	Skill Based Elective V: Practical: Accounting Packages	To enable the students to explore to and acquire skills in respect of most sophisticated computerized accounting procedures and practices so as to help them serve better the vast accounting needs of every commercial organization.	Acquire and apply analytical, critical and creative thinking, and problem-solving skills	Apply appropriate quantitative and qualitative techniques in solving business problems.	Gain knowledge in various accounting packages and the basics of Tally ERP 9.0
Allied Botany	UBBTC20/UABTC20	Optional Allied Botany Practical	Course is designed to provide hands on training in Botany.	Pursue higher knowledge, qualify professionally, enhance entrepreneurial skills and contribute towards the needs of the society		Identify and describe the plants in technical terms belonging to the families prescribed in the theory syllabus

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M.A. English	PIENA20	Independent Elective I B: Literary skills for employability-I	The course aims at developing the skills of the learners for better performance so as to be able to clear eligibility tests and be employable in various sectors	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate skills in Research Methods and tools to initiate and attempt research projects in Literature and Language 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.	Apply knowledge of literary criticism to anlayse literary works
M.A. English	PIENB20	Independent Elective I B: Technical and Business Writing	The course aims at developing the skills of the learners for better performance so as to be able to clear eligibility tests and be employable in various sectors	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate skills in Research Methods and tools to initiate and attempt research projects in Literature and Language Innovate and apply the skills of oral, written communication and analytical skills in the prospective areas of teaching, training, writing, editing, translating, publishing,	Acquire communication Skills – to include effective development, interpretation, and expression of ideas through written, oral, and visual communication Develop critical Thinking Skills – to include creative thinking, innovation, inquiry and analysis, evaluation and syntheses of information

					advertising etc.	
M.A. English	PIENC20	Independent Elective II A: Literary skills for employability-II	The course aims at developing the skills of the learners for better performance so as to be able to clear eligibility tests and be employable in various sectors	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate skills in Research Methods and tools to initiate and attempt research projects in Literature and Language 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 of English Language and Linguistics Apply knowledge of literary criticism to analyze literary works
M.A. English	PEENG20	Elective III B: Literature for Academic and Professional purposes	The course aims at developing the skills of the learners for better performance so as to be able to clear eligibility tests and be employable in various sectors	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate skills in Research Methods and tools to initiate and attempt research projects in Literature and Language Innovate and apply the skills of oral, written	

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					communication and analytical skills in the prospective areas of teaching, training, writing, editing, translating, publishing, advertising etc.	
M.A. English	PIENE20	Independent Elective III A: Literary skills for employability-IIIA	The course aims at developing the skills of the learners for better performance so as to be able to clear eligibility tests and be employable in various sectors	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate skills in Research Methods and tools to initiate and attempt research projects in Literature and Language 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.	Apply knowledge of literary criticism to anlayse literary works
M.A. English	PIENF20	Independent Elective III B: Content writing	The course aims at developing the skills of the learners for better performance so as to be able to clear eligibility tests and be employable in various sectors	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate skills in Research Methods and tools to initiate and attempt research projects in Literature and Language Innovate and apply the skills of oral,	Cultivate technical writing Skills Develop editing skills Create using analytic skills

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					written communication and analytical skills in the prospective areas of teaching, training, writing, editing, translating, publishing, advertising etc.	
M.A. English	PIENG20	Independent Elective IV A: Literary skills for employability -IV	The course aims at developing the skills of the learners for better performance so as to be able to clear eligibility tests and be employable in various sectors	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate skills in Research Methods and tools to initiate and attempt research projects in Literature and Language 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.	
M.A. English	PCENO20	English Language Teaching	The course aims at developing the skills of the learners for better performance so as to be able to clear eligibility tests and be employable in various	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate skills in Research Methods and tools to initiate and attempt research projects in Literature and Language Innovate and apply	

			sectors		the skills of oral, written communication and analytical skills in the prospective areas of teaching, training, writing, editing, translating, publishing, advertising etc.	
M.A. English	PEENF20	Elective III A: Translation studies	The course aims at developing the skills required for a translator.	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate skills in Research Methods and tools to initiate and attempt research projects in Literature and Language 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.	Apply the knowledge of translation theories to research in translation

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MSW	PCSWB20	Social Case work	To understand and apply the models of case work practice in different settings	Assimilate and apply principles and concept towards skill development and Employability	Enhance the individuals to help themselves with the scientific knowledge about the dynamics of problem and social issues.	Acquire skills in recording, reflecting and evaluating on the work to grow professionally.
MSW	PCSWC20	Social Group Work	To develop skills to apply group method for development and therapeutic work	Assimilate and apply principles and concept towards skill development and Employability	To utilize the opportunity and of professionalism in the development process	To acquire skills in recording and evaluation
MSW	PCSWD20	Concurrent Fieldwork	To develop skills as a professional tool, acquiring knowledge, skills, attitudes and values appropriate for social work practice	Attain an in-depth knowledge in the respective domain augmented through self- learning	To utilize the opportunity and of professionalism in the development process	Enhance their ability to plan, organize programmes and contribute as a team member
MSW	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
MSW	PCSWI20	Computer Applications for Social Work	To enable them to realize the need to have suitable skills for the practice of statistical package of social sciences	Assimilate and apply principles and concept towards skill development and Employability	To utilize the opportunity and of professionalism in the development process	Identify, select and apply the different tools in SPSS

