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KARNATAKA STATE AKKAMAHADEVI WOMEN UNIVERSITY, VIJAYAPURA

COURSE OUTCOMES OF THE DEPARTMENT

1. Department of Food Processing and Nutrition

Semester	Name of the Course Code	Outcomes /Objective
Semester I	FPN-HCT 1.1 Food Biochemistry	• Recognize, distinguish and describe the molecular structures and properties of majorfood components. • Relate molecular structure to properties of compounds found in food. • Analyze and predict how the composition and conditions within a food influence thefunctional properties of food molecules. • Describe major food chemical reactions and their mechanisms. • Relate key chemical groups on food molecules to their role in common reactionmechanisms of importance in foods. • Analyze and predict how the composition of foods with regard to carbohydrates,lipids, protein and water influence their stability. • Examine and assess implications for food formulations for achieving objectives offood quality and palatability, cost and healthfulness. • Analyze and interpret the role of food chemistry in practical food situations.
	FPN – HCT 1.2 Fundamentals Of Human Physiology	• Explain physiological processes of all body systems in detail • Explain the role of body systems and mechanisms in maintaining homeostasis • Recognize and to apply the basic concepts that govern integrated body function in the body's organ systems.
	FPN – HCT 1.3 Principles Of Human Nutrition	• Demonstrate an informed and in-depth understanding of the role of nutrients in the maintenance of health and in the prevention or causation of disease or dysfunction throughout the human lifecycle. • Critically discuss body composition measurement techniques and analytically appraise the validity and applicability of methods in human nutrition
	Technical Writing Skills FPN -SCT 1.6.1	• Participate actively in writing activities that model effective scientific and technical writings that use appropriate formats and conventions derived from individual disciplines. • Understand how to apply scientific information and knowledge in practical documentsrelated to nutrition research • Design and produce a scientifically sound research project appropriate to the student'smajor and/or career interests. • Write scientific papers according to professional guidelines. • To know the different types of technical writing communications, data collection and research designs and measures.

		• To be familiar with writing chapters/ parts of a thesis and dissertation where they can collect, analyze, document and report research clearly
	Nutrition And Physical Fitness FPN – SCT 1.6.2	• Explain how the principles of fitness and nutrition (such as body composition, energy intake, energy expenditure, and the acute and chronic physical changes related to exerciseand nutrition) complement each other in helping to develop physiological well-being and overall health. • Explain how the principles of fitness and nutrition (such as setting realistic short-term behavior change goals and the relationship of exercise and diet to stress reduction) complement each other in helping to develop psychological well-being and overall health. • Identify some of the social and cultural influences on food habits and exercise/activity patterns.
	Unit Operations Food Industries FPN – SCT 1.6.3	• Familiar with basic unit operation principles of several food processing methodsincluding thermal pasteurization, retorting, blanching, freezing, dehydration, advanced thermal preservation (aseptic processing, ohmic heating, microwave heating), nonthermal processing (high pressure processing, pulsed electric field processing, irradiation), separation and concentration, and extrusion. • Learn basic components of different process equipment and unit operation associated with them. Role of packaging material in food preservation. • Identify key food processing and product parameters that can influence microbiological safety and quality of the processed product. • Appreciate the importance of integrating engineering, chemistry, microbiology and other disciplines for processing microbiologically safe, wholesome foods.
SEMESTER II	Food And Industrial Microbiology FPN – HCT 2.1	• Understand the beneficial role of microorganisms in fermented foods and in food processing and the microbiology of different types of fermented food products – dairy, pickles, Legume and cereal based food products • Understand the significance and activities of microorganisms in food and role of intrinsic and extrinsic factors on growth and survival of microorganisms in foods • Know the spoilage mechanisms in foods and thus identify methods to control deterioration and spoilage • Recognize and describe the characteristics of important pathogens and spoilagemicroorganisms in foods. • Learn variousmethods for their isolation, detection and identification ofmicroorganisms in food and employ in industries • Identify ways to control microorganisms in foods and thus know the principlesinvolving various methods of food preservation • Understand of the basis of food safety regulations and discuss the rationale for theuse of standard methods and

		procedures for the microbiological analysis of food.
	Food Analysis FPN – HCT 2.2	• Describe and use principal analytical methods used for quantifying the composition offood • Interpret and report data derived from chemical experiments/analysis in a meaningfulway • Learn handling of instruments in analysis of food components
	Food Processing FPN – HCT 2.3	• Describe the source and variability of raw food material and their impact on foodprocessing operations. • Explain the spoilage and deterioration mechanisms in foods and methods to controldeterioration and spoilage. • List the principles that make a food product safe for consumption. • Describe the transport processes and unit operations in food processing asdemonstrated both conceptually and in practical laboratory settings. • Operate the mass and energy balances for a given food process. • Describe the unit operations required to produce a given food product. • Explain the principles and current practices of processing techniques and the effectsof processing parameters on product quality. • Explain the properties and uses of various packaging materials. • Describe the basic principles and practices of cleaning and sanitation in foodprocessing operations. • Identify the requirements for water utilization and waste management in food and foodprocessing.
	Food Product Development FPN-SCT 2.6.1	• Review advances in flavor and ingredient science and technology; • Apply a product development process to generate ideas, design, develop and evaluatenew products and their markets; • Apply principles of project management and work as a member of a team to bring aproduct development project to completion; • Demonstrate skill in the application of standard methods for the measurement andevaluation of sensory differences; • Evaluate models for the definition and assessment of quality in manufactured foodproducts;
	Maternal And Child Nutrition FPN – SCT 2.6.2	• To know the importance of maternal nutrition, factors affecting the pregnancyoutcome as well as the complications during pregnancy. • To have knowledge of physiological and metabolic adaptations during pregnancy andlactation. • Will know the growth and development and feeding practices of infant and childhood. • To be scientifically knowledgeable about the nutritional requirements duringpregnancy, lactation, infancy and childhood.

	Food Packaging Technology FPN – SCT 2.6.3	• Comprehend the overview of the scientific and technical aspects of food packaging • Understand packaging machinery, systems, testing • An insight to food packaging laws and regulations • An understanding of packaging requirement and packaging designing of food.
III SEMESTER	Clinical Nutrition FPN – HCT 3.1	• Comprehensive nutrition assessment • Interpret the clinical parameters for planning the nutritional therapy for medicalconditions • Determine medical nutrition therapy for a various medical condition • Use the Nutrition Care Process to make decisions, identify nutrition-related problemsand determine and evaluate nutrition interventions.
	Public Health Nutrition FPN – HCT 3.2	• Students will be able to interpret and apply nutrition concepts to evaluate and improvethe nutritional health of communities. • Determine and translate nutrient needs into menus for individuals and groups acrossthe lifespan, in diverse cultures and religions, and for different income levels. • Plan a community intervention based upon a needs assessment • Advocate for a public policy related to nutrition programs or health care
	Nutraceuticals And Functional Foods FPN – HCT 3.3	• Explain the regulatory basis of functional food products on India, EU and U.S.market • List the types of functional foods available for health benefits • Demonstrate the knowledge of the scientific basis and technologies available tosuggest potential new functional food products
	Food Service Management FPN – SCP 3.5.1	• Manage the human resources within a food services organization or department • Communicate appropriately with clients, staff and management • Apply food services technology and operate industry equipment • Develop nutritional menus for food service production • Manage food service production • Demonstrate professional behaviors expected within the food service industry • Manage food services budgets
	Food Fortification and Food Enzymes FPN-SCT 3.5.2	• Preventing or reducing the risk of or correcting a demonstrated deficiency of one ormore essential nutrients in the population or specific population group • Reducing the risk of or correcting, inadequate nutritional status of one or moreessential nutrients in the population or specific population group

		• Meeting requirements or recommended intake of one or more essential nutrients • Maintaining or improving health and nutritional quality of foods • Know the use of different enzymes in processing of different food products and theirimportance and ease of using enzymes
	Nutrition Education and Counseling FPN – SCT 3.5.3	• Students will be able to demonstrate a variety of communication strategies in nutritionand food education emphasizing information technology • Produce oral and written communications for a group education session • Interview individuals for diet histories • Counsel individuals
	Nutrition And Healthy Lifestyle FPN- OET - 3.6	• Determine and translate nutrient needs into menus for individuals and groups acrossthe lifespan, in diverse cultures and religions, and for different income levels. • Will develop the capacity to collect pertinent information for comprehensive nutritionassessments based on different indicators at individual and community level. • Summarize health promotion and disease prevention theories and guidelines andexplain the role of food and nutrition in promotion of a healthy lifestyle • Will able to read and understand the concept of food labeling and can understand theflaws in effective nutrition labeling practiced in the food items. • Will learn about the basics of food safety and safe handling of food to reduce thecontamination of food at different production level from farm to the fork.
SEMESTER IV	Diet Designing in Diseases FPN-HCT 4.1	• Students able to understand principles of diet therapy, modification ofnormal diet for therapeutic purposes and the role of dietitian. • Students able to demonstrate counseling techniques to facilitate behavior change.Identify and describe the roles of others with whom the registered dietitian collaborates in the delivery of food and nutrition services. • Students able to understand the causes, symptoms, risk factors and dietarymanagement of different disease conditions like DM, gall bladder & pancreas, kidney and liver diseases.
	Dissertation FPN –HCP: 4.3	• To know the basic concepts in research • To gain practical knowledge in research design • To gain the experience in research methodology
	Food Quality, Safety and Certification FPN – SCT 4.4.1	• • Develop a HACCP plans for different food industries • Learn HACCP certification • Understand laws and regulations governing food safety principles (FSMA, HACCP) • Understand industry food safety requirements and certifications: organic, halal,kosher etc. • Understand auditing, and different auditing schemes, and be

		able to complete internal(first party) audits
	Food Additives FPN – SCT 4.4.2	• Students will acquire competence in the proper use of additives in safe food production • Will be knowledgeable about the safety and use of diverse food additives in the food industries for various purposes • Characteristics of food additives as linked to the physical and chemical properties of the additives as well as their functionality and mode of processing/utilization in the processing • Food additives for various end purposes: nutritional additives, flavoring agents, flavor enhancers, sweeteners, antimicrobial agents, emulsifiers, commercial starches etc. • Toxicity level of food additives together with the margin of safety of food additives use in the food industries
	Food Toxicology FPN – SCT 4.4.3	• To understand the basic concepts of food toxicology that exert injurious effects onhuman health when the toxic food is consumed • To comprehend the impact and risk of different types of toxins, such as microbial andchemical toxins to human health • To address and discuss the issues related to the • chemical induced toxicities • To understand the effect of effective food packaging system and the packaging materials that might act to reduce the food toxicity level in the food chain. • To know about the functions and policy and mode of actions of different national andinternational organizations who dealt with the food safety to reduce food toxicology. • Overall, the goal of this course is to provide the students an intellectual platform to comprehend the potential adverse effects of foreign compounds into the biological system through the food
	Indian Traditional Foods FPN – OET 4.5:	• Describe the significance of Indian foods in adding flavor to tradition and culture • Able to list the foods of different regions of India
2. Department of Zoology		
Semester I	Animal Systematics HCT-1.1	• Systematics today is an exciting and active branch of biology and it is to be greatly wished that more students of life sciences take up systematics as their research field. • In its broader sense, it is nothing less than a thorough and complete study of the diversity of living forms, and its domain thus encompasses ecology, evolutionary biology and biodiversity studies, in addition to the norms and principles of classification. • Systematics has great relevance to the biological control of pests which is itself a very important aspect of applied biology.
	Biology Of Non-Chordates HCT-1.2	• Able to know the insights of biological systems of the non-Chordate phyla. • Able to understand the organs' structure and its functions pertaining to a system. • Able to understand and differentiate the mechanism of the

		systems like Locomotion, Nutrition, Respiration etc., among the phyla. • Able to analyses how these non-Chordates are equipped with complex body mechanisms and functions. • To signify local biodiversity
	Cell And Molecular Biology HCT- 1.3	• After completing the course, Students will be able to: • Understand and utilize the scientific vocabulary used in communicating information in cell and molecular biology. • Represent and illustrate the structural organization of genes and the control of gene expression. • Conceptualize and describe protein structure, folding and sorting. • Explain the structure of membranes and intracellular compartments and relate these to function. • Relate how cell movement and cell-cell communication occur and discuss mechanisms of signal transduction. • Outline the processes that control eukaryotic cell cycle and cell death. • Link the rapid advances in cell and molecular biology to a better understanding of diseases.
	Basic And Applied Entomology **SCT-1.4**	• Attain a solid foundation in insect biology, general entomology, basic systematics, morphology, physiology and biodiversity. • Develop the ability to design and perform a scientific study on insects, and to analyze results. • Gain appreciation of insect in society and human affairs.
	Biodiversity And Conservation **SCT-1.4 b**	• Biodiversity is also considered to have intrinsic value, economic, ecological life support, recreation, cultural and sustenance.
	Vectors And Communicable Diseases. **SCT-1.4 c**	• Basic scientific awareness and identification of vectors and their health implications.
	Environmental Biology **OET-1.8**	• Awareness and conservation attitude, to develop action plan for sustainable development, waste management and bioremediation ideas.
Semester II	Biology Of Chordates **HCT-2.1**	• Describe the body plan & phylogenetic inter-relationships of protochordates and their unique characteristics. • Understand the origin & evolutionary relationship among the different groups of chordates. • Know the diversity in snakes and the current status of reptilian fauna. • Describe the behavioral aspects of reproduction in chordate groups. • Describe the anatomical differences among different chordate groups.
	Molecular Genetics **HCT-2.2**	• Link the rapid advances in cell and molecular biology to a better understanding of diseases, including cancer. • The tools used in molecular genetics, and their potential applications to medical and veterinary science and R&D.

	Developmental Biology **HCT-2.32.6.1**	• Differentiate between embryology and developmental biology. • Understand the very basic embryonic developmental processes in different organisms. • List out the different stages of both embryonic and post embryonic development. • Understand that embryonic development is affected by external factors leading to abnormalities. • Describe the differentiation of cells and underlying chemical communication mechanism. • Describe the different stages that animals pass through before reaching the final structure.
	Economic Zoology **SCT-2.4a**	• Opportunities in terms of employability, entrepreneurship and research.
	Ornithology **SCT-2.4.c**	• To understand basic biology of Birds • To recognize and identify regional major Avian groups. • To recognize Avian species by Sound and Sight. • To gather information regarding the timing and routing of migration, survival rates, social structures, population trends and more.
	Vectors And Communicable Diseases **OET-2.9**	• Basic scientific awareness and identification of vectors and their health implications
Semester III	Animal Physiology **HCT- 3.1**	• Know the historical aspects of animal physiology, its disciplines and its importance in Zoological studies. • Understand how the animal body functions with the help of various control & co-ordination centers. • Describe about the organs and their structures pertaining to their physiology. • Describe about the flow of energy that is required to run the metabolism. • Understand about the various strategies that different animals undertake to survive their habitats
	Endocrinology And Reproductive Biology **HCT-3.2**	• Know the importance of long-term co-ordination & communication between Endocrine & Reproductive Physiology. • Narrate the anatomy and physiology of reproduction. • Describe the different Assisted Reproductive Techniques (ARTs) & fertility control methods that are much required today. • Know the importance of growth factors & hormones in the current research field. • Know the comprehensive knowledge of hormones and their respective actions.
	Animal Behaviors **SCT-3.3a**	• Students acquire knowledge of key concepts and principles and overarching themes in animal behavior, animal cognition, conservation psychology/biology, animal welfare science, comparative psychology and research methods. • Students acquire credentials for employment in fields related to Animal Behavior and Conservation. • Students learn to reason scientifically, gain information literacy skills, interpret statistical information, and learn to interpret

		and design studies in animal behavior and cognition and also to apply ethical standards in conducting and evaluating psychological and behavioral research, build and enhance interpersonal relationships, adopt values that build community at local, national, and global levels.
	Toxicology **SCT-3.3C**	• Ideas about biomonitoring, alternative ways of pest control • Pros and cons of pesticide application
	Parasitology **OET-3.8**	• Generates skilled human resource to address parasite borne diseases. R&D in various related disciplines.
Semester IV	Environmental Biology **HCT-4.1**	• Awareness and conservation attitude, to develop action plan for sustainable development, waste management and bioremediation ideas.
	Animal Biotechnology **HCT- 4.2**	• Having in-depth knowledge about cell culture techniques used in the laboratory conditions. • Desiring to take up Research & Development activities. • Aware about the legal pros & cons of the field. • Having awareness about advancement in vaccination and DNA derived products for therapeutics
	Economic Zoology **OET-4.6**	Opportunities in terms of employability, entrepreneurship and research

3. DEPARTMENT OF BIOTECHNOLOGY

Semester I	HCT-1.1: Cell Biology	• Acquire knowledge about the organizational and functional aspects of cell and cell organelles. • Learn about the interactions of the cells with outside environment through exchange of informationand transport of molecules. • Learn about the classical genetics and transmission of characters from one generation to the nextwhich will make foundation for the advanced genetics. • Develop innovative research ideas for curing genetic disorders in humans.
	HCT-1.2: Biochemistry	• Know the chemical constituents of cells, the basic units of living organisms. • Explain various types of weak interactions between the biomolecules. • Know how the simple precursors give rise to large biomolecules such as proteins, carbohydrates,lipids, nucleic acids. • Correlate the structure-function relationship in various biomolecules. • Know the role of biomolecules for orderly structures of the cells/tissues.
	HCT-1.3: Biophysical and Biochemical techniques	• Concept of electromagnetic radiation, absorption spectrum, Beer's law and Lamberts law. • Principle, working and applications of spectrophotometer and AAS. • Concepts of chromatography and concept of partition coefficient. • Principle, methodology and application of various chromatographic techniques. • Principle, methodologies and application of electrophoric

		separation of biomolecules.
	SCT-1.4 a: Bioinformatics	• Describe the important computer system resources and the role of operating system in theirmanagement policies and algorithms. • Understand the process management policies and scheduling of processes by CPU • Evaluate the requirement for process synchronization and coordination handled by operatingsystem • Describe and analyze the memory management and its allocation policies. • Identify use and evaluate the storage management policies with respect to different storagemanagement technologies. 6. Identify the need to create the special purpose operating system.
	SCT-1.4 b: Biostatics	• Defining the type and quantity of data need to be collected. • Organizing and summarizing the data. • Analyzing the data and drawing conclusions from it. • Assessing the strengths of the conclusions and evaluating their uncertainty.
	SCT-1.4 c: Enzymology	• It helps the students to learn the significant features of the biochemical catalysts. • It helps the students to learn the methodology involved in assessing the enzyme activity andmechanism of enzyme action. • It illustrates the enzyme catalysis, kinetics and regulatory aspects.
	HCP-1.1: Cell Biology	• This gives them a strong foundation on the basic unit of life. • At the end of the course, the student has a strong foundation on the functions of the cell.
	HCP-1.2: Biochemistry	• 1.They acquire knowledge in the quantitative and qualitative estimation of biomolecules2. They study the influence and role of structure in reactivity of biomolecules • 3. At the end of the course, the students have a thorough understanding on the role of biomoleculesand their functions
	HCP-1.3: Biophysical and Biochemical techniques	• This skill-based course will teach the students the various instrumentations that are used in the analytical laboratories. • 2. On completion of the course, students will be able to understand: biophysical techniques for carrying out research in life sciences
	SCP-1.4: Bioinformatics	• Introduces the students to concepts in bioinformatics • The student will be able to apply basic principles of biology, computer science and mathematics to address complex biological problems • Introduces the students to the basics of computer operations • The student is imparted with knowledge on both hardware and software. • The student has a better understanding on the use of computers for various applications