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MSW	PSHRB20	Human Resource Management	Acquire knowledge on various functions of Human Resource Management	Attain an in-depth knowledge in the respective domain augmented through self- learning	It brings a change in attitudes and values of individual respective of their class, caste or gender	Acquire and build appropriate knowledge based on Human Resource Management
MSW	PISWC20	Counselling	To develop a basic understanding of theories and skills in counselling.	Persist in life-long learning for personal and societal progress	To utilize the opportunity and of professionalism in the development process	Understand linkages of counselling and guidance in social work.
MSW	PSCDB20	Development Planning	To provide knowledge on various methods, strategies and developmental efforts	Assimilate and apply principles and concept towards skill development and Employability	To utilize the opportunity and of professionalism in the development process	Understand and support the relevance of participation in planning and the tools for enhancing development
MSW	PSCDD20	Entrepreneurship Development	Course designed to develop entrepreneurial skills to craft innovative responses to social problems	Assimilate and apply principles and concepts towards skill development and employability	To prepare the individual in understanding the human behaviour with the relation to society	Analyze the basic concept of entrepreneurship and develop entrepreneurship skills to craft innovative response to social problems
MSW	PSHRD20	Organizational Behaviour	To present a new perspective for management	Develop research skills through multi/inter/trans-disciplinary perspectives	To prepare the individual in understanding the human behaviour with the relation to society	Evaluate the appropriateness of various leadership styles and conflict management strategies used in organization

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MSW	PESWG20	Administration of Service Organization	To motivate students to develop innovative methods and techniques for effective social welfare services	Persist in life-long learning for personal and societal progress	To enhance the individuals to help themselves with the scientific knowledge about the dynamics of problem and social issues.	Application of Administration process in service organizations
MSW	PISWD20	Social work profession in different settings	To develop an understanding of social work practice in various settings	Assimilate and apply principles and concepts towards skill development and employability	It brings a change in attitudes and values of individual respective of their class, caste or gender	Gain opportunity in understanding and apply in contemporary field of social work profession
MBA	PCBAB20	Organizational Behavior	To acquaint the students with the determinants of intra - individual, inter-personnel and inter group behaviour in organisational setting and to equip them with behavioural skills in managing people at work.	Attain an in-depth knowledge in the respective domains augmented through self-learning.	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.	Assess the potential effects of organizational factors develop skills in handling stress and manage Quality of work life.
MBA	PJBAA20	Business Lab – I: English for Professional Communication	To enriching business English vocabulary with self-confidence to communicate effectively in professional contexts and business environment.	Attain an in-depth knowledge in the respective domains augmented through self-learning.	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.	Apply the basics of speaking English in everyday conversation and professional need.

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MBA	PJBAB20	Practical – I: Ms Office and Advanced Excel	To equip students with the knowledge and skills required to accomplish Word, Excel and Power Point tasks efficiently	Attain an in-depth knowledge in the respective domains augmented through self-learning.	Students develop self-learning skills, and remain updated on contemporary management practices and can leverage their learning to provide solutions to business problems.	Master in the use of strategies, such as mail merging, creating articles.
MBA	PCBAJ20	Financial Management	To make the learner understand the capital structure theories and practical. Also, dividend theory and policy.	Attain an in-depth knowledge in the respective domains augmented through self-learning.	Students develop self-learning skills, and remain updated on contemporary management practices and can leverage their learning to provide solutions to business problems.	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	Attain an in-depth knowledge in the respective domains augmented through self-learning.	Students develop self-learning skills, and remain updated on contemporary management practices and can leverage their learning to provide solutions to business problems.	Be able to integrate and analyze related technologies with ERP and also to understand the entire product life cycle starting from manufacturing till SCM and CRM

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MBA	PJBAC20	Innovation And Start-Up Management	The students develop and can systematically apply an entrepreneurial way of thinking that will allow them to identify and create business Opportunities that may be commercialized successfully.	Attain an in-depth knowledge in the respective domains augmented through self-learning.	Students develop self-learning skills, and remain updated on contemporary management practices and can leverage their learning to provide solutions to business problems.	Be able to know the parameters to assess Opportunities for new business ideas.
MBA	PJBAD20	Accounting Software	To introduce the students to the basic of accounts and the usage of accounting software for accounting purpose.	Attain an in-depth knowledge in the respective domains augmented through self-learning.	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 learn the various accounting packages and the basics of Tally ERP 9.0
MBA	PJBAE20	Stock Trading	To learn the skill in trading and investing in the stock markets	Attain an in-depth knowledge in the respective domains augmented through self-learning.	Students develop self-learning skills, and remain updated on contemporary management practices and can leverage their learning to provide solutions to business problems.	Understand the basics in stock market and stock exchanges

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MBA	PIBAF20	Mall Management	To procure efficiency on promotional activities	Attain an in-depth knowledge in the respective domains augmented through self-learning.	Students develop self-learning skills, and remain updated on contemporary management practices and can leverage their learning to provide solutions to business problems.	Obtain the Awareness on Upcoming Mall Challenges
MBA	PIBAJ20	Cyber Security and Laws	To gain domain knowledge in all aspects of Cyber Security.	Attain an in-depth knowledge in the respective domains augmented through self-learning.	Students develop self-learning skills, and remain updated on contemporary management practices and can leverage their learning to provide solutions to business problems.	Enable the student to understand about cybercrime and risk in Systems
M.Com	PCCOG20	Research Methodology	To introduce to the students the concept of research, process of conducting research, methods and techniques of presenting research report	Develop research skills through multi/inter/trans-disciplinary perspectives.	To provide a platform to enhance technical, accounting, financial and business skills for developing solutions for business problem	To understand the concept of research methodology

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M.Com	PCCOM20	Internship Training Programme	To give practical training to students in the areas of accounts, taxation, human resource management, etc.	Assimilate and apply principles and concepts towards skill development and employability.	To make students employable as per the requirements of different types of business organizations through projects and Internship Training Programme.	Handle the accounts of any type of concern
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

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Course	Code	Title	Objective			Outcome
M.Sc. Biochemistry	PCBCA20	Biomolecules	To understand the salient features of biomolecules in the organization of life.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Examine the structure of nucleic acids, its isolation and sequencing techniques
M.Sc. Biochemistry	PCBCB20	Human Physiology and Nutrition	To study about the Physiological system of human body and Nutrients with their deficiencies.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Assess the activities of organs for maximum efficiency
M.Sc. Biochemistry	PCBCC20	Cell Biology	To understand the Cell, Cell organelle's structure, function and metabolism	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Assess the knowledge on techniques adopted for the identification of cellular components and cancerous cell
M.Sc. Biochemistry	PCBCG20	Practical I: Main Practical-I	To help students to expertise in the Biomolecules, Cell Dynamics and biochemical techniques.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Apply the practical knowledge to determine hemoglobin, clotting time and prothrombin time
M.Sc. Biochemistry	PCBCH20	Practical II: Main Practical-II	To learn about the analytical techniques and enzymology experiments.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Identify and purify biomolecules in a mixture by chromatographic technique
M.Sc. Biochemistry	PEBCA20	Elective IA: Biophysical Chemistry	To make the students to understand the concepts of bioenergetics and techniques.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Define and recognize covalent bonding between atoms in molecules.

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M.Sc. Biochemistry	PEBCB20	Elective IB: Pharmaceutical Biochemistry	To make the students aware of uses and abuse of drugs.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Discuss the mechanism of action of drugs in the therapy of specific diseases
M.Sc. Biochemistry	PCBCD20	Analytical Biochemistry	To understand the principles and applications of analytical techniques.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Interpret and use the results from a given chromatographic technique
M.Sc. Biochemistry	PCBCE20	Enzymology	To learn the methodology involved in assessing the enzyme activity and mechanism of enzyme action.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Compare methods for enzyme catalysis and various methods of inhibition
M.Sc. Biochemistry	PCBCF20	Intermediary Metabolism	To make the students to understand the reactions catalyzed by different enzymes and their metabolic pathways.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Analyze complex chemical reactions and draw logical conclusion by interrelating metabolism
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.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Schematize pedigree analysis and genetic mapping

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M.Sc. Biochemistry	PEBCD20	Elective II B: Toxicology	The course gives a detailed understanding and identification of toxic substances, dose-response, tests conducted and its impact on cellular activities.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Explain the clinical and laboratory findings in the treatment of acute toxic exposures
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.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Identify the difference in the mechanism of cell-to-cell communication
M.Sc. Biochemistry	PCBCJ20	Advanced Immunology	To help the students to understand the components of immune system and it's functioning.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Communicate the adverse effect of immunodeficiency disorder
M.Sc. Biochemistry	PCBCK20	Advanced Biotechnology	To learn how to apply the knowledge of genetic engineering in problem solving and in practice.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Make use of the various steps in the development of a biotechnology derived products
M.Sc. Biochemistry	PCBCN20	Practical II: Main Practical III	The course is aimed to enable the student interpret hormonal imbalance and clinical conditions and also to provide in-depth practical knowledge	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Use the practical skill for diagnosing immunological reaction in relation to disease condition

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			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.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Apply the molecular tools and techniques for extracting and separating DNA
M.Sc. Biochemistry	PEBCE20	Elective III A: Microbiology	To understand the importance of applications of microorganisms.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Apply the microbial culture technique
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	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Design the research work
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.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Demonstrate the features of Genetic code and mechanism of Translation

M.Sc. Biochemistry	PCBCM20	Advanced Clinical Biochemistry	To gain concepts of assessing the human physiology using biological fluid.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Apply the process of collection, preservation and storage of blood
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.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Perform the calculations to predict expected plants by experiments
M.Sc. Biochemistry	PEBCH20	Elective IV B: Herbal Therapy	To help students to understand the concepts in pharmacognosy and the role of medicinal plants.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	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	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Plan the concept of income generation through organic farming and terrace gardening
M.Sc. Biochemistry	PIBCB20	IEC: Food Preservation	To enable students to understand the concepts of food preservation and methods involved	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	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.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Gain knowledge on cropping techniques and harvesting methods

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M.Sc. Biochemistry	PIBCD20	IEC: Cancer Biology	To help students to understand the biology, diagnosis and treatment involved in cancer.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Describe the latest techniques in the diagnosis and treatment of cancer
M.Sc. Biochemistry	PIBCE20	IEC: Nanobiotechnology	The course aims to provide an interdisciplinary knowledge on Nano materials and their applications in biosciences.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Create knowledge to develop Nanomaterials
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	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Use hematopoietic stem cells in treating blood related disorders and diseases
M.Sc. Biochemistry	PIBCG20	IEC: Psychology	The course is aimed to enhance the psychological skills for the students to acquire factual knowledge and ability to conceptualize and apply in their life.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Describe Language acquisition and the role Language plays in Communication and Thought.

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M.Sc. Biochemistry	PIBCH20	IEC: Entrepreneurial Biochemistry	The course provides detailed knowledge on ideas, opportunities and components necessary for bio-entrepreneurship.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Develop research skills and practice life science in an ethical and responsible manner	Develop and validate skills needed to run a business successfully.
M.Sc. Chemistry	PCCHG20	Practical I: Organic Chemistry I	Acquire basic skills to prepare and analyze organic compounds.	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate an ability to conduct experiments and perform accurate quantitative measurements with an understanding of the theory and develop practical skills in handling analytical instruments. Interpret experimental results, perform calculations on these results and draw reasonable, accurate conclusions. Assimilate and apply principles and concepts towards skill development, employability, critical and scientific approaches to address the problems	Identify the components in two component mixture and detect the functional groups.