Semester II	HCT-2.1: Molecular Biology	• It deals with understanding the molecular aspects of the biology. • It majorly emphasizes the concepts of central dogma of molecular biology spanning from DNA Replication till Protein Synthesis and Reverse transcription. • It also helps in understanding the concepts of cellular function.
	HCT-2.2: Microbiology	• This fundamental paper discusses the importance of microorganisms • The course throws light on types of microorganisms in and around humans • At the end of the course, the student has understanding on the metabolism and mechanism of microbial life
	HCT-2.3: Immunology	• This course gives an overview on the immune system including organs, cells and receptors • The students learn about molecular basis of antigen recognition, hypersensitivity reaction, antigen-antibody reactions • The course develops in the student an appreciation for principles of immunology and its applications in treating human diseases
	SCT-2.4: a. Research Methodology Bioethics and IPR	• The outline of the course is to introduce the students to research methodology, precision and accuracy, cohort studies and quality control. • □ At the end of the course the students will be able to apply their learning to design experiments meeting the international guidelines
	SCT-2.4: b Enzymology	• It helps the students to learn the significant features of the biochemical catalysts. • It helps the students to learn the methodology involved in assessing the enzyme activity and mechanism of enzyme action. • It illustrates the enzyme catalysis, kinetics and regulatory aspects.
	SCT-2.4: c. Biotechnology and human welfare	• Types of Biotechnology, Steps in any biotechnological process • Introduction to Biotechnology Protein engineering; enzyme and polysaccharide synthesis, activity and secretion, alcohol and antibiotic formation. • development of non-toxic therapeutic agents, recombinant live vaccines, gene therapy, diagnostics, monoclonal in E. coli, human genome project.
	HCP-2.1: Molecular Biology	• Describe the evolution, diversity and replication of cells • The objective of this laboratory course is to provide the students practical skills in basic molecular biology and microbial bioresources.
	HCP-2.2: Microbiology	• Students will gain knowledge about the different cell organelles of microorganisms and their detailed functions. • 2. Students will also study the growth and control of microbes as well as different bacteriological techniques involved in microbiology
	HCP-2.3: Immunology	• laboratory testing and clinical consultation in several broad areas including the evaluation of • autoimmune disease, immunodeficiencies, immunoproliferative disorders, and allergy, as well as having responsibility for some aspects of infectious disease serology.

	SCT-2.4: a. Research Methodology Bioethics and IPR	• Explain and apply techniques for scientific writing and research methodology to prepare the writing of a scientific report. • perform investigation using methods, explain and take position on the results as well as summarize related work • Apply the knowledge in scientific writing and research methodology and use the knowledge to write a scientific report.
Semester III	HCT-3.1: Genetic Engineering	• This course is an amalgamation of principles of engineering with genetics. • The students learn techniques in separation, gene construction, and gene therapy. • By the end of the course, the student would be able to demonstrate the role of genetic engineering in gene therapy and its applications in agriculture and medicine
	HCT-3.2: Plant Biotechnology	• Acquire the knowledge about the techniques of Plant Tissue Culture, Lab. organization & measures adopted for aseptic manipulation and nutritional requirements of cultured tissues. • Learn the techniques of culturing tissues, single cells, protoplasts & anther culture, germplasm conservation and cryobiology • Learn the large-scale clonal propagation of plants through various micropropagation techniques, Production of secondary metabolites under in vitro conditions • A good understanding of r-DNA technology, methods of gene transfer, molecular markers and marker assisted selection • Develop transgenics resistant to biotic & abiotic stresses & quality characteristics and • their role in crop improvement.
	SCT-3.3: a. Animal Biotechnology	• Understand the fundamental scientific principles that underlie cell culture • Acquire knowledge for isolation, maintenance and growth of cells. • Develop proficiency in establishing and maintaining of cell lines. • 4. Acquire knowledge in animal cloning and its applications.
	SCT-3.3: b. Phytopharmaco logy ology	• 1. On completion of this course, students would be able to understand basics of drug discovery and development which would enable them able to apply knowledge gained in respective fields of pharmaceutical industry.
	SCT-3.3: c. Nanobiotechnol ogy ology	• Students will acquire knowledge on the basic concepts of biological nanomaterials • and their utility in health, agriculture and environment.
	HCP-3.1: Genetic Engineering	• Describe the different methods to clone the DNA. • Discuss how recombinant DNA is formed. • Explain how Cloning works by using different systems. • State the basic features of the gene expression systems.
	HCP-3.2: Plant Biotechnology	• 1. Explain the basics of the physiological and molecular processes that occur during plant growth and development and during environmental adaptations.
		• Understand how biotechnology has been used to develop knowledge of complex processes that occur in the plant. • Use basic biotechnological techniques to explore molecular

		biology of plants. • Understand the processes involved in the planning, conduct and execution of plant biotechnology experiments.
	SCP-3.3: Animal Biotechnology	• Be able to describe the structure of animal genes and genomes. • Be able to describe how genes are expressed and what regulatory mechanisms contribute to control of gene expression. • Be able to describe basic principles and techniques in genetic manipulation and genetic engineering. • Be able to describe gene transfer technologies for animals and animal cell lines.
	HCP-3.4: Entrepreneurship and Startup Studies *	• 1. Graduates will demonstrate an ability to engage in critical thinking by analyzing situations and constructing and selecting viable solutions to solve problems.
Semester IV	HCT-4.1: Medical Biotechnology and Clinical Research	• Hands-on training and mandatory research projects will help our students by providing knowledge and technical experience of problem-solving in a research environment. • Students after completing this course can become entrepreneurs in the most demanding sector of medical biotechnology such as diagnostics, drug designing, stem cell biology etc. • Students will develop an ability to identify, organize and answer problems in Medical Biotechnology • Students will develop an ability to use skills and modern technological tools necessary for medical biotechnological practice. • Perform independent as well as team work to accomplish lab-based tasks. • Become a part of mission-Skill India- to develop researcher and scientists to uncover advance biology problems.
	SCT-4.2: a. Industrial Biotechnology	• The course aims to provide fundamental insights to exploit microbes for manufacturing of products which have huge industrial significance. • The course blends science and engineering with various biochemical processes to obtain products such as food, chemicals, vaccines, medicine. • At the end of the course, the student will have a better appreciation for the role of biotechnology in industry using microbes.
	SCT-4.2:b. Vaccine Technology	• Aware of the strategies available for developing an innovative vaccine technology with different mode of vaccine delivery. • Able to explain the significance of critical antigens, immunogens and adjuvants in developing effective vaccines. • Aware of the regulatory issues, guidelines for the management of production of vaccine.
	SCT-4.2:c. Food Technology	• Students in this course will learn about microbes in food, spoilage of food and preservation techniques of food. • Through this course, they also learn about microbiology of milk, fermented dairy products, industrially important microorganisms and process of industrial production of alcohol, beer, wine, SEP and mushrooms. • 3. At the end of the course, the student will be able to use

		the preservation techniques for food and use this experience to be employed as quality control experts
	HCPW-4.3: Project work*	• 1. The aim of the project is to test the independent research skills students have acquired during their time at university, with the assessment used to help determine their final grade.
	HCP-4.1: Medical Biotechnology and Clinical Research	• To provide the detailed knowledge of key concepts are applied in areas of specific relevance to medical and pharmaceutical applications. • To develop the practical laboratory skills with various opportunities for hands-on experience • in a range of current techniques and practices such as mammalian cell culture and fermentation.
	SCP-4.2. Industrial Biotechnology	• Describe the main steps and processes used to produce biological products in industry, • Discover new useful microorganisms and store them reliably for later use. • Evaluate which molecular techniques are applicable to improve production.
4. DEPARTMENT OF PHARMACEUTICAL CHEMISTRY		
First Semester	PCHC1.1 Inorganic chemistry-I	• CO -1 The students learnt the skils in Inorganic chemistry • CO -2 The students shall have knowledge on atomic structure periodic propertiesand chemical bonding • CO -3 They understand the chemical and physical properties of elements in theperiodic table • CO -4 They understand the theories in Inorganic chemistry
	PCHC1.2 Organic chemistry-I	• CO -1 The students shall have basics and fundamental theories of organicchemistry • CO -2 They understand the nature of bonding and aromaticity in organic chemistryCO -3 They acquired knowlwdge of substitution reaction occurring in organic molecule • CO -4 They understand electron delocalisation and its effect on stability andreactivity
	PCHC1.3 Physical chemistry-I	• CO- 1 The students shall have ideas on physical phenomeanon on chemicalthermodynamics and chemical kinetics • CO -2 The students shall get introduced to basics and applicatuion of chemicalthermodynamics • CO -3 They acquired the knowledge of catalysis and electrochemistry in solutionstate • CO -4 They understood the basics of corrosion , corrosion control and itsapplication
	PCHC 1.4 Analytical Chemistry-I	• CO -1 They understood the concepts of classical metods of analysis like titrametry , • gravimetry • CO -2 The students shall have knowlwdge of purity and separation techniquesCO -3 They acquired basics of electroanalytical techniques
	PCHC 1.4 Analytical Chemistry-I	• CO -1 They understood the concepts of classical metods of analysis like titrametry , • gravimetry • CO -2 The students shall have knowlwdge of purity and separation techniques CO -3 They acquired basics of electroanalytical techniques

Second Semester	PCHC2.1 Inorganic chemistry-II	• CO -1 The students learnt the skils in Inorganic chemistry • CO -2 The students shall have knowledge on catalysis and synthesis oforgnomrtalic compounds • CO -3 They understand symmetry of elements and group theory • CO -4 They understand the propertis and structure of non transition elements
	PCHC2.2 Organic chemistry-II	• CO -1 The students shall have idea on rearrangement and synthesis of organicreagents • CO -2 They understood the chemical reaction and sysnthesis of heterocycliccompounds • CO -3 They acquired knowlwdge of rearrengment and reactions of pericycliccompounds • CO -4 They understood principle and synthesis of combinatorial constituent
	PCHC2.3 Physical chemistry-II	• CO- 1 The students shall have ideas on solid state chemistry and nano materialsCO -2 The students shall get introduced to basics and applicatuions and commercial importance of polymers • CO -3 They acquired the knowledge of thermal and photochemical reactions CO -4 They understood the principle of general and specific acid bace catalysis • reactions
	PCHC2.4 Analytical Chemistry-II	• CO -1 They understood the concept of statistical treatment of samples usinganalytical data • CO -2 The students shall have knowledge general principles, properties ofprecipitates and acid base titration • CO -3 They acquired basics of precipitation and complexometric titration using edta • CO -4 They get knowledge of instrumentation and calibration of flame photometry
Second Semester	**PCHC 2.1** Inorganic chemistry-II	• CO -1 The students learnt the skils in Inorganic chemistry • CO -2 The students shall have knowledge on catalysis and synthesis of organometallic compounds • CO -3 They understand symmetry of elements and group theory • CO -4 They understand the propertis and structure of non-transition elements
	PCHC 2.2 Organic chemistry-II	• CO -1 The students shall have idea on rearrangement and synthesis of organic reagents • CO -2 They understood the chemical reaction and sysnthesis of heterocyclic compounds • CO -3 They acquired knowlwdge of rearrengment and reactions of pericyclic compounds • CO -4 They understood principle and synthesis of combinatorial constituent
	PCHC 2.3 Physical chemistry-II	• CO- 1 The students shall have ideas on solid state chemistry and nano materials CO -2 The students shall get introduced to basics and applicatuions and commercial importance of polymers • CO -3 They acquired the knowledge of thermal and photochemical reactions CO -4 They understood the principle of general and specific acid bace catalysis • reactions

	PCHC 2.4 Analytical Chemistry-II	• CO -1 They understood the concept of statistical treatment of samples using analytical data • CO -2 The students shall have knowlwdge general principles, properties of precipitates and acid base titration • CO -3 They acquired basics of precipitation and complexometric titration using edta • CO -4 They get knowledge of instrumentation and calibration of flame photometry
Third Semester	PCHC 3.1 Dosage forms and drug regulation –I	• CO -1 The students learnt about different types dosage forms and their properties • CO -2 The students shall have knowledge on fundamental drug delivery systems • CO -3 They understand the process of development of good manufacturing practice of drugs • CO -4 They acquired the knowledge on stability and preformulation studied of medicinal products
	PCHC 3.2 Medicinal chemistry –I	• CO -1 The students shall have idea on basics principle of medicinal chemistry • CO -2 They understood the structural activity relationship and quantitative properties of drug • CO -3 They acquired knowlwdge of synthesis of sulphonamides and anti ameobic agents • CO -4 They understood MOA of SAR of quinoline antimalerials and anticonvulsant
	PCSC- 3.3 Spectroscopy	• CO- 1 The students shall have ideas on Caracterization and • instrumentation of Electromagenetic Rediations. • CO -2 They acquired the knowledge of Fundamental aspects and applications of IR Spectroscopy • CO -3 They understood the principle and instrumentation of NMR Spectroscopy. • CO-4 They Understood the principle, instrumentation and Application of Mass spectroscopy
	PCSCT-3.4 Natural Products Chemistry	• CO- 1 The students shall have ideas on Synthesis andStructural Eludation of Alkloids • CO -2 The students shall have ideas on Synthesis and Structural Eludation of Vitamines and Essential Oils • CO -3 The students shall have ideas on Synthesis and Structural Eludation of Glycocides and Terpenoids • CO-4 They Understood the Boisynthesis of Steroides and Prostaglandines
Fourth Semester	PCHC-4.1Basics Pharmacology and Pharmaceutics	• CO- 1 The students shall have ideas on General Pharmacology • CO -2 They acquired the knowledge of Pharmcokinetics • CO -3 They understood the principle and Screening Methods of Drugs CO-4 They Understood the Pharmaceutical Technology.
	PCHC-4.2 Medicinal Chemistry	• CO- 1 The students shall have ideas on Synthesis and MOA of Central Nervous System Depressant Drugs. • CO -2 They acquired the knowledge of MOA Cardivasular Drugs CO -3 They understood the MOA and Synthesis of Anlgesics, antihistaminic and Antiinflammatory agents. • CO-4 They Understood the Classification and MOA, Synthesis of Antitubercular and Oral Cofraceptive agents.

	PCSC-4.3 Bioorganic Chemistry	• CO- 1 The students shall have ideas on Chemical Properties of Carbohydrates • CO -2 They acquired the knowledge of Synthesis and Chemical Reaction of amino acides Peptides • CO -3 They understood the Purification and Synthesis of Lipids. CO-4 They Understood the Classification and Enzyme Catalysis.
	PCHC-4.2 Project Report	• PO-Project Work Involving Multistage Synthesis or Isolation of Active • Molecules Present in Medicil Plants or Evaluation of Biological activities.

5. DEPARTMENT OF STATISTICS

FIRST SEMESTER	22STHCT1.1 Probability Theory	• CO1: A person successfully completing the Course will acquire basic knowledge ofaxiomatic Probability Theory. • CO2: This basic course is a prerequisite to an advanced course as well as to understandtopics in Mathematical Statistics. • CO3; Knowledge gained about Chebyachev'sWLLN. • CO4: Knowledgained about Kolmogorov's inequality.
	22STHCT1.2 Distribution Theory	• CO1 : A person successfully completing the Course will acquire basic knowledge ofaxiomatic distribution Theory. • CO2 : This basic course is a prerequisite to an advanced course as well as to understandtopics in Mathematical Statistics. • CO3 : Competency developed on Applications of various distributions. • CO4 : Competency developed on Applications of Characteristic function of variousdistributions.
	22STHCT1.3 Matrix Theory and Linear Models	• CO1 : A person successfully completing the Course will acquire basic knowledge of MatrixTheory and linear models. • CO2 : This basic course is a prerequisite to an advanced course as well as to understandtopics in Mathematical Statistics. • CO3 : Knowledge gained about matrix applications.
	22STHCT1.4(b) Linear Programming	• CO1: A person successfully completing the Course will acquire basic knowledge of graphsof feasible and simplex method. • CO2: This basic course is a prerequisite to an advanced course as well as to understandtopics in Mathematical Statistics • CO3: Knowledge gained about scope of operation research.
	22STHCT1.5 Practical (based on 21STHT 2.2 and 21STHCT 2.3)	• C01: A person successfully completing the Course will be exposed to basic statistical methods usedto analyse data and enough applications of such methods. • C02: Basic basic ideas about statistical Basic ideas about statistical linear programming. • C03: Basic ideas about Competitive exams and Statistics. • CO4: Helpsto build careers in Industry.
	22STHCT1.6 Practical based on Statistical Computing using R	
	22STOEP1.1	

	Statistical Methods and Applications	
SECOND SEMESTER	22STHCT2.1Real Analysis	• CO1: A person successfully completing the Course will have enough knowledge of RealAnalysis including standard techniques used in proofs of results in Real Analysis. • CO2: Standard skills to solve problems in Analysis are learnt in the Course and these areuseful to understand topics in Probability Theory and Mathematical Statistics. • CO3 : Apply to obtain results and solve problems in these subjects.
	22STHCT2.2 Statistical Inference I	• CO1 : A person successfully completing the Course will acquire knowledge of many topics in basics of mathematical statistics which is a prerequisite to advanced topics in mathematical statistics • .CO2 : Knowledge gained about estimation and confidence intervals. • CO3 : Knowledge gained about Exponential family.
	22STHCT2.3 Design and Analysis of experiments	• CO1 : A person successfully completing the Course will acquire a good foundation on designing and analysing statistical experiments and can independently carry out advancedstatistical modelling of several types of data using designs. • CO2 : Knowledge gained about Tests of hypotheses for one and more than one linear parametricfunctions. • CO3 : Knowledge gained about Factorial experiments.
	22STHCT2.4(a) Survival Analysis	• CO1 : A person successfully completing the Course will be exposed to specialized statisticalmethods used to analyse life time data and to model life time data practically. • CO2 : Knowledge gained about Failure rates. • CO3 : Knowledge gained about estimation of survival function.
	22STHCT2.4(b) Sampling Theory	• CO1 : A person successfully completing the Course will acquire a very good knowledge of standardsampling designs and a comprehensive knowledge of Statistics used in study of National Development and the Course also has Practical problem solving and data analysis techniques. • CO2 : Knowledge gained about Basic Definitions and Applications of SRS (WR/WOR),Strs. • CO3 : Skills gained about Estimation of National Income - product approach, incomeapproach and expenditure approach
	22STHCT2.5 Practical based on 21STHCT 2.3	• C01: A person successfully completing the Course will be exposed to basic statistical methods used toanalyse data and enough applications of such methods. • C02: Basic knowledge about the statistical analysis and probability.
	22STHCT2.6 Practical (Based on 21STSCT 2.4(b)	
	22STOEP2.1	

	Statistical Data Analysis	
THIRD SEMESTER	22STHCT3.1 Statistical Inference II	• C01: A person successfully completing the Course will acquire knowledge of many advanced topicsin basics of Mathematical Statistics including tests of hypotheses and nonparametric tests. • C02: Understanding the concepts of Basu's Theorem and it's Applications. • C03: Applications of Method of scoring.
	22STHCT3.2 Multivariate Analysis	• C01: A person successfully completing the Course will acquire knowledge in analyzingmultivariate data and learn special techniques that are used to analyses multivariate data.C02: testing linear hypothesis about regression coefficients. • C03: Application in testing and interval estimation.
	22STHCT3.3 Stochastic Process	• C01: A person successfully completing the Course will acquire fundamental and advanced knowledge instochastic processes which should be help apply these models to modelling random processes. • C02: Elementary renewal theorem and applications. • C03: Poisson process, pure birth process, Yule – Furry process, birth and death processes.
	22STHCT3.4(a) SQC and Reliability Theory	• C01: A person successfully completing the Course will acquire knowledge in the theory of statisticalSQC and reliability analysis along with learning special techniques to analyse positive valued data. • C02: Use of sequential runs in constructing control limits. • C03: Reliability Theory: Life distributions, survival functions, failure rate, Integrated hazardfunction, residual life time, mean residual life time.
	22STHCT3.4(b) Bio ststistics	• C01: A person successfully completing the Course will be exposed to a variety of methods used in biostatistics and the practical component helps in understanding and solving problems in biostatistics.C02: Knowledge about the medical analysis data and clinical trails. • C03: Knowledge about the biological statistics.
	22STHCT3.5 Practical (Based on 21STHCT 3.1and 21STHCT 3.3)	• C01: A person successfully completing the Course will be exposed to basic statistical methods used toanalyse data using R and enough applications of such methods. • C02: Basic ideas about statistical software using analysis the data.C03: Basic ideas about probability and inference. • CO4: Helps to build careers in Industry
	22STHCT3.6 Practical (Based on 21STHCT 3.2)	
	22STHOEP3.1 Statistical Data Analyses using R-I	
	22STHCT4.1	• C01: A person successfully completing the Course will be

	Time Series Analysis	exposed to specialized techniques to analyse data on time series and the practical component aids in understanding fitting of suitable time series models to timeseries data. • C02: Knowledge about the forecasting system.
FOURTH SEMESTER	22STHCT4.2 Non-Parametric Methods	• C01: A person successfully completing the Course will acquire knowledge in using nonparametric methodsto analyse data. • C02: Knowledge about which data have analysis for non-parametric test and data in case not normaldistribution. • C03: Basic ideas about the non-parametric where its used
	22STHCT4.3 StatisticalMachineLearningAlgorithmsUsing Python	• C01: A person successfully completing the Course will acquire knowledge in using python to analyse thedata. • C02: Knowledge about the Visualization Using Seaborn and Matplotlib.CO3 : Helps to build the careers in Industry
	22STHCT4.4(a) Data Science	• C01: A person successfully completing the Course will acquire knowledge about data science.C02: Knowledge about data modeling, big data analysis and menu plating. • C03: Basic ideas about the SQL and data models. • CO4: Helps to build the careers in Industry.
	22STHCT4.4(b) Genetics Algorithms	• C01: A person successfully completing the Course will acquire knowledge about Genetics algorithms.C02: Basic knowledge about segregation and linkage and systematic forces. • C03: Knowledge about genetic variance, association and selection index.
	22STHOEP4.1 Applied Statistics	• C01: A person successfully completing the Course will be exposed to basic statistical methods used toanalyse data using R and enough applications of such methods. • C02: Basic ideas about statistical software using analysis the data. • C03: Basic ideas about probability, time series and index numbers. • CO4 : Helps to build careers in Industry
6. DEPARTMENT OF CHEMISTRY		
	CHT1.1 Inorganic chemistry-I	• CO -1 The students learnt the skills in Inorganic chemistry • CO -2 The students shall have knowledge on atomic structure periodic propertiesand chemical bonding • CO -3 They understand the chemical and physical properties of elements in theperiodic table • CO -4 They understand the theories in Inorganic chemistry
First	CHT1.2 Organic chemistry-I	• CO -1 The students shall have basics and fundamental theories of organicchemistry • CO -2 They understand the nature of bonding and aromaticity in organic chemistryCO -3 They acquired knowledge of substitution reaction occurring in organic molecule • CO -4 They understand electron delocalisation and its effect on stability andreactivity

Semester	CHT1.3 Physical chemistry-I	• CO- 1 The students shall have ideas on physical phenomenon on chemicalthermodynamics and chemical kinetics • CO -2 The students shall get introduced to basics and application of chemicalthermodynamics • CO -3 They acquired the knowledge of catalysis and electrochemistry in solutionstate • CO -4 They understood the basics of corrosion, corrosion control and itsapplication
	CHT 1.4 Analytical Chemistry-I	• CO -1 They understood the concepts of classical methods of analysis like titrametry • , gravimetric • CO -2 The students shall have knowledge of purity and separation techniquesCO -3 They acquired basics of electro analytical techniques
Second Semester	CHT2.1 Inorganic chemistry-II	• CO -1 The students learnt the skils in Inorganic chemistry • CO -2 The students shall have knowledge on catalysis and synthesis oforgnomrtalic compounds • CO -3 They understand symmetry of elements and group theory • CO -4 They understand the properties and structure of non transition elements
	CHT2.2 Organic chemistry-II	• CO -1 The students shall have idea on rearrangement and synthesis of organicreagents • CO -2 They understood the chemical reaction and synthesis of heterocycliccompounds • CO -3 They acquired knowledge of rearrangement and reactions of per cycliccompounds • CO -4 They understood principle and synthesis of combinatorial constituent
	CHT2.3 Physical chemistry-II	• CO- 1 The students shall have ideas on solid state chemistry and nano materials CO -2 The students shall get introduced to basics and applications and commercial importance of polymers • CO -3 They acquired the knowledge of thermal and photochemical reactions CO -4 They understood the principle of general and specific acid base catalysis • reactions
	CHT2.4 Analytical Chemistry-II	• CO -1 They understood the concept of statistical treatment of samples usinganalytical data • CO -2 The students shall have knowledge general principles , properties ofprecipitates and acid base titration • CO -3 They acquired basics of precipitation and complex metric titration using edta • CO -4 They get knowledge of instrumentation and calibration of flame photometry
Third Semester	**CHT 3.1 Organic chemistry-III**	• CO -1 The students learnt about Electronic Chiraptical Vibration Spectroscopy • CO -2 The students shall have knowledge on Experimental Methods PTIR Sampling Techniques. • CO -3 They understand the Magnetic Properties of Nucleus and Chemical Shift of Different Organic Compounds • CO -4 They acquired the knowledge on Multinuclear NMR
	CHT 3.2 Physical chemistry-III	• CO -1 The students shall have idea on Statistical Thermodynamics and Types of Statistics • CO -2 They understood the Thermodynamics Concepts and I and II law of Thermodynamics • CO -3 They acquired knowledge of Colloids, Properties of Colloidal systems and Importance of Colloids • CO -4 They understood the Quantum Chemistry and their applications

	CHT 3.3 Inorganic chemistry-III	• CO- 1 The students shall have ideas on Laws of Photochemistry CO -2 They acquired the knowledge of Classification Synthesis and stability Organometalic compounds • CO -3 They understood the Fundamental Unites of Radioactivity and applications Nuclear Chemistry. • CO-4 They Understood the Physical and Chemical Properties of Raw Materials used in industrial Chemistry
	CHSCT 3.4 Analytical Chemistry-III	• CO- 1 The students shall have ideas on General terms and Parameters used in Chromatography. • CO -2 The students shall have ideas on Principle Methodology and application of Thin layer Chromatography • CO -3 The students acquired Knowledge on Ion Pair Paper Chromatography . • CO-4 They Understood the principles and Applications Electro Chromatography.
Fourth Semester	**CHT 4.1 Organic chemistry-IV**	• CO- 1 The students Gain Knowledge on Mass Spectroscopy and theirs principle • CO -2 They are able to identify types of Perry cyclic reaction Mechanisms • CO -3 They understood the Nomenclature Structure and Synthesis of Different Heterocyclic Compounds • CO-4 They Acquired Knowledge on Oxidation Reduction Reagents.
	CHSCT 4.4.1 Physical chemistry-IV	• CO- 1 The students shall have ideas on Electrochemistry and Photochemistry • CO -2 They acquired the knowledge of Catalysis reaction and Group theory . • CO -3 The Students Shall have Molecular spectroscopy and Raman Spectroscopy. • CO-4 They are able to get knowledge on Polymer Chemistry and Their Applications.
	CHSCT 4.4.2 Inorganic chemistry-IV	• CO- 1 The students shall have ideas on Metal Legend Equilibrium and Calculation of Stability Constants • CO -2 They acquired the knowledge on Essential and trace Metals Which are play in important role in biological system. • CO -3 They understood the Principles and Applications of Mossbauer Spectroscopic Techniques. • CO-4 They Understood the Basic Principles Zero field Splitting • Kramer's degeneracy and Photo electron Spectroscopy.
	CHMP4.3 Major project	• PO-Project Work Involving Revive of Current Literature Theoretical • Method Computer Applications Experimental Work based on Organic, Inorganic and Physical Chemistry.

7. Department of Mathematics

	22MHT-1.1 Algebra-I	**CO 1:** Earn factor group computation. **CO 2:** The notion of group action on a set **CO 3:** Understand the notion of free groups **CO 4:** Understand the concepts rings of polynomials and ideals
	22MHT_1.2 Discrete Mathematical structures	**CO 1:** Acquire knowledge of Boolean algebras and Boolean function and understand howthese concepts arise in certain real life problems. **CO 2:** Learn the concepts of *n*-ary Relations and closures of relations. **CO 3:** Understand the fundamentals of Graphs

		CO 4: Learn the structure of graphs and the basic concepts used to analyze differentproblems in different branches such as chemistry, computer science etc.
First semester	**22MHT-1.2 Ordinary Differential Equation**	**CO 1:** Learn the existence of uniqueness of solutions for a system of first order ODEs. **CO 2:** Learn many solution techniques such as separation of variables, variation of parameterpower series method, Frobeniious method etc. **CO 3:** Learn method of solving system of first order differential calculus equations. **CO 4:** Get an idea of how to analyze the behavior of solutions such as stability, asymptoticstability etc.
	22MST-1.4a Fluid Dynamics-I	**CO 1:** Fundamentalaspectsoffluidflowbehaviors. **CO 2:** Dynamicsofviscousfluidflowsandgoverningequationsof motion **CO 3:** Describestress-strainrelationshipofNewtonianfluids. **CO 4:** DeriveBernoulli's equation, energy equation.
	22MST-1.4b Linerar Programming	**CO 1:** Formulate a given simplified description of a suitable real-world problem as a linearprogramming model in general, standard and canonical forms **CO 2:** Formulate the dual problem. **CO 3:** classify a two-dimensional linear programming model by the type of its solution. **CO 4:** Use the simplex method to solve small linear programming models by hand, given abasic feasible point.
	22MST-1.4c Combinatorics and probability	**CO1:**Usetechniquesofenumerationinreallif eproblems **CO2:**Modelthereallifesituations usingprobabilitytheory. **CO3:**Will learn thetheoryofenumerationandprobability **CO 4:** Moments and Joint Distribution
	22MCP-1.5 Practical's using Scilab and Maxima based on MHT 1.2and Typesetting in Latex	**CO 1:** Students will Learn Installation of the software Scilab. **CO 2:** Students will Learn Basic syntax, Mathematical Operators, Predefined constants, Builtin functions **CO 3:** Students will Learn Complex numbers, Polynomials, Vectors, Matrix. Handling thesedata structures using built infunctions **CO 4:** Students will learn programming **CO 1:** Students will learn Installation of the software LATEX **CO 2:** students will learn Understanding LATEX compilation **CO 3:** students will learn Basic Syntex, Writing equations, Matrix, Tables **CO 4:** students will learn Page Layout: Titles, Abstract, Chapters, Sections, EquationReferences, citation etc.
	22MHT-1.6 Bharatiya Ganita - 1	**CO 1:**Learn about the contributionofAncient Indian Mathematicians . **CO 2:**Know more about fundamental operations. **CO 3**:Understand the Bhaskaras's Rules.

		CO 4: Know more about Brahmagupta's rule.
	22OE-1.7 Foundation of Mathematics	**CO 1:** Evaluate roots of equations. **CO 2:** analyze Races and Game skills. **CO 3**: Learn and apply quantitative aptitude and data interpretation
	22MHT-2.1 Algebra-II	**CO1:**Understand the concepts of vector spaces, subspaces, bases, dimension and theirproperties. **CO2:** Relate matrices and linear transformations, compute Eigen values and Eigen vectors oflinear transformations. **CO3:** Learn properties of inner product spaces and determine orthogonality in inner productspaces. Obtain various variants of diagonalisation of linear transformations
	22MHT-2.2 Partial differential equations	**CO1:** Establish a fundamental familiarity with partial differential equations and theirapplications. **CO2:** Distinguish between linear and nonlinear partial differential equations. **CO3:** Solve boundary value problems related to Laplace, heat and wave equations by variousmethods. Use Green's function method to solve partial differential equations. **CO4:** Find complete integrals of Non-linear first order partial differential equations.
	22MST-2.4a Fluid Dynamics-II	**CO1:**Understanding the behavior of viscous fluid dynamics.Derive and solve equation ofcontinuity, Energy equation, vorticity equation. **CO2:**Determination of non-dimension parameters for a given system.To apply theknowledge of laminar flows to find pressure drop in pipes. **CO3:**Understand the of Boundary layer theory and Fluid flow in Biological model.
	22MST-2.4b Graph Theory	**CO1**: Model real world problems and solve them using basic Graph Theory.Understand graph, subgraphs, connected and disconnected graphs etc. **CO2**: Differentiate between Hamiltonian and Eulerian graphs. **CO3**: Solve problems involving vertex, edge connectivity, planarity and edgecoloring. Apply tree and graph algorithms to solve problems.
	22MST-2.4c Tensor Analysis	**CO1**: Study the most fundamental knowledge for understanding tensors were taught in thetraditional way .**CO2**: Prior to our applying tensor analysis to our research area of modern continuummechanics. **CO3**: Tensor analysis provides a kind of bridge between elementary aspects of linear algebra,geometry and analysis.
	22MCP-2.5	**CO1:** Students will have the knowledge and skills to