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					and find solutions.	
M.Sc. Chemistry	PCCHH20	Practical II: Inorganic Chemistry I	Acquire basic skills to prepare and analyze inorganic compounds.	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate an ability to conduct experiments and perform accurate quantitative measurements with an understanding of the theory and develop practical skills in handling analytical instruments. Interpret experimental results, perform calculations on these results and draw reasonable, accurate conclusions. Assimilate and apply principles and concepts towards skill development, employability, critical and scientific approaches to address the problems	Demonstrate group separation and analysis of inorganic mixtures.

						and find solutions.
M.Sc. Chemistry	PCCHI20	Practical III: Physical Chemistry I	Demonstrate practical skills in carrying out experiments and acquire technical skills to handle equipments.	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate an ability to conduct experiments and perform accurate quantitative measurements with an understanding of the theory and develop practical skills in handling analytical instruments. Interpret experimental results, perform calculations on these results and draw reasonable, accurate conclusions. Assimilate and apply principles and concepts towards skill development, employability, critical and scientific approaches to address the problems	Prepare the solutions of different concentrations. Experiment and calculate the rate constant of ester hydrolysis and primary salt effect. Determine the order and energy of activation using kinetics. Construct and analyze phase diagrams, and examine the validity of Freundlich and Langmuir adsorption isotherms. Determine the rate constant using polarimeter and stability constant using photo colorimeter, and develop skills in handling colorimeter and polarimeter.

						and find solutions.
M.Sc. Chemistry	PICHG20	Research Methodology	To collect data scientifically and to compute their statistical parameters to arrive at meaningful conclusions.	Apply critical and scientific approaches to address problems and find solutions.	Interpret experimental results, perform calculations on these results and draw reasonable, accurate conclusions. Assimilate and apply principles and concepts towards skill development, employability, critical and scientific approaches to address the problems and find solutions.	Define research and its objectives, illustrate hypothesis testing, and draw the research plan. Carry out literature search offline and online to fix the research problem and illustrate the importance of IF, SCI, h index and i-index. Apply statistical analysis in research methodology. Describe the general format of thesis writing and the research ethics to be followed. Illustrate the safety measures to be taken in handling toxic, inflammable and explosive chemicals.

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M.Sc. Chemistry	PCCHP20	Practical IV: Organic Chemistry II	Carry out quantitative estimations of organic compounds, prepare simple organic compounds and interpret the spectral data of organic compounds.	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate an ability to conduct experiments and perform accurate quantitative measurements with an understanding of the theory and develop practical skills in handling analytical instruments. Interpret experimental results, perform calculations on these results and draw reasonable, accurate conclusions. Assimilate and apply principles and concepts towards skill development, employability, critical and scientific approaches to address the problems and find solutions.	Develop skills to perform two stage preparations of organic compounds and crystallize them. Calculate the saponification value of oil.

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M.Sc. Chemistry	PCCHQ20	Practical V: Inorganic Chemistry II	Carry out quantitative estimations of inorganic compounds, prepare inorganic complexes and interpret the spectral data of inorganic compounds.	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate an ability to conduct experiments and perform accurate quantitative measurements with an understanding of the theory and develop practical skills in handling analytical instruments. Interpret experimental results, perform calculations on these results and draw reasonable, accurate conclusions. Assimilate and apply principles and concepts towards skill development, employability, critical and scientific approaches to address the problems and find solutions.	Estimate the amount of metal ions in inorganic mixtures by volumetric and gravimetric methods.
M.Sc. Chemistry	PCCHR20	Practical VI: Physical Chemistry II	Perform physical experiments with technical skills and calculate the physical parameters.	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate an ability to conduct experiments and perform accurate quantitative measurements with	Apply laboratory skills to perform physio-chemical experiments. Demonstrate acid-base, redox and precipitation titrations using

					an understanding of the theory and develop practical skills in handling analytical instruments. Interpret experimental results, perform calculations on these results and draw reasonable, accurate conclusions. Assimilate and apply principles and concepts towards skill development, employability, critical and scientific approaches to address the problems and find solutions.	conductometry and potentiometry.
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	PCCSE20	Practical II: .Net Programming Lab	To learn the technologies of the .NET framework.	Assimilate and apply principles and concepts towards skill development &employability	To apply fundamental knowledge of computing and science relevant to the discipline	Create user interactive web pages using ASP.NET.
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	PECSE20	Elective IIIA: Internet of Things	To understand smart objects and IoT Architectures	Attain an in-depth knowledge in the respective domains augmented through self-learning	Contribute significantly to the research and the discovery of new knowledge and methods in the field of computer science.	Understand the fundamentals of IoT.

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M.Sc. Computer Science	PCCSO20	Practical V: Web Services Lab	Understand the basic concepts of web services	Assimilate and apply principles and concepts towards skill development &employability	To apply fundamental knowledge of computing and science relevant to the discipline	Understand, analyze and evaluate a system using web services.
M.Sc. Computer Science	PCCSP20	Practical VI: Mini Project	Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.	Assimilate and apply principles and concepts towards skill development &employability.	Contribute significantly to the research and the discovery of new knowledge and methods in the field of computer science.	To Apply algorithmic reasoning to a variety of computational problems
M.Sc. Computer Science	PCCSQ20	Project Work	Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.	Assimilate and apply principles and concepts towards skill development &employability.	Contribute significantly to the research and the discovery of new knowledge and methods in the field of computer science.	To Apply algorithmic reasoning to a variety of computational problems
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.	Acquiring and applying knowledge in shots, angles and camera movements.

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M.Sc. Electronic Media	PCEME20	Practical II - Writing for Broadcast Media	To train the students in the basics of writing for television news; developing a clear, concise and conversational writing style. This is coupled with emphasis on accuracy good	Integrate issues of social relevance in the field of study.	To become ethically committed media professionals and entrepreneurs by adhering to human values	Explain the basic writing skills for Broadcast Media.
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.	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 CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in	Assess the properties of Groups and Sylow's theorem.

					Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs.	
M. Sc. Mathematics	PCMAB20	Real Analysis - I	The course is designed to provide the concepts of Modern analysis which include Euclidean space of n dimension, metric space, functions of bounded variation, R-S integral, and Lebesgue integral.	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.	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 CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in	Understand n-dimensional space R^n and the metric space whose topology is uniquely determined by the algebraic structure.