	Practical's using Scilab/Maxima based on MHT 2.1 and MHT 2.3	implement the programs listed below inthe Scilab/Maxima programming language. **CO2:** Students can be expected to apply these programming skills of computation in scienceand Engineering**.**
	22MHT-2.6 Bharatiya Ganita-II	**CO1:** After completing this course student are expected to have a fair knowledge about theancient Mathematics **CO2:** Understand the concepts of indeterminate equation of first degree, simultaneous indeterminate equation of First Degree given by different ancient Indian Mathematicians **CO3:** Student get knowledge about the solution of General Indeterminate Equation of theSecond Degree-Single equation for different types of equations.
	22OE-2.7 Business Mathematics	**CO1:** Define basic terms in the areas of business calculus and financial mathematics **CO2:** Solve problems in the areas of Business calculus simple and compound interest **CO3**: Connect acquired knowledge and skill with the practical problems in economicpractice.
Third semester	**22MHT-3.1 Complex Analysis**	**CO1**: Introduce and develop a clear understanding of the fundamental concepts of ComplexAnalysis such as analytic functions, Cauchy- Riemann relations and harmonic functions. **CO2**: Know the fundamental concepts of complex analysis. **CO3**: Establish the capacity for mathematical reasoning through analyzing, proving andexplaining concepts from complex.
	22MHT-3.2 Numerical Methods	**CO1**: The knowledge of Numerical Mathematics to solve problems efficiently arising inscience, engineering and economics etc. **CO2**: Utilize the tools of the Numerical Mathematics in order to formulate the real-worldproblems from the view point of numerical mathematics. **CO3**: Design, analyze and implement of numerical methods for solving different types ofproblems, viz
	22MHT-3.3 Programming in python	**CO 1:** to acquire programming skills core python. **CO 2**: to acquire object oriented skills in python. **CO 3**: to develop ability to write data base application in python.
	22MST-3.4(a) Number theory	**CO1**: learn more advanced properties of primes and pseudo primes. **CO2**:

		apply Mobius Inversion formula to number theoretic functions.**CO3**: explore basic idea of cryptography.
	22MST-3.4(b) Magnetohydrodynamics	**CO1:** Derive theGauss law-Faraday'slaw-Ampere'slaw, basic equations of MHD**CO2**: determination -Non-dimensionalnumbers, Boundaryconditionsonvelocity,temperatureandmagnetic. **CO3**:Solve Alfven waves: Lorentz force as a sum of two surface forces- cause for Alfvenwaves.
	22MST-3.4(c) Differential Geometry	**CO1:** basic concepts of differential geometry **CO2:** Understand the basic concepts and results related to space curves, tangents, normalsand surfaces **CO3:** Understand principal directions and curvatures, asymptotic lines and then apply theirimportant theorems and results to study various properties of curves and surfaces**.**
	22MCP-3.5 Practical's using Scilab/Maxima/Matlab based on MHT 3.1	**CO1:** Construction of analytical function when the Imaginary part of $f(z)$ is given. **CO2:** Evaluation of counter integral by Cauchy's integral formula and plot the solution. **CO3:** Evaluation of Riemann Mapping theorem.
	22MHT 3.6 Python Lab based on MHT 3.2	**CO 1**: Students will learn basic numerical techniques in Python. They will also know how toapply several scientific packages normally used in applied work. **CO 2**: Students will learn how to solve and analyze economics models and producequantitative answers to a variety of practical problems. **CO 3**: Students will also learn practical techniques in numerical methods in Python. The course is hands-on and they will learn by doing several scientific packages that are often usedin practical applications in business economics.
	22OE-3.7 Elementary Mathematical Modelling	**CO1**: Calculate derivatives of different functions. **CO2:** Solve Real world problems of physics, chemistry, biology and others. **CO3:** SolveNonlinear system of equations
	22MHT-4.1 Functinal Analysis	**CO 1**: Understand the concept of Open sets, Closed sets, Bounded sets, **CO 2**: Develop abilityFinite dimensional spectral theory, matrices, determinants.
	22MHT-4.2 Topology	**CO1:** Analyze the conditions needed to prove that a space is normed linear space or aBanachspace. **CO2:** Understand the concept of linear functionals and Hahn-Banach theorem. Define theconcept of reflexive spaces and understand some standard theorem

		CO3: Understand the concept of Hiblert space Analysing the structure of the spectrum ofcertain operators
Fourth semester	**22MHT-4.3 a Operational research**	**CO1:** Understand the core principles of mathematical modeling. Apply precise and logicalreasoning to problem solving. **CO2:** Frame quantitative problems and model them mathematically. Analyze the importance of differential equations in mathematical modeling. **CO3:** Formulate the observable real problem mathematically
	22MHT-4.3 b Mathematical modelling	**CO1:** Understand theMathematical modelling of epidemics through systemsofordinarydifferential equation. **CO2::**Learnabout theMathematicalmodellingthroughdifferenceequationsinpopulationdynamicsandgenetics.
	22MHT-4.3 c Measure Theory	**CO1:** Describe the shortcomings of Riemann integral and benefits of Lebesgue integral. **CO2:** Understand the fundamental concept of measure and Lebesgue measure. **CO3:** Learn about the differentiation of monotonic function, indefinite integral, use of thefundamental theorem of calculus
	22MHT-4.3 d Fuzzy Sets and Fuzzy System	**CO1:** Be able to distinguish between the crisp set and fuzzy set concepts through the learned differences between the crisp set characteristic function and the fuzzy set membership function. **CO2:** Be able to draw a parallelism between crisp set operations and fuzzy set operations through the use of characteristic and membership functions respectively. **CO3:** Become aware of the use of fuzzy inference systems in the design of intelligent or humanistic system
	22OE-4.5 Mathematical techniques	**CO1:** Apply transformations and use symmetry to analyze mathematical situations.**CO2:** Compute Symmetric and Skew tensors **CO3:** Solve onjugate elements and classes

8. Department of Electronics

Semester I	**ELH-1.1** Solid State Semicond uctor	CO1: Learn the basic knowledge and concepts of Semiconductor materials anddevices. CO2: Understand the variouscrystal properties, crystal growth processes. CO3: Gain insight into the charge carrier concentrationsand

	Devices	carrier transport phenomena. CO4: Understand the fabrication process of p-n junctions and the associatedphenomenon. CO5: Study the construction, operation and characteristics of semiconductor devices.
	ELH-1.2 Programming inC++	CO1: Learn the basics ofprogramming language CO2: Understand the conceptsof tokens, decision making statements and functions. CO3: To learn object-orientedprogramming language CO4: Study about templates. CO5: To handle abnormal termination of a program usingexception handling CO6: Gain insight into the STL
	ELH-1.3 Digital Electronics and Verilog HDL	CO1: Review of Booleanalgebra and simplificationtechniques CO2: Study the combinationaland sequential logic circuits. CO3: Learn a hardware description language that can be used to model a digital System CO4: Understand the level ofabstraction ranging from the behavioural level to gate level
	ELP-1.4 C++Programming lab	CO1: Write programs to solvereal world problems.
	ELP-1.5 Digital Electronics and Verilog HDL Lab	CO1: Design and implementvarious digital circuits CO2: Gain insight intohardware and softwaretechniques. CO3: To write programs to implement digital circuits.
	ELS-1.6 a) Analog Devices and Circuits	CO1: Understand the construction, operating principle, characteristics and applications of pn junction diodes and zener diode CO2: Study the construction and operation of BJT and compute different parameters for characterizing different circuits CO3: Analyse the performance of CE, CB and CC modes of transistor and design biasing circuits CO4: Learn the construction, working, characteristics and types of FET. Classify different types of FETs and demonstrate feedback amplifiers, OP-AMPs, and oscillator circuits. CO5: Understand the characteristics and parameters of op-amp. CO6: Study the op-amp configurations and applications.
	b) Signals and Systems	CO1: To understand mathematical description and representation of both continuous-time and discrete-time signals and systems andtheir properties. CO2: Study about Linear-TimeInvariant systems. CO3: Learn about the conceptof frequency domain representations and how to decompose periodic signals into their frequency components CO4: Analyze a signal usingFourier series and Fourier transform

	c) Network Analysis	CO1: Apply the knowledge of basic circuital law and simplifythe network using reduction technique. CO2: Analyze the circuit usingKirchoff's law and network theorem. CO3: Infer and evaluate transient response, steady stateresponse, network functions.
	ELO-1.7 Concepts of Electronics	CO1: Understand the basicelectronic components andcircuits. CO2: Understand operation ofdiodes, transistors in order to design basic circuits CO3: Learn about integratedcircuits and basic fabricationprocess. CO4: Study the basics of electronic instrumentation. CO5: Understand the application of the electronicsystems in biological and medical applications.
Semester II	**ELH-2.1Architecture, Programming and Interfacing**	CO1: Understand the 8086 architecture and addressing modes CO2: Learn to program 8086 microprocessors CO3: To understand various interrupts and hardware features of 8086 CO4: Gain insight about interfacing and coprocessors.
	ELH-2.2Electronic Instrumentation and Microcontrollers	CO1: Study about basic concepts of measurement. CO2: Understand various transducers and data acquisition systems. CO3: Gain knowledge about biomedical instrumentation CO4: Learn PIC16F887 microcontroller
	ELH-2.3Electronic Communication	CO1: Describe basic components of communication system and concept of modulation. CO2: Understand different modulation techniques. CO3: Learn about optical fiber communication. CO4: Understand the concepts and applications of Satellite communication system.
	ELP-2.48086 Programming and Interfacing with PIC Microcontroller Lab	CO1: Student will be able to write assembly language programs. CO2: Learn to interface various devices using PIC Microcontroller.
	ELP-2.5Electronic Communication Lab	CO1: Construct and study various modulation techniques. CO2: Construct and study about active filters. CO3: Analyze various analog modulation and demodulation schemes in time and frequency domains using communication kits
	pELS-2.6a) Computer Networks	CO1: Learn the basics of computer networking CO2: Understand the functions of each layer in OSI and TCP/IP model. CO3: Describe the functions of data link layer and explain the protocols. CO4: Study about the routing protocols and IP addresses for the given network.

	b) Power Electronics and Circuits	CO1: Learn about basic power semiconductor devices CO2: Design and analyze Phase controlled rectifiers and power converter circuits CO3: Design and understand AC voltage controller, Cycloconverter and chopper circuits
	c) Multimedia Communic atio ns	CO1: Describe characteristics of multimedia communication system CO2: Analyze multimedia compression techniques and streaming
	ELO-2.7Fundam entals of Digital Electronics understand digital electronics circuits.	CO1: Review of number systems and binary arithmetic operations. CO2: Review of Boolean algebra and simplification techniques. CO3: Study the combinational logic circuits. CO4: Understand the design and working of sequential logic circuits systems.
Third semester	**ELH-3.3 Control Engineerin g**	CO1: State open and closed loop control systems and their mathematical models. CO2: Understand the time response and frequency domain analysis of control systems. CO3: Gain insight about the stability analysis in terms of root-locus technique and bode plots.
	ELP-3.4 Digital Signal Processing and Digital Communic ation Lab	CO1: Classify discrete time signals/systems. CO2: Determine the convolution of discrete time signals using graphical and analytical methods. CO3: Apply Z-transform and Fourier transform for different type of signals and systems. CO4: Compute DFT/IDFT for discrete time signals and find circular convolution CO5: Develop FFT algorithms and design of analog/digital filters CO6: Compute the frequency response of digital filters CO7: Construct and study various digital modulation techniques.
	ELS-3.5 a) Microwave Electronics	CO1: Understand the laws of electrostatics and magnetostatics. CO2: Understand the basic concepts of microwaves and propagation through the transmission lines,
		microwave components CO3: Understand the working of microwave active circuits and study of various microwave semiconductor devices. CO4: Learn about the generation of microwaves through the vacuum-based tubes
	b) Image Processing	CO1: Study the image fundamentals and mathematical transforms necessary for image processing CO2: Describe the basic concepts of signal acquisition, sampling and quantization. CO3: Understand the Fourier Transform concepts and special/frequency domain filtering using image enhancement algorithm.

		CO4: Understand the concepts of colour image processing and image restoration. CO5: Describe different morphological 'image-transformations and the effects of morphological algorithm operations on images. CO6: Interpret image segmentation and representation techniques.
	c) ARM Processors and Real-Time Operating	CO1: Study about current technologies, integration methods and hardware and software design concepts of
	Systems	embedded systems. CO2: Understand the fundamentals and instruction set of ARM Processors CO3: Learn thumb instruction set and programming CO4: Learn the fundamentals of operating systems and their importance in real time applications CO5: Describe how a real- time operating system designed and their importance in embedded system design
	ELO-3.6 Introduction to Microprocessors	CO1. Understand the architecture and programming model of 8085 microprocessor. CO2. Able to write simple programs on Programming of 8085 microprocessor CO3. Learn about the basics of microcontroller. CO4. Understand the Interfacing of Arduino microcontroller for various applications.
Fourth semester	**ELH-4.1 Embedded Systems**	CO1: Understand the hardware considerations in the design of embedded systems. CO2: Know about the fundamentals of operating systems and their importance in real time applications CO3: Describe how a real-time operating system designed and their importance in embedded system design.
	ELH-4.2 Project Work	CO1: Understand the importance of experimental and theoretical analysis. CO2: Design and develop embedded systems for real- time applications. CO3: Learn to write scientific papers.
	ELS-4.3 a) Introduction to VLSI Circuits	CO1: Implement the logic circuits using MOS and CMOS technology. CO2: Acquire the knowledge about various CMOS fabrication process and its modeling. CO3: Analyse various circuit configurations and their applications.

9. Department of Bioinformatics

First semester	BI. HCT-1.1CellandMolecular Biology		Students completing this course will have understanding of complete basics of cell and molecular biology it will helps in understanding the concepts of bioinformatics in further semester.
	b) MEMS and Microsystems Technology	CO1: Understand the overview of MEMS and Microsystems CO2: Understand the fundamental properties of materials used for MEMS devices CO3: Gain a comprehensive perspective of various physical mechanisms for MEMS design CO4: Understand the fundamental principle of piezoresistive sensing, piezoelectric sensing, magnetostatic actuation and methods for fabricating	
	BI. HCP-1.2 CellandMolecularBiologylab		• Students will get hands on experiments tostudy the different cellular and molecular biology techniques. • They will understand chemical preparations and types of isolations and analysis.
	c) Wavelet	CO1: Understand wavelet	
	Transforms	basis and characterize continuous and discrete wavelet transforms CO2: Understand MRA, orthonormal wavelets and their relationship to filter banks CO3: Implement discrete wavelet transforms with multirate digital filters CO4: Design certain classes of wavelets to specification and justify the basis of the application of wavelet transforms to different fields CO5: Understand the concepts of data compression and noise suppression	
	ELO-4.4 Basics of Communication Technology	CO1: Describe basic components of communication system and concept of modulation. CO2: Understand different modulation techniques. CO3: Implement optimization techniques, data coding, channel requirements, signal to noise. ratio, bandwidth, error finding within the received information and information theory. CO4: Understand the concepts and applications of Satellite communication system. CO5: Learn about optical fiber communication. CO6: Gain insight into wireless communication systems.	

	BI. HCT-1.3 C-Programmingand C++	• Students will understand aboutprogramming languages and concepts of c and c++. • Student will gain the knowledge how towritethe programs of c andc++.
	BI. HCP-1.4 C-Programming and C++lab	• Students will understand how to write the C and C++ basic programs, flowcharts and algorithms. • Students will get idea about how the Biological problems can be solving by writing the programs.
	BI. HCT-1.5 Fundamentals ofBioinformatics	• Students will able to understand working with computer system. • They able to understand bioinformatics, Biologically Data Acquisition and biological databases, sequential file formats. • They will also understand how the biologica ldata can be access, retrieval and submission of sequences to databases.
	BI. HCP-1.6 Fundamentals of Bioinfor maticslab	• Students can access different type of search engines and biological databases such as Entrez and literature searches, SRS of biological databases, sequence analysis databases. • They can also work with some biological software's and visualization tools to understand the structure of biomolecules.
	BI. SCT-1.7.1 BiostatisticsandR-Programming	• Students will understand the role of statistics in biology and different types of methods like classification, tabulation, Measures of central tendencies, measuresofdispersion,bivariatestatisticalmethods,timevariable sandconceptofprobability. • Students get ideaabouthowtoanalysethebiologicaldata bydifferent types of Statistical methods and graphs using R-programming.
	BI. SCT-1.7.2 Structural Bioinformatics	• Students will understand the structuralfeatures of proteins and nucleic acids and proteins. • Students will also understand the molecular interactions and methods to predict the structures of biomolecules
	BI.SCT-1.7.3 Bioinstrumentation	Students will get clear idea about biointrumentssuch as Chromatographic techniques and Massspectrometry, Electrophoresis, Flow cytometry ,Microscopy,Spectroscopy,Omicstechnologies.
	BI. SCP-1.8 BI. SCP-1.8.1 Biostatistics and R-Programming	• Students will understands how thebiological data can be represented through diagrammatically and graphically. • Understand how to use R-programming in Solving and analyzing biological data.
	BI. SCP-1.8.2 Structural Bioinformatics	From this lab students will able to handlevariety of tools, databases and software's ofStructure prediction of proteins and nucleicacidsand molecularinteraction.

	BI.SCP-1.8.3 Bioinstrumentation	From this lab students will able to hand all thebioinstruments and students will get hands ontraining of Column chromatography,Estimation of Nucleic Acid and Proteinthroughspectrophotometer,ElectrophoresisofDNA and Protein, Observation of CellMorphology and Cell division under invertedmicroscope, Demonstration of ConventionalandRealtimePCRforgeneamplification,etc
	BI-OE1.9 Open ElectiveOfferedbyDept.of women'sStudies	
Second semester	BI.HCT-2.1 Biophysics, Biochemistry andImmunology	• Students will understand the concept ofbiophysicshowphysicsworksinbiology. • Students will get clear idea aboutbiomoleculesstructureandfunction. • They understand protein structure, motifs,folding and flexibility, protein purificationandsequencingtechniques. • Students will understand the basic conceptofimmunology.
	BI.HCP-2.2 Biophysics, Biochemistry andImmunologylab	• Student will able to do experiments ofqualitative and quantitative analysis ofcarbohydrates, proteins, amino acids,nucleicacids. • Studentscanabletoperformsomeimmunological assays. • They can able to handlebioinstrumentationlikeThinlayer chromatography, columnchromatography,HPLC,AGE,PAGE.
	BI.HCT-2.3 Biostatistics-II	• Students can able to understand the statisticalconcept of distributions, parametric models,interval estimations,testinghypothesis.
	BI.HCP-2.4 Biostatistics-IIlab	Students can understand and solve thestatistical problems based on the concept ofdiscrete distribution, continous distribution,Consistency,Sufficiency,Efficiency& Unbiasedness, Chi-Square, T & F-Statistics,TestingofHypothesis,NonParametricTest.
	BI.HCT-2.5 AppliedBioinformatics	• Students can clearly understand thesequenceanalysislikesequencealignmentmethods,sequencesimilaritysearchtools. Studentscan ableto analysisthe phylogenetic relationships by usingdifferentmethods andtools. • Theycanalsolearnabouthowtocomparethe genomes with some tools andmethods. • Studentscan ableto analyzethestructure of gene and proteins with databases andtools.
	BI.HCP-2.6 AppliedBioinformaticslab	Students will get hands on training of how touse the sequence analysis, phylogeneticanalysis, comparative genomics, gene andproteinstructure predictiontools and software's.
	BI.SCT-2.7 BI. SCT-2.7.1 JAVAand Python	• Students will get knowledge of javaconceptsandjavaprogramminghowtoapplyinbioinformatics. • Theywillgetideaaboutbiopythonandhow to write the python programs toanalysethesequences.

	BI. SCT-2.7.2 ImmunologyandSystems Biology	• Students get basic knowledge aboutimmunology: immune cells, introductionto antibodies and generation of antibody,etc. • Student will also get knowledge aboutsystem biology, system biologynetworking, simulation of pathways anddifferentdatabasesandtools forpathway prediction.
	BI.SCT-2.7.3 Image Processing	Students will get knowledge about imageprocessing concepts and students can work onthat.
	BI. SCP-2.8.1 JAVAand Python	• This lab will help students to write javaprogramsandworkingwithjavaplatform. • Students will learn how to write thepython programs to store DNA sequence,concatenation,and reversecompliant. • Students can write sequence files andSequencealignmentusingpython programming
	BI. SCP-2.8.2 ImmunologyandSystems Biology	This lab helps the students to get hands ontraining to do immunology experiments.Students can also learn how to work withsystem biology practical's like analyzing thenetworks,designingpathways,etc.
	BI.SCP-2.8.3 Image Processing	By this lab students can work with MATLABbasedimage processingpracticals.
	BI-OE-2.9 Open Elective Offered by Dept.of women's Studies	
Third semester	BI.HCT-3.1Genomics, Proteomics and System Biology	• Students can acquire the knowledge ofgenomics: the study of genes, genomes, sequencing methods, gene expression analysis methods, etc • Students can understand the proteomics: the study of proteome analysis methods, protein interaction analysis, etc. • Students will understand the system biology: networks and pathways, simulation of pathways, pathway databases.
	BI.HCP-3.2 Genomics, Proteomics and System Biology lab	From this lab students will able to handle Variety of tools, data bases ands oftwares of Genomics ,proteomics and system biology pathway designing databases.
	BI.HCT-3.3 Multivariate Techniques	Students can able to understand and analysisthe biological data with multivariatetechniques those are Multiple and PartialCorrelation and Regression Coefficient,ClusterAnalysis,Discriminant Functions Analysis, Factor Analysis, Analysis OfVariances.
	BI.HCP-3.4 MultivariateTechniqueslab	Students will understand how to solve theexample problems on Multiple And PracticalCorrelation Coefficient, Cluster Analysis,DiscrimanantAnalysis,FactorAnalysis,OneWay,TwoWayAnalysis OfVariance, CRD,RBD,LSD.

	BI.SCT-3.5 BI. SCT-3.5.1 DatabaseManagement System	• After completing this course students willhave a clear understanding of DBMScomponentsand its practicaluses. • DesignER-modelstorepresentsimpledatabaseapplicationscenarios. • WriteSQLcommandstocreatetablesandindexes,insert/alter/deletedatainDBMS. • Improve the database design bynormalization.
	BI. SCT-3.5.2 MolecularModeling and MolecularDynamics	• Students will gain knowledge onmodernapproachesusedinmolecularmodelinganddynamicsconcepts. • Studentscanalsounderstandthedrugdiscoveryprocess.
	BI.SCT-3.5.3 IPR, Entrepreneurship and Bioethics	• Students will get complete idea about IPR concept, patent and its laws. • From this course students canunderstand how to become an entrepreneur and they will get an idea about entrepreneurship. • Students will understand the bioethics.
	BI.SCP-3.6 BI. SCP-3.6.1 Database Management System	• Students will able to creating, selecting database and creating/ modifying/deleting tables by SQL commnds. • Students can able to use the My SQL operators.
	BI. SCP-3.6.2 Molecular Modeling and Molecular Dynamics	From this lab students can learn different types of tools, databases and software's of molecular modeling and molecular dynamics and also drug discovery process.
	BI.SCP-3.6.3 IPR, Entrepreneurship and Bioethics	• From this lab students will understandprocessofpatenting, case based study on patents. • Student will understand how to prepare business plans. • Students will also understand bio ethics and clinical trials.
	BI-SCP-3.7Entrepreneurship and startup studies	Student will acquaint on thinking innovative ideas and transforming into a business plan. Students will get familiar on making complete business plan.
	BI.OET-3.7 Open Elective Biological data bases and Tools	• Upon completion of this course, the student will be able to describe the bio informatics concepts. • Students will understand the biological databases how to access and retrieve the data. • Student will understand the analysis of DNA and protein sequences trough different data bases and tools • They will also understand the pathway prediction data bases and drug discovery software's.
Fourth semester	BI.HCT-4.1 Chemo–informatics and Drug Designing	• Students will get knowledge about chemo informatics includes functional groups and their biological properties of drugs, pharmaco dynamics and pharma co kinetics propertiesof drug,etc. • Students will understand the Drug Designing techniques and approaches.

		• They wil llearn the drug designing software's.
	BI.HCP-4.2 Chemo–informatics and Drug Designing lab	• From this lab students will able to access the chemical databases and draw the chemical compounds. • Understand how to analyse the target protein and can able to study the binding sites. • Students can perform do cking to study the interaction between protein and ligand molecule ,so on.
	BI.SCT-4.3.1: Per land CGI	• Students can understand the concepts of Perl language and they can use the programming in bio informatics work. • Students can get knowledge about CGI programming.
	BI.SCT-4.3.2:MedicalBioinformaticsand BigDataAnalytics	• Students can able to understand medical informatics, medical standards, medical data storage and automation, • Health informatics, Recent trends in medical informatics
	BI. SCT-4.3.3: Molecular Simulation	• Fromthiscoursestudentswillunderstandtheconceptofmolecular simulationandtheywillalsolearnavailable software's to do the simulation work.
	BI.SCP-4.4BI.SCP-4.4.1: Per land CGI	• From this lab students can learn how to work with perl and bio perl platforms and writing the programs according to the bio informatics requirements. • They will also able to understand and write the C GI programs.
	BI.SCP-4.4.2:MedicalBioinformatics and Big Data Analytics	• From this lab students will understand how to analyze them edical data and how to study the disease mechanism. • Students will understand analyzing the human genome and variant analysis, etc.
	BI. SCP-4.4.3: Molecular Simulation	• From this lab students will trained how to work with molecular simulation tools.
	BI-HCPW-4.5 Project Work	• At the end of the course students will be acquainted on carrying out the independent research, familiar with research processes, writing the thesis, and presentation.
	BI.OET-4.4 Open Elective Applied Bioinformatics	• Students can able to analyse the sequences by sequence similarity searches and sequence alignment methods by using different types of tools. • Students can able to analyse the phylogenetic relationship. • They can get clear idea about comparative genome analysis

		concept.

10. Department of Botany

Semester	Name of the Course and code	Programme specific outcomes
Semester I	HCT 1.1Phycology, Mycology, Bacteriology and Virology	Understand the structure, function of algae, fungi, viruses and bacteria
		Identify algae and fungi in their natural habitat on the basis of characters
		Develop the cultures of algae and fungi
	HCT 1.2 Bryophytes and Pteridophytes	The students will learn about the structure and reproduction of certain selected species of Bryophytes and Pteridophytes.
		Understand the structure and life cycle of different bryophytes
		Understand the structure and life cycle of different pteridophytes
	HCT 1.3 Gymnosperms and Paleobotany	The students will learn about the structure and reproduction of certain selected species of Gymnosperms.
		Learn few representatives of fossil forms.
		Study the different types of fossils of extinct plants/ flora
		Study the evolutionary affinity between Cordiatales, Cycadales, and Coniferales.
	SCT 1.1 Biostatistics and Bioinformatics	The students will know the basic principles of biostatistics and computer applications inbiology. understand the fundamental concepts of biostatistics. learn about the computer and imbibe computer skills for biological data management and graphical presentation. be enlightened about the need for computer applications, programs and techniques for biology. In bioinformatics they will gain deep understanding of using computer to visualize, explore and model sequence analysis.
Semester II	HCT 2.1Ecology and Environmental Biology	The students get to understand the basic concepts of geology, pedology, ecology, autecology, synecology, phytogeography and advanced ecology.
		know the establishment of ecosystem, vegetation, plant succession and adaptations.
	HCT 2.2 Cell and MolecularBiology	By the end of this course students will beable to understand the structure of cells in relation to the functional aspects.
		The students will be able to learn about the basics of cell and its inclusions

		to understand the difference between prokaryotic and eukaryotic cells. to study the details of the plant cell wall, cytosol and cytoplasmic organelles. to understand the properties of nucleic acids (DNA &RNA) and their synthesis to study the details of protein synthesis and cell signaling.
	HCT 2.3 Genetics and Evolution	The students will be able to acquire knowledge about the nature and function of genes and processes of inheritance as they influence the characteristics of populations and species. understand the basic concepts of mendelian genetics, its variations and applications familiarize with the various concepts of Evolution. The students will understand the concepts of microbial and human genetics and geneticmapping. to study the details of protein synthesis and cell signaling.
	SCT 2.1Methods in PlantScience	The course will nurture the knowledge on biological samples especially plant samples. The course will give an expertise in understanding the various important biological techniques to be employed in thefield of botany.
Semester III	HCT 3.1Systematic Botany ofAngiosperms	The students are able to understand about Plant taxonomy and their systematic classification systems are able to understand about modern approaches in taxonomic studies. enlightened about the role of taxonomy in conservation of biodiversity
	HCT 3.2Botanical Tour and Herbarium preparation	Understand and identify the plants under natural environment Preparation of herbarium Analyze the floral formula of monocot and dicot families
	HCT 3.3Reproductive Biology of Angiosperms and Plant Anatomy	Understand photo morphogenesis and seedling development Evaluate the root developments, flower development in plants Study the reproduction in plants with the help of male female gametophyte Study of microspogesis and megasprogenesis.
		Understand pollen-pistil interacting and seed development.

	SCT 3.1 Medicinal Plants and Phytochemistry	Learner will definitely witness the role of plants in survival of human beings and other organism. They will also well verse with contribution made by our primitive people in exploration of plant knowledge to alleviate common diseases and development of system of medicine. Students will be able to Identify the biological source, morphology, cultivation, collection, drying, packing, storage, medical as well as non-medical uses of plants and plant secretions. Students will also be able to identify the different chemical constituents present in plants their biosynthetic origin, characterization, natural occurrence and pharmacological action.
Semester IV	**HCT 4.1Plant Physiology**	The Students will learn about absorption, translocation and utilization of water and other minerals. comprehend the changes during growth process (germination to abscission). understand the energy flow and various metabolic cycles with their integration. get an overall perception about various physiological processes occurring in plants.
	Project work	Staff members are in different areas viz, cytology, and genetics, taxonomy and ethno botany, mycology, paleobobatany Select their topic as per teacher's supervision Learn various techniques Examiners are appointed from other universities.
	SCT 4.1Plant Breeding	Students will understand the concepts of plant breeding involving the principles, selection procedure and achievements in plant breeding. So they will be enabled to implement their knowledge on plant breeding techniques in their agriculture fields for the improvement of crops. students will understand the various processes in crop improvement program. By knowing the elementary principles in plant breeding students will understand the importance and value of producing disease and insect resistant plants.
	SCT 4.1 Plant Biotechnology	The students will understand the basic concepts of genome organization in plantsand molecular markers. have a clear knowledge of plant tissue culture techniques have a basic understanding of the plant genetic transformation methods. be fully aware of the basics and applications of plant biotechnology.

11. Department of Computer Science

Semester I		Course Outcomes
	Digital Logic and Computer Design	• Students completing this course will able to perform the conversion among different number systems, familiar with basic logic gates, buildsimple logic circuits using basic gates. • Students will be able to design combinational and sequential circuits usingdiscrete components. • Use basic structural Hardware Description Languages to implement digitalcircuits, design and conduct experiments related to digital systems and to analyze their outcomes. • Students will gain understanding of basic organization of computer system.
	Operating System Principles with UNIX	•Students will be able explain the structure of OS and basic architectural components involved in OS design. •Able to analyze and design the applications to run in parallel either using process orthread models of OS. • Analyzethevariousdeviceandresourcemanagementtechniquesintimeshar inganddistributedenvironment. • Understand the Mutual exclusion, Deadlock detection and agreement protocols of Distributed operating system. • Interpret the mechanisms adopted for file sharing in distributed Applications. • Conceptualize the components involved in designing acon temporary OS.
	Data Structureusing C++	• Students completing this course will be able to describe the properties, interfaces, and behaviors of basic abstract data types list, stack and queue. Will have ability to implement and analyze various searching techniques. Will have ability to implement and analyze text processing techniques.
		• Hands-on experiments to study logic gates and realization of OR, AND,NOT AND XOR Functions using universal gates. • Understand the relationships between combination logic and Boolean algebra, and between sequential logic and finite state machines; • Ability to design and implement combinational circuits like half adder/full adder, half sub tractor/full sub tractor, code converters, comparators, MUX/DEMUX c). • Design and implement sequential circuits like flip- flops, counters and shiftregisters d) Study of 8-bit DAC and 8-bit ADC • Hands-on experiments to study logic gates and realization of OR, AND,NOT AND XOR Functions using universal gates. • Understand the relationships between combination logic and Boolean algebra, and between sequential logic and finite state machines; • Ability to design and implement combinational circuits like half adder/full adder, half sub tractor/full sub tractor, code converters, comparators, MUX/DEMUX c). Design and implement sequential circuits like flip- flops, counters and shift registers d) Study of 8-bit DAC and 8-bit ADC
	Practical lab- 2 Data Structure Lab	• Students understand OOPs concepts; use them to represent the data structure. • Ability to code sorting methods, including selection, merge sort, heap sort and Quick sort. • Understand dynamic memory management techniques using pointers,constructors, destructors, etc Ability to implement Stack ADT and Queue ADT using array and linked-list implementation in C++. • Choose appropriate data structures to represent data items in real world problems
Semester	Discrete	Students completing this course will have understanding of the

II	Mathematical Structures	computational and algorithmic aspects of Sets, Relations, Mathematical Logic, Boolean algebra,Graphs, Trees and Algebraic Structure in the field of Computer sciences and its applications. Able to apply them in problem solving
	Probability and Statistical Methods	• Understand concepts of probability theory and statistical inference in order to solve applied problems. • Familiarity with basic rules of probability and will be able to use them in modeling uncertainty in obtaining and recording data. • Understand the logic of statistical inference and will be able to apply common inferential procedures
	Numerical Methods	• Apply Numerical analysis which has enormous application in the field of Computer Science and Engineering. • Familiar with finite precision computation. • Familiar with numerical solutions of nonlinear equations in a single variable. • Familiar with numerical integration and differentiation, numerical solution of ordinary differential equations. Familiar with calculation and interpretation of errors in numericalmethod.
	Fundamental s of Programming	• To introduce the fundamental concepts of computers and computing environment. • To acquire the basic knowledge of algorithm design and problem-solving using c. To understand the concept of object-oriented programming and acquiring skills for problem solving using OOPs syntax.
	Computer Fundamentals(OE)	• Upon completion of this course, the student will bedescribing the components of a typical computer and explain the characteristics of each of them. • Underst and the working of Windows operating system and the services it provides. • Understand the importance of computers in business and society. • Describe various types of networks network standards and communication software.
Semester III	Database Management System	• Describe the fundamental elements of relational database management systems • Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL. •Design ER-models to represent simple database application scenarios • Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data. • Improve the database design by normalization. • Familiar with basic database storage structures and access techniques: file and page organizations, indexing methods including B tree, and hashing
	Advanced Computer Network	• After the completion of the course the students will be able to illustrate reference models with layers, protocols and interfaces. • Understands the functionalities of different Layers, Routing algorithm and its applications. • They will be able to describe and analyze the basic protocols of computer networks, and how they can be used to assist in network design and implementation. Explain and identify security and ethical issues in computer networking. • Ability to simulate key networking techniques/algorithms.
	Design and Analysis of Algorithm	• The outcome of this course will help the students to analyze the performance of recursive and iterative algorithms. • Understandingandperformingsimpleproofsofalgorithmiccomplexityandcorrectness. • An understanding of a variety of well-known algorithms on some of the data structures including the grasping approach, divide and overcome, dynamic programming, backtracking. • To understand P and NP

		classes. •Abilitytounderstandhowthechoiceofdatastructuresandthealgorithmdesign Methods impact the performance of programs
	DBMS andJava Lab	• Apply the basic concepts of Database Systems and Applications. • Use the basics of SQL and construct queries using SQL in database creation and interaction. • Design a commercial relational database system (Oracle, MySQL) by writing SQL using the system. • Analyze and Select storage and recovery techniques of database system.
	DAA Lab	• Students will be able to designing algorithm using the concepts of dynamic programming, greedy method, Back tracking, Branch and Bound strategy. • Able to compare, contrast, and choose appropriate algorithmic design techniques to present an algorithm that solves a given problem. • Able to develop the efficient algorithms for the problems with suitable designing techniques.
	Web Technology	• Analyze a web page and identify its elements and attributes. • Create web pages using XHTML and Cascading Style Sheets. • Build dynamic web pages using JavaScript (Client-side programming). • Create XML documents and • Schemas. • Build interactive web applications using AJAX.
	ComputerGraphics	• Compare various graphics devices • Analyze and implement algorithms for line drawing, circle drawing and polygon filling • Apply geometrical transformation on 2D and 3D objects • Analyze and implement algorithms for clipping • Apply various projection techniques on 3D objects • Interpret various concepts and basic operations of image processing.
	Cryptography and Network Security	•Analyze the vulner abilities in any computing system and hence be able to design Security solution. • Identify the security issues in the network and resolve it. •Evaluate security mechanisms using rigorous approaches, Including theoretical. •CompareandContrastdifferentIEEEstandardsandelectronicmailsecurity.
	Open ElectiveOffice Automation	• Solve common business problems using Word • Processors and Spreadsheets packages. • Identify categories of programs, system software and applications. • Organize and work with files and folders. • Develop Presentation ability
Third Semester	Software Engineering	• The students will be able to demonstrate the minimum requirements forthe development of application. • Ability to develop, maintain, efficient, reliable and cost-effective software solutions. • Able to demonstrate and understand how to apply current theories, models, and techniques that provide a basis for the software lifecycle. • Ability to critically thinking and evaluate assumptions for the techniques and tools necessary for engineering practice.
	Digital ImageProcessing	• Understanding fundamentals of Digital Image Processing including the topics of filtering, transforms and morphology, and image analysis and compression • Be able to implement basic image processing algorithms in MATLAB. • Have the skill base necessary to further explore advanced topics of Digital Image Processing. • Be in a position to make a positive professional contribution in the field of Digital Image Processing
	DIP Lab	
	Internet OfThings	• Develop schemes for the applications of IOT in real time scenarios • Manage the Internet resources • Model the Internet of things to business • Understand the practical knowledge through different case studies
	Cloud Computig	• Describe the principles of Parallel and Distributed Computing and evolution of cloud computing from existing technologies • Implement different types of Virtualization technologies and Service Oriented