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					Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global 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, Cauchy-Riemann relations and harmonic functions.	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.	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 CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in	Understand the elementary theory of power series and conformality to perform the linear transformation. Solve the integration in the complex plane by using the fundamental theorems. Be familiar with Cauchy's Integral Formula and the properties of analytical functions. Determine the local mapping and learn the general form of Cauchy's theorem. Have the knowledge on the concepts of solvability by radicals

					Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs.	
M. Sc. Mathematics	PCMAD20	Differential Equations	Course designed to demonstrate problem solving skills in the context of Differential Equation which includes Ordinary differential equation and dynamical 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.	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 CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in	Understand ordinary differential equations of various type, their solutions, and fundamental concepts about their existence. Obtain solutions of the Homogeneous equation with constant coefficient and Homogeneous equation with analytic coefficient. Comprehend the Bessel functions, Legendre equation, Legendre polynomials and Regular singular points. Know Picard's method of obtaining successive approximations of solutions of first order differential equations. Understand Eigen values and Eigen functions of

					Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs.	Strum-Liovuille systems, and obtain the solutions of initial and boundary value problems.
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.	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.	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 CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in	Understand the line integrals, deal with differential forms and calculate arc length, curvature of surfaces. 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

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				Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs.	
M. Sc. Mathematics	PEMAB20	Elective - I B: Mathematical Modeling	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	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.	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. Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve	Understand the mathematical basis of common algorithms, and the ability to calculate accurately and efficiently. Demonstrate the use of mathematical reasoning by justifying and generalizing patterns and relationships between the variables in the mathematical models. Formulate and qualitatively analyze mathematical models of a wide range of systems and processes. Recognize the types of Mathematical models and the complexity in each system. Recognize the power of mathematical modelling and analysis and be able to apply their understanding

					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.	to their further studies.
M. Sc. Mathematics	PIMAA20	Independent Elective I A: Fundamentals of Group Theory	Course designed to demonstrate problem solving skills in the context of fundamentals of groups which includes groups and subgroups.	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.	Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIR-NET, JRF, GATE, and SET.	Understand the importance of various types of Groups. Extend the knowledge in some important groups (Homomorphism and Isomorphism) Understand the concepts of fundamentals of finite abelian groups. Acquire benefits of Sylow's theorem and classify the Class equations. Solve various objective type problems using simple concepts.

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.	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 CSIR-NET, JRF, GATE, and SET.	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.
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.	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	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	Have knowledge on Modules and Canonical form.

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				address problems and find solutions.	develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs.	
M. Sc. Mathematics	PCMAF20	Real Analysis - II	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.	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	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	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.

| | | | | address problems and find solutions. | develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs. | |
| 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 | 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 | 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 | Apply specific methodologies, techniques and resources to conduct research and produce innovative results. Solve problems of heat conduction equation by using initial and boundary conditions. Use the knowledge of PDEs, to solve one dimensional wave |

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				address problems and find solutions.	develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs.	equation by canonical equation. Solve practical PDE and integral PDE problems with finite difference methods. Develop mathematical skills to solve problems involving convolutions.
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.	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	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	Define and understand basic mechanical concepts related to discrete and continuous mechanical systems. Describe and understand the motion of a mechanical system using Lagrange's equation. Use Euler-Lagrange equation to find stationary paths and understanding

				address problems and find solutions.	develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs.	the theory of variational principles. Acquire knowledge on Hamilton's principle and Hamilton's equation. Study the concepts of canonical transformations and solve the transformations by using Lagrange and Poisson brackets.
M. Sc. Mathematics	PEMAC20	Elective II A: LaTeX and MATLAB	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	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	Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve real-life problems.	Understand the mathematical basis of common algorithms in Latex. Demonstrate the use of mathematical equations, tables and figures in Latex. Demonstrate understanding and use of MATLAB software Construct one dimensional array, two

				address problems and find solutions.		dimensional arrays and basic functions in MATLAB. Recognize the power of mathematical modelling and analysis using MATLAB and be able to apply their understanding to their further studies.
M. Sc. Mathematics	PEMAD20	Elective II B: Fluid Dynamics	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.	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.	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 CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in	Understand the concepts of fluid flow Identify pressure of fluid in different kind of Motion Analyse the topics of Axi-Symmetric 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 Navier-Stokes Equations of Motion of a Viscous Fluid.

					Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs.	
M. Sc. Mathematics	PIMAC20	Independent Elective 2 A: Fundamentals of Ring Theory	Course designed to demonstrate problem solving skills in the context of Fundamentals of Ring theory which includes Rings, Sub rings and Types of Rings.	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.	Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIR-NET, JRF, GATE, and SET.	Demonstrate various characteristic of Rings. Extend the knowledge in Ideals, Fields of Quotients and polynomial rings. Validate primitive polynomials and Irreducible Polynomials. Acquire the knowledge in Field theory. Solve various types of problems in finite fields.
M. Sc. Mathematics	PIMAD20	Independent Elective 2 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.	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real-life examples and simulation results. Acquire profound	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

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| | | | | Apply critical and scientific approaches to address problems and find solutions. | knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIR-NET, JRF, GATE, and SET. | 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. |
| 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. | 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. | 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 CSIR-NET, JRF, GATE, and SET. Develop teaching, | Understand basis as a collection of basic open sets and the concepts of continuous functions and their properties in topological spaces. 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. Deal with the countability and separation axioms Know the theorems with |

					research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs.	the conditions under which a topological space can be embedded in metric space.
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.	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.	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 CSIR-NET, JRF, GATE, and SET. Develop teaching,	Find the solution in Numerical, Algebraic and transcendental equations. Solve the set of algebraic equations by direct and iterative methods. Analyze the values of a function for any intermediate value of the independent variable. Compute the numerical solution of various types of ordinary differential equations. Acquire the numerical solution of Partial Differential Equations.

					research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs.	
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 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.	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 CSIR-NET, JRF, GATE, and SET. Develop teaching,	Characterize probability models and function of random variables based on single and multiple random variables.

				research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global 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.	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.	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 CSIR-NET, JRF, GATE, and SET. Develop teaching,	Determine the feasible solution using Revised simplex method, Duality and bounded variable algorithm.