		Architecture systems • Elucidate the concepts of NIST Cloud Computing architecture and its design challenges • Analyze the issues in Resource provisioning and Security governance in clouds Choose among various cloud technologies for implementing applications
	Data Analytics Internship	
	Digital Technology (OE)	• To perform and get knowledge about applications, virtual learning and internet fundamentals. •Develop holistically by learning essential skills such as effective communication, problem-solving, design thinking, and teamwork.
Semester IV	Artificial Intelligence and Machine Learning	
	Data Science	• Define data science and its fundamentals • Demonstrate the process in data science • Explain machine learning algorithms necessary for data sciences • Illustrate the process of feature selection and analysisi of data analysis algorithms • Visualize the data and follow of ethics
	Ad-Hoc Wireless Networs	1. Identify the characteristics and features of Adhoc Networks. 2. Understand the concepts & be able to design MAC protocols for Ad Hoc networks 3. Implement protocols / Carry out simulation of routing protocols of Adhoc Networks 4. Interpret the flow control in transport layer of Ad Hoc Networks 5. Analyze security principles for routing of Ad Hoc Networks 6. Utilize the concepts of Adhoc Networks in VANETs
	Deep Learning	• Identify the deep learning algorithms which are more appropriate for various types of learning tasks in various domains. • Implement deep learning algorithms and solve real-world problems. • Execute performance metrics of Deep Learning Techniques.
	Project work 16	
M.Sc. Computer Science		
Semester I		• Students will be able explain the structure of OS • and basic architectural components involved in OS design • Able to analyze and design the applications to run in parallel either using process or thread models of OS. • Analyze the various device and resource management techniques in timesharing and distributed environment. • Understand the Mutual exclusion, Deadlock detection and agreement protocols of Distributed operating system. • Interpret the mechanisms adopted for file sharing in distributed Applications. • Conceptualize the components involved in designing a contemporary OS.
	Digital Logic and Computer Design	• Students completing this course will able to perform the conversion among different number systems; familiar with basic logic gates, build simple logic circuits using basic gates. Students will be able to design combinational and sequential circuits using discrete components, Use basic structural Hardware Description Languages to implement digital circuits, design and conduct experiments related to digital systems and to analyze their outcomes. • Students will gain understanding of basic organization of computer system.
	Data Structures Using CPP	• Students completing this course will be able to describe the properties, interfaces, and behaviors of basic abstract data types list, stack and queue. • Will have ability to implement and analyze various searching techniques • Will have ability to implement and analyze text processing techniques
	Data Structures Using CPP Lab.	• Students understand OOPs concepts; use them to represent the data structure. • Ability to code sorting

		methods, including selection, merge sort, heap sort and Quick sort. • Understand dynamic memory management techniques using pointers, constructors, destructors, etc • Ability to implement Stack ADT and Queue ADT usingarray and linked-list implementation in C++. • Choose appropriate data structures to represent data items in real world problems
	Digital Logic Lab	• Hands-on experiments to study logic gates and realization of OR, AND, NOT AND XOR Functions using universal gates. • Understand the relationships between combination logic and Boolean algebra, and between sequential logic and finite state machines; • Ability to design and implement combinational circuits like half adder/full adder, half subtractor/full subtractor, code converters, comparators, MUX/DEMUX c). • Design and implement sequential circuits like flip- flops, countersand shift registers d) Study of 8-bit DAC and 8-bit ADC
	Discrete Mathematical Structures	• Students completing this course will have understanding of the computational and algorithmic aspects of Sets, Relations, Mathematical Logic, Boolean algebra, Graphs, Trees and Algebraic Structure in the field of Computer sciences and its applications. Able to apply them in problem solving.
	Computer Oriented Numerical Methods	• Students will be able to demonstrate understanding of common numerical methods and how they are used to obtain approximate solutions to otherwise intractable mathematical problems. • Derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution oflinear and nonlinear equations, and the solution of differential equations. • Implement numerical methods in C/C++
	Probability and Statistical Methods	• Understand concepts of probability theory and statistical inference in order to solve applied problems. • Familiarity with basic rules of probability and will beable to use them in modeling uncertainty in obtainingand recording data. • Understand the logic of statistical inference and will be able to apply common inferential procedures
	Computer Fundamentals (OE)	• Upon completion of this course, the student will be describing the components of a typical computer andexplain the characteristics of each of them. • Understand the working of Windows operatingsystem and the services it provides. • Understand the importance of computers in business and society. • Describe various types of networks network standardsand communication software
	Advanced Computer Networks	• After the completion of the course the students will be able to illustrate reference models with layers, protocols and interfaces. • Understands the functionalities of different Layers,Routing algorithmand its applications. •They will be able to describe and analyze the basic protocols of computer networks, and how they canbe used to assist in network design andimplementation. • Explain and identify security and ethical issues in computer networking. • Ability to simulate key networking techniques/algorithms.
	Relational Database ManagementSystems (RDBMS)	databaseapplication scenarios • Write SQL commands to create tables and indexes,insert/update/delete data, and query data in a relational DBMS. • Improve the databasedesign by normalization. • Explain concurrency related issues and solutions to solve concurrency problem
	Design and Analysis of Algorithms	• The outcome of this course will help the students to analyze the performance of recursive and iterative algorithms. • Understanding and performing simple proofs of algorithmic complexity and correctness. • An

		understanding of a variety of well-known algorithms on some of the data structures including the grasping approach, divide and overcome, dynamic programming, backtracking. • To understand P and NP classes. • Ability to understand how the choice of data structures and the algorithm design methods impact the performance of • programs.
	RDBMS Lab.	• Students will be able to construct problem definition statements for real life applications and implement a database for the same. • Design conceptual models of a database using ER modeling for real life applications and also construct queries in Relational Algebra. • Create and populate a RDBMS, using SQL. • Writing queries in SQL to retrieve information from a data base. • To Analyze and apply concepts of normalization to design an • optimal database
	Design and Analysis of Algorithms Lab	• Students will be able to designing algorithms using the concepts of dynamic programming, greedy method, Backtracking, Branch and Bound strategy. • Able to compare, contrast, and choose appropriate algorithmic design techniques to present an algorithm that solves a given problem. • Able to develop the efficient algorithms • for the problems with suitable designing techniques.
	Microprocessor	• Understand the fundamentals of Microprocessors. • Understand the internal design of 8051 microcontroller along with the features and their programming. • Competent with the on-chip peripherals of microcontrollers • Design different interfacing • applications using microcontrollers and peripherals.
	Systems Analysis and Design	• A firm basis for understanding the life cycle of a systems development project; • An understanding of the analysis and development techniques required as a teammember of a medium-scale information systems development project; • An understanding of the ways in which an analyst's interaction with system sponsors and users play a part in information systems development; •Experience in developing information systems models • Experience in developing systems project documentation; • An understanding of the object- • oriented methods models as covered by the Unified Modeling Language
Semester II	JAVA Programming	• Knowledge of the structure and model of the Java programming language. • Use the Java programming • language for problemsolving. • Design object-oriented solutions for small systemsinvolving multiple objects
	Office Automation (OE)	• Solve common business problems using Word • Processors and Spreadsheets packages. • Identify categories of programs, system software andapplications. • Organize and work with files and • folders. • Develop Presentation ability
Third semester	Software Engineering	• The students will be able to demonstrate the minimum requirements for the development ofapplication. • Ability to develop, maintain, efficient, reliable and cost- effective software solutions. • Able to demonstrate and understand how to apply current theories, models, and techniques that provide a basis for the software lifecycle. • Ability to critically thinking and evaluate • assumptionsfor the techniques and tools necessary forengineering practice.
	Programming with Python	• To acquire programming skills in core Python. • To acquire Object Oriented Skills in Python. • To develop the skill of designing Graphical user Interfaces in Python. • Demonstrate significant experience with the Python program development environment. • Understand and

		• implement python modules like NumPy, Tkinter,Matplotlib
	Big Data Analytics	• Understand Big Data and its analytics in the real world • Analyze the Big Data framework like Hadoop and NOSQL to efficiently store and process Big Data to generate analytics Design of Algorithms to solve DataIntensive. • Problems using Map Reduce Paradigm • Design and Implementation of Big Data Analytics using pig and spark to solve data intensive problems and to generate analytics • Implement Big Data Activities using • Hive
	Practical I: Programming with Python	• To acquire programming skills in core Python. • To acquire Object Oriented Skills in Python. • To develop the skill of designing Graphical user Interfaces in Python. • Demonstrate significant experience with the Python program development environment. • Understand and implement python modules like NumPy, Tkinter, Matplotlib
	Data Mining	• The outcome of the course will help the students to • Understand the data mining principles and techniques. • Understand the strengths and limitations of variousdata mining and data warehousing models. • Demonstrate basic data mining algorithms, methods, and tools. • • Understanding of application areas - web mining, textmining, and ethical aspects of data mining.
	Mobile Computing	• Define mobile technologies in terms of hardware, software, and communications. • Utilize mobile computing nomenclature to describe and analyze existing mobile computing frameworks and architectures. • Evaluate the effectiveness of different mobile computing frameworks. • Describe how mobiletechnology functions to enable other computing • technologies
	Digital Image Processing	• Understanding fundamentals of Digital Image Processing including the topics of filtering, transforms and morphology, and image analysis and compression • Be able to implement basic image processing algorithms in MATLAB. • Have the skill base necessary to further explore advanced topics of Digital Image Processing. • Be in a position to make a positive professional contribution • in the field of Digital Image Processing
	Digital Technology	• To perform and get knowledge about applications, virtual learning and internet fundamentals. • Develop holistically by learning essential skills such as effective communication, problem-solving, design thinking, and • teamwork.
	Artificial Intelligence	• To understand basic principles of Artificial Intelligence • Understand formal methods of knowledge representation, logic and reasoning • Understand foundational principles, mathematical tools and program paradigms of artificial intelligence • Design an application of artificial intelligence (AI)
Fourth Semester	Artificial Intelligence Lab	Solve basic AI based problems • Apply AI techniques to real-world problems to develop intelligent systems. • • Design an application of artificial intelligence
	Practical –II Project Work	• On successful completion the project student will be able to demonstrate a sound technical knowledge oftheirselected project topic. • Design engineering solutions to complex problemsutilizing a systems approach. • To report and present the findings of the study conducted • in the preferred domain
	Internet of Things	• Identify the IoT networking components with respect to OSI layer. • Build schematic for IoT solutions. • Designand develop IoT based sensor systems. • Select IoT protocols and software. • Evaluate the wireless

		• technologies for IoT. • Appreciate the need for IoT Trust and variants of IoT
	Cloud Computing	• Describe the principles of Parallel and Distributed Computing and evolution of cloud computing from existing technologies • Implement different types ofVirtualization technologies and Service Oriented Architecture systems • Elucidate the concepts of NIST Cloud Computing architecture and its design challenges • Analyze the issues in Resource provisioning and Security governance in clouds Choose among various cloud • technologies for implementing applications
	Cryptography and Network Security	• Analyze the vulnerabilities in any computing system and hence be able to design asecurity solution. • Identify the security issues in the network and resolve it. • Evaluate security mechanisms using rigorous • approaches, including theoretical. • Compare and Contrast different IEEE standards and electronic mailsecurity.
	Artificial Intelligence (OE)	• Demonstrate fundamental understanding of the history of artificial intelligence (AI) and its foundations. • Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning • Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models. • Demonstrate proficiency in applying scientific • method to models of machine learning.

12. Department of Physics

COURSE		OUTCOMES After completion of these courses students should be ableto :
		Semester I
PHT-1.1	Classical Mechanics	CO1: Learn basic ideas of Newtonian Mechanics. CO2: Understand the Lagrangian approach in classicalmechanics and solve problems using it. CO3: Gain the knowledge of motion in central force fieldCO4: Study Kinematics and Dynamics of rigid body in detail and ideas regarding Euler's equations of motion CO5: Understand the Hamiltonian approach in classical mechanics and solve problems using it CO6: Get knowledge of canonical transformation andPoisson's bracket
PHT-1.2	Mathematical Methods ofPhysics	CO1: Learn about special type of matrices that are relevant in Physics and then learn about tensors. CO2: Understand the methods to ordinary and partial differential equations and then learn different ways ofsolving them. CO3: Analyse the wide range of special functions and their use in solving complex Physics problems. CO4: Analyse the various integral transforms of different series and their applications in Physics.

PHT-1.3	Atomic, Molecular andOptical Physics (General)	CO1: The students will have an understanding of quantumbehavior of atoms in external electric and magnetic fields;CO2: Describe the spectra of single and multiple electron atoms including fine- and hyperfine structure of hydrogenlike atoms, different types of coupling such as L-S and J-J couplings. CO3: Explain the effect of electric and magnetic field onthe atomic spectrum CO4: Analyse the spectra of diatomic molecules such aselectronic, rotational, vibrational spectra and Raman spectroscopy
PHT-1.4	Basic Electronics	CO1: Understand the construction, operation andapplications of diodes, BJT and FET. CO2: The students will have an understanding of the concepts of operational amplifier and its applications. CO3: The students will be able to use techniques foranalyzing analog and digital electronic circuits
PST-1.5	a) Instrumentation	CO1: The students will have an understanding of differenttypes of instruments and errors occurring during measurement. CO2: Understand production and measurement of vacuum.CO3:Understand production and measurement of low and high temperatures CO4:Understand the nuclear spectroscopy
	b) Astrophysics	CO1: Understand the basic concepts of astrophysics. CO2: Apply principles of physics to astronomical objects.
PHP- 1.6 PracticalI	General Physics and BasicElectronics Lab	CO1: Educate the Basics of Instrumentation, DataAcquisition And Interpretation of Results CO2: Have a deep knowledge of fundamentals of optics.CO3:Apply the knowledge to understand the working of
		amplifiers, oscillators and multivibrators CO4:Understand analog and digital circuits
POE-1.7	Physics for All	CO1: Explain how Physics applies to phenomena in the world around them. CO2: Recognizing how and when Physical laws relevant to their field. CO3: Recognizing how and when Physics methods and principles can help in facing challenges to overcome weakness in their problems. CO4: Evaluating the limitations of their solutions CO5: Critically access their current state of knowledge and expertise to develop, implement and refine a plan in order to acquire new knowledge for specific goals and in pursuit of new intellectual interests. CO6: Participate effectively in multidisciplinary and /or interdisciplinary teams. CO7: Communicate effectively via oral, visual and written format to achieve diverse audiences. CO8: Articulate how one's own developing skills can be used in constructive community service or engagement that recognizes the potential impact on local and global issues including environmental impact and sustainability.
Semester II		

PHT-2.1	Quantum Mechanics - I	CO1: To understand inadequacy of classical mechanicsand origin of Quantum mechanics. CO2: To provide an understanding of the formalism andlanguage of non-relativistic quantum mechanics. CO3: The students will be able to formulate and solve problems in quantum mechanics using Schrödinger andDirac representation. CO4: And to understand the concepts of time-independentperturbation theory and their applications to physical situations. CO5: The students will be familiar with various approximation methods applied to atomic, nuclear andsolid-state physics. CO6: To understand the basics of scattering theory
PHT-2.2	Mathematical and Computational Methods ofPhysics	CO1: Elaborate the understanding of group theory. CO2: Elaborate the understanding of complex variables.CO3: Identify a range of numerical methods that are essential for solving problems in Physics CO4: Learn Python-programming technique to solveproblems in Physics.
PHT-2.3	Nuclear Physics (General)	CO1: Acquire basic knowledge about nuclear propertiessuch as mass, spin, radius, binding energy etc. CO2: understand the features of nuclear forces, exchange force and Yukawa's meson theory. CO3: develop the understanding of various nuclearreactions and models CO4: learn the decay process and interaction of radiationwith matter. CO5: learn about the concept nuclear energy, elementaryparticles and conservation laws.
PHT-2.4	Condensed Matter Physics	CO1: understand the concepts of the crystal classes and
	(General)	symmetries CO2: calculate the Braggs conditions for X-ray diffraction in crystals. CO3: create understanding crystal binding and lattice vibrational properties of solid state systems. CO4: learn the basics of the Band theory of solids, Magnetic behaviour materials and defects in solids CO5: gain basic knowledge of semiconductors.
PST-2.5	a)Physics of Nanomaterials	CO1:Understand the basics of nanotechnology CO2: Understand the Quantum confinement effects. CO3: To learn various approaches for the synthesis and fabrication of nanomaterials, nanostructures and nanoscale devices CO4: To learn various advanced methods of characterization techniques for the in depth characterization of materials at nanolevel.
	b) Physics of Laser and Laser Applications	CO1: Characteristics of the laser systems CO2: Know about the basic working principal of different kind of laser systems and use of it in practical applications. CO3:Understand the applications of LASER in various fields
PHP-2.6 Practical II	General Physics and Numerical Methods using Python Programming Lab	CO1: Have a deep knowledge of fundamentals of optics. CO2: Understand the fundamentals of Python programming CO3: Write Python program for simple applications in physics
POE-2.7	Elements of Modern Physics	CO1: Understand the meaning of relativity, frames of reference and postulates of theory of relativity and mass energy relation. CO2: Understand and explain the differences between classical and quantum mechanics. CO3:Explain different Laser used and make a comparison between them CO4: Know the Einstein's coefficients, types of pumping, some applications

		CO5: Condensed matter crystal Structure, Unit cell, Bonding in solids , Band theory of solids CO6: Learn the super conductivity phenomenon CO7: Identify properties of the nucleus and other sub- atomic particles. CO8: Describe theories explaining the structure of nucleus and models.
Semester III		
PHT-3.1	Quantum Mechanics -II	CO1: To understand the concepts of the time-dependentperturbation theory and their applications to physical situations. CO2: The students will be able to grasp the concepts of identical particles, spin and angular momentum, as well astheir quantization and addition rules and symmetry principles. CO3: To apply the concepts of relativity to Quantum mechanics and obtain relativistic wave equations and to grasp the concepts of spin arising naturally from the Diracequation. CO4: Understand quantization of wave fields
PHT-3.2	Statistical Mechanics	CO1: Explain statistical physics and thermodynamics as logical consequences of the postulates of statistical mechanics and Grasp the basis of ensemble approach in statistical mechanics to a range of situations CO2: work out equations of state and thermodynamic potentials CO3:describe the features and examples of Maxwell- Boltzmann, Bose-Einstein and Fermi Dirac statistics CO4:understand fluctuations in various ensembles CO5:to model Brownian motion and random walk problem
PHT-3.3	Electrodynamics	CO1: Understand the laws of electrostatics and magnetostatics CO2: Use Maxwell equations in analysing the electromagnetic field due to time varying charge and current distribution. CO3: Understand the covariant formulation of electrodynamics and the concept of retarded time for charges undergoing acceleration.
PST-3.4	a) Nuclear Physics – I (Special)	CO1: Understand the applications of Particle accelerators CO2: Learn Advanced concepts of Nuclear forces CO3: Nucleon- Nucleon interactions at low energy and high energy. CO4: Analyze the statistics of of nuclear particles With the help of Multi channel analyzer.
	b) Condensed Matter Physics – I (Special)	CO1: To describe the different crystal structures CO2: Shall be able to draw the energy bands, Brillouin zones and Fermi surface. CO3: To formulate basic models for quantization of lattice vibrations and elastic properties of solids CO4: Understand electrical transport in metals and semiconductors.
PSP-3.5	**Specialization Lab**	

Practica lIII	a) Nuclear Physics Lab (Special)	CO1: Apply the theory to find the solutions of practicalproblems. CO2: various simulation techniques which can be used infuture by students to analyze the data. CO3: how to handle nuclear materials and nuclear safelymanagement
	b) Condensed Matter Physics Lab (Special)	CO1: Understand advanced concepts and mathematicalmethods of Condensed Matter physics. CO2: Practice problem solving by using selected problemsin Condensed Matter physics. CO3: Explore important connections between theory,experiment, and current applications. CO4: Analyze the problem studied through analyticalcalculation
POE-3.6	Biophysics	CO1: Understand the interdisciplinary applications of Physics to life sciences.
	Semester IV	
PHT-4.1	a) Nuclear Physics – II (Special)	CO1:Advanced topics of Nuclear fission, Gamma decayand elementary particle physics CO2:Understand the construction and working of Nuclearreactors
	b) Condensed Matter Physics – II (Special)	CO1: To know the magnetic properties of materials CO2: Study the ubiquity of dielectrics. CO3: Understand ferroelectrics.
PHT-4.2	a) Nuclear Physics – III (Special)	CO1: Understand partial wave and perturbation approach of nuclear reactions. CO2: Learn the various spectroscopic techniques in nuclear physics. CO3: Understand the various nuclear models like shell model, collective model, rotational model and Nilsson model.
	b) Condensed Matter Physics – III (Special)	CO1: To explain effect of doping in semiconductors. CO2: To explain the transport properties, Magnetic field effects and optical properties of semiconductors. CO3: Understand fabrication of semiconductor devices CO4: Study low dimensional semiconductor structures CO5: Understand thin film preparation methods and thickness measurements of thin films. CO6:Study the different soft materials
PST-4.3	a) Material Science	CO1: Study structure of solids CO2: Understand the various techniques involved in Crystal Growth. CO3: The basic concepts on Solid phases and phase diagrams. CO4: Understand the phase transformations and diffusion solids. CO5: Study different magnetic materials
	b) MATLAB and LabVIEW	CO1: Understand Basics of MATLAB coding. CO2: Write the program for a given problem in MATLAB coding. CO3: Simulate various electric circuits in MATLAB simulation tool CO4:Understand the data acquisition by interfacing with LabVIEW
PHP-4.4	Project Work	CO1: Understand the importance of experimental and theoretical analysis. CO2: Develop a Scientific approach in solving problems related to physics. CO3: Educate and train the students to write scientific papers.
POE-4.5	Atmospheric Science	CO1: Understand dynamics of meteorology CO2: Understand dynamics of monsoon CO3: Develop numerical methods for atmospheric models CO4: Understand working of atmospheric instrumentation systems.

Course names and their outcomes of all departments

1. Department of History

Semester	Course name and code	Course outcome
I semester	HI-H.1.1 History of Ancient Indian (From Earliest time to Maurya's)	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the History of Ancient Indian
	Paper HI-H.1.2 History of Medieval India (1206 A.D to 1526 A.D)	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the History of Medieval India
	Paper-HI-H.1.3- History of Modern Europe (1789A.D to 1913 A.D)	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the History of Modern Europe
	Paper-HI-S.1.4- Intellectual History of India	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the Intellectual History of India
	Paper: HI-S. 1.5: Art and Architecture of Karnataka from Chalukyas of Badami to Vijayanagar)	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the Art and Architecture of Karnataka
	Paper: HI-S.1.6 Socio Economic History of Ancient India (From Earliest time to 1206)	After Successful Completion of this course the student shall understand Comprehend andanalyze various aspecps and dimension of the Socio Economic History of Ancient India
2nd SEMESTER M. A History	Paper - HI-H.2.1 ANCIENT INDIAN HISTORY (From Kushanas to 1206.)	After Successful Completion of this course the student shall understand Comprehendandanalyze various aspecps and dimension of the ANCIENT INDIAN HISTORY
	Paper: HI–H. 2.2. History of Medieval India (1526 A.D. To 1707 A.D.)	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the History of Medieval India
	Paper-HI-H.2.3. HISTORY OF MODERN EUROPE (SINCE 1914 to 1991)	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the HISTORY OF MODERN EUROPE
	PAPER: HI-S.2.4 –INTELECTUAL HISTORY OF INDIA	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the INTELECTUAL HISTORY OF INDIA
	PAPER: HI-S.2.5 – Political And Administrative Institutions Of India	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the Political And Administrative Institutions Of India
	Paper: HI–S. 2.6 : Socio-Economic History of Medieval India (1206 to 1707)	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the Socio-Economic History of Medieval India

3rd SEMESTER M. A History	Paper : HI-H.3.1: History of Modern India (1600 to 1857)	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the History of Modern India
	HI-H.3.2: History and Culture of Adil Shahi of Bijapur	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the History and Culture of Adil Shahi of Bijapur
	HI–H.3.3 : Research Methodology	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the Research Methodology
	HI-S.3.4 : Freedom Movement in Karnataka	After Successful Completion of this course the student shall understand Comprehend andanalyze various aspecps and dimension of the Freedom Movement in Karnataka
	HI-S.3.5 : Indian National Movement (1857A.D. To 1947A.D.)	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the Indian National Movement
	HI-S. 3.6: Princilpes and Method of Archaeology	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the Princilpes and Method of Archaeology
4th SEMESTER M. A History	HI-H.4.1. History Of Modern India (1858 - 1947)	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the History Of Modern India
	HI-H. 4.2: Historiography	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the Historiography
	HI-H. 4.3: Dissertation	This Paper is based on the Field Work/ Library Work to taken by Students under the Supervision of Qualified Teacher. At the end of Semester Examination Student has to submit the Project Work based on his/her Study Tour/Field Work.
	HI-S.4.4 Constitutional History of Modern India (1773A.D To 1950 A.D.)	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the Constitutional History of Modern India
	HI–S.4.5 : History of Indian Women (From Early Times To 2013)	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the History of Indian Women
	HI-S. 4.6: History of Indian Tourism	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps and dimension of the History of Indian Tourism
	HI- 4.7 OEC . History and Culture of Karnataka(With special reference to Vijayanagar and Bahamani's)	After Successful Completion of this course the student shall understand Comprehend and analyze various aspecps

2. Department of Journalism and Mass Communication

FIRST SEMESTER	Paper JM – H – 1.1: Introductions to Communication	• Students would be able to understand the various theories of Communication • Students would be able to

		inculcate the knowledge of Communication models. • Students would be able to develop the knowledge of basic elements of Communication. • Students would be able to strengthen their 5Cs of Communication. • Student would be able to increase their communication skills
	Paper JM – H – 1.2 Reporting for Media	• Students would understand the basic concepts of news writing. • Students will be having the knowledge of the theory, methods, and practice of gathering information and writing news. • Students would be able to understand ,different types writing techniques such as report, features, articles, columns, editorials etc. • Students will have the knowledge of web writing.
	JM – H – 1.3: New Media	Student will gain basic understanding of digital technologies Student will have the basic knowledge of various audio and video production tools Student will have hands on experience on using digital news platforms Student will be able to create digital contents for various platforms. Student will be able to communicate on social media effectively.
	Paper JM – S – 1.4 Development of Mass Media	• Students would be able to acquaint themselves with the glorious journey of journalism. • Students would be able to enhance understanding of the origin and of the print, electronic and web media. Electronic and web media. • Students would be able to gain knowledge of growth of print, electronic and web media. • Students would be able to acquaint themselves with technological advancements in print,electronic and web media. • Students would be able to throw light on the present status of various mass media
	Paper JM – S – 1.5 Basics of Editing	1. Students would be able to familiarize themselves with the basics of editing

		2. Students would be able to understand the process of editing for various platforms. 3. Students would be able to create understanding of specialized reporting . 4. Students would be able to understand aboutthe dummy , printing and layout. 5. Students would be able to develop the knowledge of photography.
	Paper JM – S – 1.6 Feature Writing and Magazine Journalism	• Students would be able to understand the differences between feature writing and news writing • Students would be able to understand the contents and significance of magazines • Students learns the structure and functioning of editorial departments of magazines • Students obtain the skills of writing various contents for the magazines
	Paper JM – OE – 1.1 Women and Media	• Helps the students to understand the role of women in Media • Student will be able to understand the opportunities for women in Media industry • Students will be having knowledge about the portrayals of women in Media
SECOND SEMISTER	Paper JM – H – 2.1 Graphics and Animation	• Student would be able to understand the various types of graphics used in media • Student will learn to create graphics using graphics designing software • Student will be able to explore the various tools of graphics designing software • Student will get hands on experience in creating graphics of various purposes
	JM–H– 2.2 Electronic Media	• Students would be able to understand the basic concepts of electronic media • Learner would be able to gain skills of producing electronic media contents • Student would be able to understand production stages and the role of crew members • Students would learn the basic knowledge of radio and TV studio setup • Students would enhance the skills of visual and audio editing techniques
	Paper JM – H – 2.3 Gender and Media	• Students would be able to understand the basic concepts of gender bias • Students will be able identify the gender issues in news coverage

		• Learner will learn the gender practices in contemporary media • Student would be able to understand the concept of gender stereotype
	Paper J M – S – 2.4 LANGUAGE SKILLS FOR MEDIA	• Students would be able to strengthen oral communication. • Student would be able to develop the knowledge of writing skills. • Students would be able to improve vocabulary in their regional language. • Students would be able to enrich the knowledge of synonyms, antonyms, idioms and phrases • Students would be able to inculcate the knowledge of grammatical aspects of a language
	Paper JM – S – 2.5 Political Communications	• Students would be able to understand the basics of Political reporting. • Develops the extensive knowledge about regional and national political issues • Gains general knowledge and general awareness about political issues • Students would be able to understand the ethical and legal aspects of covering political issues
	Paper JM – S – 2.6 Science and Technology Communication	• Students would be able to understand the basic concepts of science journalism • Learner would be able to gain knowledge about scientific developments and technological innovations • Students would be able to understand the sources of science and technology news
	Paper JM – OE – 2.1 Reporting for Media	• Students would understand the basic concepts of news writing. • Students will be having the knowledge of the theory, methods, and practice of gathering information and writing news. • Students would be able to understand different types writing techniques such as report, features, articles, columns, editorials etc. • Students will have the knowledge of web writing.
Third Semester	Paper JM – H – 3.1 Media Research Methodology	• Students would learn the basic concepts of research, communication research, media research and social

		research. • Students would know the difference between communication research, media research and social research. • Students would gain knowledge about the need, role importance, functions and ethics of research. • Students would be able to develop and use various tools of data collection
	J M – S – 3.2 MEDIA LAWS AND ETHICS	• Students will learn and understand Indian Constitution. • Shall get aware to legal aspects of the media and its values. • Shall have an overview of recent changes and future challenges of media regulation • Shall have understanding of media ethics. • Shall know how media laws and ethics empower media practitioners to perform their duties with commitment.
	J M – H – 3.3 PHOTO JOURNALISM	• Students will learn and understand the techniques of professional photography • Learner would be able to learn the components and types of digital camera • Student would be able to learn the uses of various tools used in photography • Student shall learn the significance of photo journalism • Shall learn the tools and techniques of photo editing
	PAPER - JM - S - 3.4 – SHORT FILM PRODUCTION	• Students will get hands on experience in producing short films • Students will understand the techniques of writing script and screenplay • Students would be able to get the knowledge of shooting films • Students would be able to learn the techniques of film editing and other post production techniques
	Paper JM – S – 3.5 Environmental Studies	• Students would nain understandinn ogthe concepts of environmental studies. • Students would be able to utilize media for different sustainable developmental activities. • Students would be able to utilize media for different promotional activities for protecting environment. • Students will be able to create awareness about environmental issues in society. • Students ooubd se asbe to dnoo asout

		theconsequences of issues like global warming or climate change
	Paper JM – S – 3.6 Introduction to Cinema	• Students would be able to learn the growth and development of cinema • Students will learn the technology and process of producing cinema • Students will be able to understand the various film movements • Students will be able to learn the new technologies in film making
	Paper JM – OE – 3.1 Introduction to Media	• Students would be able to acquaint themselves with the glorious journey of journalism. • Students would be able to enhance understanding of the origin and of the print, electronic and web media. Electronic and web media. • Students would be able to gain knowledge of growth of print, electronic and web media. • Students would be able to acquaint themselves with technological advancements in print, electronic and web media. • Students would be able to throw light on the present status of various mass media
Fourth Semester	Paper JM – H – 4.1 Current affairs	• Student would be able to get knowledge of current affairs • Student would be able to compare and analyse the newspapers Student would be able to get knowledge of current affairs
	Paper JM – H – 4.2 Public Relations and Advertising	• Students would learn basic concepts of advertising • Students would be able to know about the role and importance of advertising in media. • Students would know about advertising agencies and its functions. • Students would learn about the concepts of public relations, publicity, propaganda. • Students would gain knowledge about the tools of public relations. • Students would learn the basic writing skills required for public relations • Students would gain knowledge about the basic ethics and laws of public relations.
	JM-H-4.3 Development Communication	• Students would learn the concepts, meaning of development • Students would be able to understand the problems and hurdles in development communication. • Learner would understand the working of government and administration in relation to the development.

		• Students would know different programmes and policies of the development • Learner would know the rural India and its problems and also understands the communication gap.
	JM-H- 4.4: INTERNSHIP	• Students would be able to get hand on training in media industry • Students will be able to explore the working process of different media • Students will enchance their skills in different sections of mass media
	JM-S-4.5 Dissertation/ Project Work	• Learner will get hands on experience in communication research • Students would be able to understand the basic concepts of the research • Students will learn to use various tools of data collection • Students will learn the process of data analysis and interpretation • Students would be able to learn the process of writing research report
	Paper JM – S – 4.6 Business Reporting	• Students would be able to understand the basic concepts of business communication • Students would be able to understand the modes of business communication • Students would be able to acquire knowledge about the tools of business communication • Students would be able to understand the role of technology in business communication
	Paper JM – S – 4.7 Event Management	• Helps the student to understand the concept of event management • Students will be able to develop their skills managing the events • Students will be able to enhance their communication skills • Students will develop leadership and management skills
	Paper JM – OE – 4.1 Fundamentals of Communication	• Students would be able to understand the various theories of Communication • Students would be able to inculcate the knowledge of Communication models. • Students would be able to develop the knowledge of basic elements of Communication. • Students would be able to strengthen their 5Cs of Communication. • Student would be able to increase their communication skills
3. Department of Sociology		
I SEMESTER	HC 1.1: Classical Sociological Theory	This Course aims at familiarizing students with Sociological Theories and Methodological Foundations.