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					research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs.	
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.	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.	Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve real-life problems.	Understand the benefits and applications of OOP and distinguish C++ and JAVA. Gain knowledge about operators and its types. Define decision making statements and solve problems based on it. Develop the program by manipulating classes and methods in the Java programming language. Explore the Java programming by using arrays.

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M. Sc. Mathematics	PEMAG20	Elective III B: Programming with R	To learn the advanced language R that performs various complex statistical computations and calculations.	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.	Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve real-life problems.	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.
M. Sc. Mathematics	PEMAF20	Elective Practical : Java	To design and program stand-alone Java applications.	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	Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve real-life problems.	Implement programs with classes. Write programs that perform operations using arrays. Develop the program by decision making statements and solve problems based on it. Illustrate basic programming concepts such as program flow and

			address problems and find solutions.		syntax of a high-level general purpose language. Take a problem, figure out the algorithm to solve it and write the code.
M. Sc. Mathematics	PEMAH20	Elective Practical : R	To use R for descriptive statistics and write simple programs in R.	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.	Have the capability to apply the programming concepts of JAVA, MATLAB, and R language to model, formulate and solve real-life problems.	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 data frames. 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.
M. Sc. Mathematics	PIMAE20	Independent Elective 3 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	Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill	Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations	Utilize the basics of set theory and number system. Acquire the knowledge of Sequences and Series. Compute the Limit, Continuity and Differentiation of functions.

			examinations. Also, to train the students in self-paced independent learning.	development and employability. Apply critical and scientific approaches to address problems and find solutions.	approved by UGC like CSIR-NET, JRF, GATE, and SET.	Analyze the Transcendental functions such as Exponential, Trigonometric and Hyperbolic Functions. Evaluate the integral by Cauchy's Integral formula.
M. Sc. Mathematics	PIMAF20	Independent Elective 3 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.	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real-life examples and simulation results. 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.	Utilize the basic concepts of Research. Prepare the review of literature.
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.	Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real-life examples and simulation	Gain the knowledge of complete normed linear space and the Hahn Banach theorem.

				development and employability. Apply critical and scientific approaches to address problems and find solutions.	results. Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & life-long 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.	Attain an in-depth knowledge in the respective domains augmented through self -learning. Assimilate and apply principles and concepts towards skill	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real-life examples and simulation	Understand the functional and its applications. Also use the Euler-Lagrange equation to find the differential equations for stationary paths. Describe Du Bois-Reymond problem and

				development and employability. Apply critical and scientific approaches to address problems and find solutions.	results. Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs.	solve it. Solve differential equations for stationary paths subject to boundary conditions. Give an account of the foundations of calculus of variations and its applications in Mathematics and Physics. Apply direct methods to solve variational problems.
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.	Attain an in-depth knowledge in the respective domains augmented through self- learning. Assimilate and apply principles and concepts towards skill	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real-life examples and simulation	Understand the sample moments and their functions and analyze chi-square, Student-t, Fishers-Z distributions. Demonstrate the knowledge of the properties of parametric

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			development and employability. Apply critical and scientific approaches to address problems and find solutions.	results. Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs.	testing procedures.
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	Attain an in-depth knowledge in the respective domains augmented through self- learning. Assimilate and apply principles and concepts towards skill	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real-life examples and simulation

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			an accurate and deep understanding of their work.	development and employability. Apply critical and scientific approaches to address problems and find solutions.	results. Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & life-long 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.	Attain an in-depth knowledge in the respective domains augmented through self -learning. Assimilate and apply principles and concepts towards skill	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real-life examples and simulation	Identify subgraphs, cycles, paths and connection in graphs.

| | | | | development and employability. Apply critical and scientific approaches to address problems and find solutions. | results. Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIR-NET, JRF, GATE, and SET. Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs. | |
| 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 | Attain an in-depth knowledge in the respective domains augmented through self-learning. Assimilate and apply principles and concepts towards skill | Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real-life examples and simulation | Distinguish between crisp set and fuzzy set through bi-valued logic and infinite-valued logic. |

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| | | | situations. | development and employability.
Apply critical and scientific approaches to address problems and find solutions. | results.
Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations approved by UGC like CSIR-NET, JRF, GATE, and SET.
Develop teaching, research, and technical skills in Mathematics for employment in different sectors and enhance self-learning & life-long learning to compete at the global level and meet social needs. | |
| M. Sc. Mathematics | PIMAG20 | Independent Elective 4 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 | Acquire profound knowledge in Mathematics to develop a range of generic skills to qualify for the fellowship examinations | Analyze the theory of Partial derivatives. Compute Riemann Sum and Riemann integral. |

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				development and employability. Apply critical and scientific approaches to address problems and find solutions.	approved by UGC like CSIR-NET, JRF, GATE, and SET.	
M. Sc. Mathematics	PIMAH20	Independent Elective 4 B: Fundamentals of Research Methodology and Statistics - 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.	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real-life examples and simulation results. 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.	Analyze the needs and purpose of Experimental design. Prepare and Analyze the Questionnaire and compute the Statistical analysis of data.
MBA	PCBAE20	Statistical Methods for Research	Understand the basic concepts 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	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real-life examples and simulation	Understand the basic concepts in statistics. Solve different statistical concepts related to management.

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				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 life-long learning for personal and societal progress.	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.	
MBA	PCBAK20	Resource Management Techniques	Understand the basic concepts 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	Attain in-depth knowledge in Pure Mathematics through theorems and Applied Mathematics using real-life examples and simulation results. Inculcate research-level thinking in the field of pure and applied mathematics and apply theoretical knowledge to write	Understand the basic Operation Research concepts related to management. Analyse the real life situation using Transportation and Assignment problems.

				through multi/inter/trans-disciplinary perspectives. Persist in life-long learning for personal and societal progress.	the dissertation using the Mathematical software LaTeX.	
M.Sc. Physics	PCPHA20	Mathematical Physics – I	Inculcate the mathematical concepts for solving problems and to develop skills in solving problems	Assimilate and apply principles and concepts towards skill development and employability	Become Skilled to face competitive examinations.	Solve ordinary differential equations that are common in the physical-sciences Understand the characteristics of special functions to solve the physical problems Understand and use Dirac-delta function for describing physical systems and apply Green's function to solve partial differential equations.
M.Sc. Physics	PCPHC20	Statistical Mechanics	To understand the fundamental principles of thermodynamics and statistical mechanics to perform a quantitative calculations on ideal systems.	Assimilate and apply principles and concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions.	Inculcate the mathematical concepts for solving problems. Gain knowledge about various applications.	Define and discuss the concepts in thermodynamics and statistical mechanics. Differentiate classical and quantum statistics, explain the statistical behaviour of ideal system (Maxwell, Bose & Fermi) and calculate the statistical quantities.

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M.Sc. Physics	PEPHA20	Elective I A: Electronic Devices and Applications	To teach the students the methods of the fabrication of digital circuits and the devices used in the design of digital systems. To understand the principles of operational amplifier and its applications and digital communication.	Develop research skills through multi/inter/trans-disciplinary perspectives. Integrate issues of social relevance in the field of study.	Become Skilled to face competitive examinations.	Ability to understand about the basic principles and operations of opto electronic devices and their features and 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	To impart knowledge about Classical Mechanics, Electronics and Statistical mechanics for competitive Examinations.	Develop research skills through multi/inter/trans-disciplinary perspectives. Integrate issues of social relevance in the field of study.	Inculcate the mathematical concepts for solving problems. Gain knowledge about various applications. Become Skilled to face competitive examinations.	Describe and understand the motion of a mechanical system using Lagrange-Hamilton formalism. Design and analyze of electronic circuits Develop a digital logic and apply it to solve real life problems. To acquire knowledge about classical and Quantum statistical mechanics.
M.Sc. Physics	PIPHB20	IEP: Astro Physics	To make the students acquire the knowledge about the universe	Attain an in-depth knowledge in the respective domains augmented through self-learning. Apply critical and scientific approaches to address problems and find	Attain in depth knowledge on various areas of Physics Attain interest for higher education and research.	Explain stellar evolution, including supernovas, neutron stars, pulsars, white dwarfs and black holes, using evidence and presently accepted theories. Detail the presently

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			solutions. Develop research skills through multi/inter/trans-disciplinary perspectives.			accepted formation theories of the solar system based upon observational and physical constraints. Detail the main features and formation theories of the various types of observed galaxies, in particular the Milky Way.
M.Sc. Physics	PCPHD20	Mathematical Physics – II	Apply Laplace/Fourier transforms to solve mathematical problems and use Fourier transforms as an aid for analysing experimental data. Use various probability distribution methods to analysis any experimental event. Apply the concept of group theory in the domain of physical sciences.	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.	Apply Laplace/Fourier transforms to solve mathematical problems and use Fourier transforms as an aid for analysing experimental data. Use various probability distribution methods to analysis any experimental event. Apply the concept of group theory in the domain of physical sciences.
M.Sc. Physics	PCPHG20	Practical I: General	To understand the concepts and principles behind in experimental physics.	Assimilate and apply principles and concepts towards skill development and employability. Persist in life-long learning for personal and societal progress	Attain interest for higher education and research	Measure electrical, magnetic and thermo-dynamical properties of solids. Measure the thickness of glass plate (mechanical property) by using cornu's method

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| | | | | | | To find the wavelength of different colors through solar, mercury and hydrogen spectrum. Calculate the acceptance angle and light gathering capability and attenuation properties of optical fiber and find out the Viscosity, specific rotary power and polarizability of different liquids through various experiments. Develop the skills to take an accurate reading and analyze the results of experiments and to solve problems while handling with analytical instruments. |
| M.Sc. Physics | PCPHH20 | Practical II: Electronics | To understand concepts of sequential circuits and to analyze sequential systems and to analyze the different RC and LC oscillator circuits to determine the frequency of oscillation | Assimilate and apply principles and concepts towards skill development and employability. Develop research skills through multi/inter/trans-disciplinary perspectives. | Become Skilled to face competitive examinations. | Identify the various digital ICs and understand their operation. Develop a digital logic and apply it to solve real life problems. |

M.Sc. Physics	PEPHC20	Elective II A: Crystal Growth, Nano Science and Research Methodology	To learn the basic concepts in research methodology for pursuing future research work.	Assimilate and apply principles and concepts towards skill development and employability. Develop research skills through multi/inter/trans-disciplinary perspectives.	Become Skilled to face competitive examinations.	Provide a broad view of various approaches for the synthesis and fabrication of nanostructures and their outstanding properties useful to carry out their project and research work.
M.Sc. Physics	PIPHC20	IEP: Physics For Set/Net - Paper II	To recall and apply the knowledge about Mathematical Physics and Electromagnetic Theory for competitive Examinations	Assimilate and apply principles and concepts towards skill development and employability. Develop research skills through multi/inter/trans-disciplinary perspectives.	Become Skilled to face competitive examinations.	Understand the characteristics of special functions to solve the physical problems. Apply concepts of complex analysis to evaluate definite integrals, tensors, probability distribution methods and group theory in the domain of physical sciences.
M.Sc. Physics	PCPHI20	Spectroscopy	To analyse and interpret molecular spectra.	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-	Gain knowledge about various applications. 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

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				disciplinary perspectives.		material. Outline the methods, instrumentation and applications (any one application) for the following spectroscopic techniques: microwave, IR, Raman, NMR, NQR, ESR and Mossbauer spectroscopy.
M.Sc. Physics	PCPHK20	Microprocessor and Micro-controller	To design interface circuit and write program using Microprocessor & Microcontroller.	Assimilate and apply principles and concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions.	Attain in depth knowledge on various areas of Physics. Understand the various methods in the respective field.	Describe Hardware, different bus cycles and memory interface to 8085 Microprocessor. Develop programs using 8085 Microprocessor Instruction set and addressing modes. Describe and perform different types of peripheral interfaces to 8085 Microprocessor. Explain hardware, instruction set and addressing modes of Microcontroller 8051 and develop programming for basic operations. Describe and perform different types of external interfaces to 8051 Microcontroller.

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M.Sc. Physics	PEPHE20	Elective III A: Numerical Methods and C Programming	To impart the knowledge of numerical methods for solving problems arise in physics and to equip the students with the skill of C language.	Assimilate and apply principles and concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions.	Understand the various methods in the respective field. Inculcate the mathematical concepts for solving problems.	Understand and apply numerical concepts to solve equations and find missing values for any physical problems Solve ordinary differential equations using numerical techniques Develop simple programs using C language along with computational tools
M.Sc. Physics	PIPHE20	IEP: Physics For Set/Net - Paper III	To impart knowledge about Quantum Mechanics, Atomic & Molecular Physics and Spectroscopy for competitive Examination.	Assimilate and apply principles and concepts towards skill development and employability. Apply critical and scientific approaches to address problems and find solutions.	Inculcate the mathematical concepts for solving problems.	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 Frank-Condon 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	PCPHM20	Nuclear Physics and Particle Physics	To impart knowledge about nuclear-interactions, reactions, models and basic concepts in elementary particles.	Attain an in-depth knowledge in the respective domains augmented through self-learning Develop research skills through multi/inter/trans-disciplinary perspectives.	Inculcate the mathematical concepts for solving problems. Become Skilled to face competitive examinations.	Evaluate some basic nuclear parameters such as radius, BE, Q-value, nuclear spin, parity etc. Study the substructure and symmetries in elementary particles (SU (2) &SU (3)); apply Quark model to find the missing particle.
M.Sc. Physics	PCPHN20	Condensed Matter Physics	To relate crystal structure to symmetry, recognize the correspondence between real and reciprocal space. To know about the theories of metals and semiconductors To develop an	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. Understand the various methods in the respective field. Become Skilled to face competitive examinations.	Able to correlate the X-ray diffraction pattern for a given crystal structure. Able to differentiate between ferroelectric, anti-ferroelectric materials. Able to differentiate between type-I and type-II superconductors and their theories.

			understanding of the dielectric properties and ordering of dipoles in ferroelectrics.			
M.Sc. Physics	PCPHO20	Practical III: General	To provide the student hands-on experiences to conduct advanced general experiments in laboratory in lieu with the theory taught in the class.	Assimilate and apply principles and concepts towards skill development and employability. Assimilate and apply principles and concepts towards skill development and employability.	Attain in depth knowledge on various areas of Physics.	Interpret and appreciate the advanced concepts in physics. Use scientific equipment for analysis and data acquisition. CO4Apply acquired knowledge to the analysis of experimental data.
M.Sc. Physics	PCPHP20	Practical IV: Microprocessor, Microcontroller & C-Programming	To provide the students hands on training of programming knowledge on Microprocessor, Microcontroller and C language. To make the students develop the assembly language programs for arithmetic and peripheral interface operations.	Assimilate and apply principles and concepts towards skill development and employability.	Gain knowledge about various applications.	Develop assembly language programs on arithmetic and sorting operations using 8085 and 8051 Develop and perform peripheral interface programs with 8085 Microprocessor Perform all code conversions and analog signals into digital and vice versa. Also can generate wave forms. Write C program for any basic operations Solve any physical problems using C language along with

						numerical techniques.
M.Sc. Physics	PIPHG20	IEP: Physics For Set/Net - Paper IV	To impart knowledge about Nuclear & Particle Physics, Numerical Methods and Condensed matter Physics for competitive Examinations.	Assimilate and apply principles and concepts towards skill development and employability.	Attain in depth knowledge on various areas of Physics. Become Skilled to face competitive examinations.	Impart knowledge of finding solutions to any differential equations and Interpolation by using Newton's method, Simpson'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.
M.Sc. Zoology	PCZOG20	Core Practical I	Enable the students to develop practical skills	Assimilate and apply principles and concepts towards skill development and employability.	Demonstrate expertise in practical procedures and handling laboratory equipments/ instruments. Effective communicator, novel thinker to address the emerging needs.	
M.Sc. Zoology	PCZOH20	Core Practical II	Gain skills in various techniques.	Develop research skills through multi/inter/trans-disciplinary perspectives.	Demonstrate expertise in practical procedures and handling laboratory equipments/ instruments. Effective communicator, novel	

						thinker to address the emerging needs.	
M.Sc. Microbiology	PCMBG20	Applied Microbiology and Immunology	The course is designed to enable the learners to get hands-on training on various aspects of general, food, agricultural, environmental Microbiology and immune technology.	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.	Identify morphology of bacteria using different staining procedure and isolating them by pure culture techniques. Assess the quality of air, water, food and soil samples. Examine the activity of extracellular enzymes. Apply agglutination and precipitation methods to detect antigen and antibody. Select appropriate chromatographic methods to separate amino acids, pigments and from crude extracts.
M.Sc. Microbiology	PCMBO20	Textile and cosmetic Microbiology	The course is designed to provide hands-on training and acquire adequate skill required for testing the quality of cosmetics and textile materials.	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.	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.

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						Enumerate microorganisms in cosmetics, perfumes and essential oils.
M.Sc. Micro Biology	PEMBE20	Bioinoculants Technology	The course structure provides an understanding on the potentials of microbes as fertilizers and their beneficial impacts in soil and agriculture aiding in the mass inoculum production of microbes.	Assimilate and apply principles and concepts towards skill development and employability.	Incorporate effective career with marketing, project management, business development or venture capital within the biotech, pharmaceutical, medical technology or related fields.	Outline the importance of bioinoculant technology and discuss on the significance of bio fertilizers. Demonstrate the mass production and applications of bio fertilizer and their impact on plant growth. Identify in-depth information on the mycorrhizal taxonomy, occurrence and distribution. Explain the types of mycorrhizal associations and quantification.

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