	HC 1.2: RESEARCH METHODOLOGY	This course attempts to introduce basic elements of empirical research, various techniques of data collection. Students are expected to do exercise in data collection, analysis and interpretation.
	HC 1.3: SOCIOLOGY OF GENDER	The Objective of this paper is to trace the evolution of gender as a category of social analysis in the late twentieth century
	SC 1.4: SOCIAL STRUCTURE & CHANGE	This course offers a broad overview of the different components of social structure and familiarize with the process of social change.
	SC 1.5 : SOCIOLOGY OF ENVIRONMENT	The course plan aims to provide knowledge of sociological basis of Environment and society interface. It seeks to impart social skills in environmental concerns in order to understand the human sufferings.
	SC 1.6 : POLITICAL SOCIOLOGY	To make the students aware of the prerequisite's of sound democratic political system and its vulnerability. To generate in the minds of students and awareness of their status and role has citizens of the state.
	OE.1.7 SOCIOLOGY OF TRIBE	To make the students aware of the prerequisite's of sound democratic political system and its vulnerability. To generate in the minds of students and awareness of their status and role has citizens of the state.
Second semester	HC 2.1: MODERN SOCIOLOGICAL THEORY	This course intends to familiarize students with theories of anomie, alienation and exchange
	HC 2.2: SOCIAL STATISTICS	The course aims at providing knowledge of the statistical techniques & computer Application.
	HC. 2.3 RURAL SOCIOLOGY	To provide sociological skills to understanding of rural social structure, change and development in India. To impart sociological skills to reconstruct rural institutions and rural development programmes to plan, monitor and evaluate rural development programmes
	SC 2.4 : SOCIAL GERONTOLOGY	This paper is intended to study and to know the traditional ways of accommodating the aged population in the main streams.
	SC 2.5 INDUSTRIAL SOCIOLOGY	As industrial society is a part of society with all its distinctive characteristics and as industrialization has been seedbed of sociological treatise on society, the knowledge and scholarship on industry and society should be the necessary requirement of the P.G Students.
	SO 2.6: SOCIOLOGY OF MIGRATION	This course is aimed at sensitizing students to the significance of the sociological study of dalits, tribal communities and nomadic castes and tribes. The focus of the paper is

		on groups and communities, which have suffered extreme poverty, deprivation and discrimination over a long period of time.
	OE.2.7 GENERAL SOCIOLOGY	The basic aim of the course is to make a preliminary interface of the students with the fundamental concepts in the discipline of Sociology. The course intends to infuse a sociological way of thinking amongst the students. The students will be able to know about the historical evolution of sociology in general and help them to grasp the foundation of Sociological thinking.
Third semester	HC 3.1 ADVANCED SOCIOLOGICAL THEORY	This course aims at familiarizing students with symbolic Interactionism, ethno methodology and phenomenology, which will come under theoretical reformulations.
	HC 3.2. SOCIOLOGY OF GLOBALIZATION	This paper aims to delineate the characteristics of the issues relating to Globalization. After an introduction to the nature and dynamics of Globalization, it explains the various agencies involved in the process, examines its socio-economic and cultural impact.
	HC 3.3: URBAN SOCIOLOGY	Students will be acquainted with the structure, functioning, change and problems of the urban world. The need for sociological theories, approaches methods and concepts to analyse the urban affairs is highlighted in this paper.
	SC 3.4: SOCIOLOGY OF RELIGION	This paper introduces the students to the sub-field of Sociology of religion. It focuses on the inter face between religion and society in India and the contestation over religion in contemporary times.
	SC.3.5 SOCIOLOGY OF MEDIA	This paper presupposes to get the students acquaint with the basic concepts, models, types, functions and means of communication along with the methods of media studies. The course also aims at the students to look critically on the issues of the effects of mass media on youth, culture industry, popular culture, high/elite culture, globalization of culture, digital divide, cultural hegemony and media imperialism etc.
	SC 3.6 SOCIOLOGY OF DEVELOPMENT	To offer an insight into the ways in which social structure imposes on development and development on social structure, to address the Indian experience of social change and development, to prepare the students for professional careers in the field of development planning, to provide an

		understanding of the alternate trends and paths of development, to understand the contemporary socio-economic framework of development in India.
	OE 3.7: CONTEMPORARY SOCIAL PROBLEMS (Inter-Disciplinary Optional Course)	This paper aims at developing a sense of substantial understanding among the students to with a detailed knowledge on specific social problems ranging from socio-cultural, socio- economic to socio-political context. The students will get to know about the remedial measures as well.
Fourth semester	HC 4.1 INDIAN SOCIOLOGICAL THEORY	This course is aimed to familiarize perspectives on Indian society in related thought and theory in sociology.
	HC. 4.2 : SOCIOLOGY OF HEALTH	The main objectives of this paper is to introduce the students the concepts of health and to impress upon them that health is primarily a social science subject than a medical science and make them to understand that health is one of the basic rights of every citizen.
	SC. 4.4: SOCIOLOGY OF FAMILY AND KINSHIP	This course takes students through different approaches to the study of kinship, family, and marriage-key institutions of society, the study of which is a special prerogative of sociology. The course contents will expose students to classical as well as contemporary themes in the field. At the end of this course, students would be able to identify the key elements of kinship, family, and marriage and be able to appreciate their significance in ordinary as well as special circumstances in a range of societies.
	SC 4.5 Population and Society	These credits provide the students a systematic interface of population and society and it also address some theoretical aspects related to the population growth. Further, it coins some basic demographic concepts such as fertility, mortality and migration and their impact on the composition, size, and structure of population. It looks at various policies/ programmes and problems linked with the population control.
	SC 4.6 : SOCIOLOGY OF EDUCATION	This paper Education and Society helps us to understand the application of sociological perspectives to understand one of the important components of society- education.
	OE-4.7 : SOCIAL MOVEMENTS IN INDIA	To introduce the students to the role of social movements in social transformation, to help them understand the various approaches to the study of social

		movements.
4. Department of Women studies		
First semester	WS 1.1: Introduction to Women's Studies	1. Understand the key concepts, issues and debates in Women's Studies. 2. They become aware of the Women's exclusion from knowledge and need for Women's Studies as an academic discipline. 3. Understand the challenges of sustaining Women's Studies in higher education and find strategies for its sustainability
	WS 1.2: Social Structure of Gender	1. Have an intersectional understanding of various social factors which shape the identity of women. 2. understand social issues from a feminist perspective. 3. Students perceive the emerging gender issues.
	WS 1.3: Women's Health	1. Be able to analyze the health issues which concern women throughout the life cycle. 2. Gain ability to address the impact of psychological, physiological, cultural and political factors on the well being of women. 3. To create awareness about the importance of nutrition and health to improve the quality of life for women.
	WS – 1.4.1: Women in Economy	1. Analyze the concept of work from a feminist perspective. 2. Have ability to provide knowledge on the work and contributions of women to the economy. 3. Understand the recent trends of global level and their impact on women's economy.
	WS 1.4.2 Women's Education	1. Realise education as a means of women's empowerment 2. Understand the role of government in improving women's education 3. Gain an overview of women's education in different levels
	OEC)WS 1.5: Feminist Jurisprudence	**1.** Understand women's rights from a feminist perspective. **2.** Becomes aware of the legal rights conferred on women by laws and legislations. **3.** Understand legal provisions as a weapon for empowerment
Second semester	WS 2.1: Feminist Theories	1. Understand various concepts and theories of feminism. 2. Understand the emerging challenges in Feminist Movements.

	WS 2.2: Feminist Jurisprudence	1. Analyze women's rights from a feminist perspective. 2. Understand legal rights conferred on women by the constitution. 3. Understand legal provisions as a weapon for empowerment.
	WS: 2.3 Women's Movement	1. Acquire knowledge on changing status of women in History. 2. Have an understanding of various women's movements in India and West. 3. Understand various issues and challenges before women's movement.
	WS 2.4.1: Gender issues in Governance	**1.** Understand the gender issues in administration and governance. **2.** Get an exposure to understand alternative political process. **3.** Gain ability to understand importance of women's political participation in democracy
	W.S 2.4.2 Feminist Counseling	1. Students understand nature and sources of crisis intervene through counseling. 2. Understand the theoretical basis of counseling skills.Trained to feminist counselors.
	(OEC)WS 2.5: Women's Health	**1.** Gain understanding of health issues which concern women throughout the life cycle. **2.** Gain ability to address the impact of psychological, physiological, cultural and political factors on the health of women. **3.** Understand the importance of nutrition and health to improve the quality of life forwomen.
Third semester	WS 3.1 Feminist Research Methodology	1. To know the significance of research and research methodology in women's studies. 2. To understand doing feminist research. 3. To explore practical guidelines for feminist intervention in conducting research for social change and policy revision.
	WS 3.2 Women's Development and Empowerment	**1.** To provide an understanding of engendering mainstream development discourse. **2.** To make students aware of various developmental initiatives adopted nationally and internationally for women's development. **3.** To understand the concept and process of women's empowerment from different dimensions.

	WS 3.3: Psychology of Women	**1.** To look into psychology from a feminist perspective. **2.** To help students in understanding psychological issues pertaining to women. **3.** To provide awareness on the scientific knowledge base of feminist psychology.
	WS 3.4.1 Women in Livestock Development.	**1.** To make students understand nature and scope of livestock in women's empowerment. **2.** To provide knowledge on livestock as an alternative source of livelihood. **3.** To know the role of women in livestock development.
	WS – 3.4.2 Women, Food and Nutrition	1. To provide information on the nutritional values of food. 2. To give insights into the various gender biases in food intake. 3. To provide knowledge about various health policies and programmes.
	(OEC)W.S 3.5: Feminist Counseling	1. To make students understand nature and sources of crisis intervene through counseling. 2. To introduce the theoretical basis of counseling skills. 3. To train the students as feminist counselors
Fourth semester	WS – 4.1: Feminist Perspective in Literature	1. To provide knowledge to examine the literary texts from a feminist perspective. 2. To enable students to acquaintance with the art of feminist literary analysis. 3. To understand the challenges and opportunities to feminist literary criticism.
	WS – 4.1: Gender and Environment	1. To delineate the characteristics and issues of environment from a feminist perspective. 2. To understand the involvement of women in balancing eco system. 3. To depict the integration of gender concerns and perspectives in policies and programmes for sustenance of environment.
	(OEC) WS –4.5: Women, Food and Nutrition	1. To provide information on the nutritional values of food. 2. To give insights into the various gender biases in food intake. 3. To provide knowledge about various health policies and programmes.

5. Department of Studies and Research in Economics

First semester	EC-H-1.1Micro Economic Analysis –I	• Possess an understanding of the basic principles of micro economics, the Marginality approach and the

		justification of mathematical models to describe consumer and firm behavior. • Understand the basic concepts of micro economics skills to analyze problems of economic policy • Improve analytical skills and ability to solve problems, which will be useful in several other areas of economics • Become familiar with basic concepts of micro economics and acquire analytical skills to analyze problems of economic policy • Improve student's analytical skills and ability to solve problems, which will be useful in several other areas of economics.
	EC-H-1.2 Macro Economic Analysis-I	• Develop an understanding of the basic principles of macroeconomics. • Possess deeper understanding of the concepts like NI, PCI, GDP, GNP, Employment, Output, Investment and Effective Demand • Interpret and evaluate macroeconomic terminology, such as the multiplier, accelerator, and different theories of consumption, investment functions and its determinants • Describe the derivation of IS and LM function Recall the meaning of inflation and list out the effect ofInflation.
	EC-H-1.3 Development Economics – I	• Understand the different stages of development. • Learn various models of development and critically analyze growthand development strategies • Learn about choices regarding technology and scale and investment criteria • Be familiar with models of development and development strategies. • Understand decision making regarding choice of technology and choiceof scale and various criteria for investment.
	EC-S-1.4, Statistics for Economics	• Use of statistical knowledge and integration concepts useful for economic analysis • Identify, critically evaluate and synthesize the substantive theories and create models for understanding economic behavior • Implementation of statistical methods for research analysis and interpretation • Application of Statistical tools in

		applied economics • Use statistical methods for research analysis and interpretation.
	EC-S-1.5 AGRICULTURAL ECONOMICS	• Recall the various concept of agriculture economics • A detailed discussion of issues in agricultural economics • To familiarize students with policy issues those are relevant to Indian agricultural and Attain idea and reforms to expand agricultural production,productivity and income. • To analyze the issues, using basic micro-economic concepts. • Obtain acquaintance to resolve the issues in Indian agriculture
	EC-S-1.6 INDUSTRIAL ECONOMICS	• Gain knowledge about the issues and frame policy measures relevant to Indian industries. • Develop an understanding about different industrial policies and structure and composition of Industry. • Develop an understanding of economics of integration, diversificationand mergers • Acquire a deeper understanding of policy implications of these theories and use them for critical analysis. • Describe policy implications of these theories and their empirical evaluation
	EC-S-1.7 Economics of Human Development	• To learn importance of development for human welfare. • To comprehend issues and policies to remove discriminations in respect to human development. • To understand the level of human development at global and national levelwith its significance. • To study the implications of human development at national andinternational levels. • To make the students aware of the gender dimensions of human development and to understand the progress of human development in India.
	EC-O-1.8 Indian Economy	• Possess knowledge about Indian economic problems in the light of relevant economic theories and in a comparative perspective. • Possess a deeper understanding of the relevance of international trade in view of protection and foreign competition. • Appreciate the evolution of Indian economy, its institutional framework, planning policy. • To equip the students with the theoretical, empirical and policy

		issues relating to the society, policy and economy of India. • To evaluate the background of the globalization process and its diverse ramifications on the knowledge economy.
Second semester	EC-H-2.1 Micro Economic Analysis-II	• To learn all the theories of distribution and determination with reference to rent, wages, interest and profit and social welfare function. • To study partial and general equilibrium analysis, input-output analysis and to study consumer behavior under risk and uncertainty. • To learn different models, market hypothesis as economic information in the field ofproduction and cost to maximize profits. • To compare partial and general equilibrium analysis, input-output analysis and to study consumer behavior under risk and uncertainty. • To review different models, market hypothesis as economic information in the field ofproduction and cost.
	EC-H-2.2 Macro Economic Analysis-II	• To learn all concepts and measures of demand and supply of money with different views of school of economics. • Understand the formulation policies for growth and stabilization. • Acquire knowledge of open economy macroeconomic policies • Know about inflation, its measurement, causes and implications on economy to understand the role of monetary policy to control inflation. • To study the role of open economy with respect to international inflows of capital, saving and investment further to study monetary policy in detail
	EC-H- 2.3DEVELOPMENT ECONOMICS - II	• Understanding of the long-run drivers of differences in income levels across thecountry. • Can outline the main patterns of development in the world in recent decades • Able to explain how proper sect oral aspects lead to development • Competent to find macro-economic policies for development with reference shadow prices and project evaluation. • Learn effects of development on environment with respect to international institutions and trade policies.
	EC-S- 2.4 MATHEMATICS FOR	• Obtain basic mathematical skills to

	ECONOMICS	solve economic issues. • Expansion of mathematical knowledge for further studies. Attain understanding about linear programming • To enable them to apply the mathematical techniques to economic problems To educate students about linear programming
	EC-S- 2.5RURAL DEVELOPMENT	• To study the basics of rural development such as characteristics, problems, theories and programmes of rural development. • Able to understand features and issues through various theories and try to solve problems of rural areas through appropriate schemes / programmes. • Be encouraged for active participation and expansion of infrastructural activities in rural areas to achieve rural development. • To enable the students to take active participation in main stream development process in rural areas with adequate information and skills development. • To understand the rural infrastructure in present scenario
	EC-S- 2.6 KARNATAKA ECONOMY	• Develop knowledge of economic position in Karnataka Economy • Be informed about present trends in major sectors of Karnataka Economy. • To evaluate measures taken by Government of Karnataka to solve the issues. • To check proper functioning of financial institutions and measures taken by government of Karnataka to resolve the issue of regional imbalance • To check credit and financial facilities available in Karnataka and also Regional disparities with respect to causes, extent and special committees framed to remove it.
	EC-S- 2.7 ECONOMICS OFTOURISM	• Learn significance of tourism sector from economic development point of view. • To offer reputation of different aspects of tourism. • Trained with justification for management and policies for tourism sector • To give prominence of different aspects of tourism. To give rationale for management and policies for tourism sector
	EC-O-2.8 karnataka economy	• Develop knowledge of economic position in Karnataka Economy.

		• Be informed about present trends in major sectors of Karnataka Economy. . • To evaluate measures taken by Government of Karnataka to solve the issues. • To check proper functioning of financial institutions and measures taken byGovernment of Karnataka to resolve the issue of regional imbalance. • To check credit and financial facilities available in Karnataka and also Regional disparities with respect to causes, extent and special committees framed to remove it.
Third semester	EC-H-3.1Public Economics	• Enlarged understanding of changing role and functions of government • To gain knowledge about types of goods in public finance • To evaluate rationale of public theory and expenditure. • To gain understanding of revenue, deficit and borrowing and also of federalism. • To impart understanding of the role of state in fostering the economic activities via budget and fiscal policies.
	EC-H-3.2 INTERNATIONAL TRADE AND FINANCE	evelop a deeper understanding of the ifferent theories of international trade. • Understand the economies of scale, tariff and non tariff barriers in internationaltrade • Possess knowledge of the concepts and components of balance of payments andprocess of adjustment and develop the understanding about foreign exchange markets and their operations. • To examine the impact of the trade policies followed at the national and international levels as also their welfare implications for the economies. • To arrive at an understanding of theories of international trade and to examine the impact of the trade policies on the dynamic gains.
	EC-H-3.3 RESEARCH METHODOLOGY AND DATA ANALYSIS	evelop depth knowledge of Research lethodology nderstand the innovative concepts in the area of esearch Methodology nlarged knowledge of creative ideas and rafting ability. o develop original thinking and writing skills

	EC-S-3.4 DEMOGRAPHY	• To gain knowledge about demographic theories in economic activities. • To identify the composition and dynamics of population across the world • To know the composition and dynamics of population across the world. • To understand the concept of urbanization • To aware the population policy in present scenario
	EC-S-3.5ENVIRONMENTAL ECONOMICS	• Possess knowledge of environmental issues and measures to control. • Understand various theories of externality and public goods and their implications. • Evaluate performance on the basis of cost-benefit analysis. • Convergent to the issues like global warming and carbon emissions. • To make them convergent of issues like global warming and carbon emissions
	EC-S-3.6 ECONOMICS OF INFRASTRUCTURE	• Develop acquaintance of infrastructure from development motive • Comprehension of modern infrastructural methods to boost production. • Possess the knowledge of the concepts of improvement in human development • To offer the vital role of social infrastructure for human development and reformsof infrastructure. • To edify working and need of economic infrastructural facilities for production
	EC-S-3.7 REGIONAL ECONOMICS	• Facilitate the students about reasons for regional imbalance and measures tocorrect it. • Understanding of the Regional imbalances in India and Karnataka • To learn students about techniques of Regional Economics. • To enable the students to understand the techniques of Regional Economics. • To acquaint the students with the comprehensive understanding of the Regional imbalances in India and Karnataka
	EC-O-3.8 HUMAN RESOURCE MANAGEMENT (HRM)	• Developed knowledge about the concepts of HRM, Leadership and capacitybuilding.

		• Students will gain sensitive information of gender issues in the area of leadership and Capacity building • To enable the students to understand thoroughly the gender issues in leadership obstacles in Capacity building • To familiarize the students about basic concepts of HRM, Leadership and capacity building. • To understand the present status of Human resource management
Fourth semester	**EC-H-4.1 INDIAN ECONOMY**	• Possess knowledge about Indian economic problems in the light of relevant economic theories and in a comparative perspective. • Appreciate the evolution of Indian economy, its institutional framework, planning policy. • Possess a deeper understanding of the relevance of international trade in view of protection and foreign competition • To evaluate the background of the globalization process and its diverse ramifications on the knowledge economy To equip the students with the theoretical, empirical and policy issues relating to the society, policy and economy of India
	EC-H-4.2 INTERNATIONAL FINANCE & MARKETS	• Develop a deeper understanding of the different exchange rate types and models • Understand different approaches of balance of payment and international capital movements and role of MNCs • Develop knowledge to resolve financial crisis. • To help to understand the theories of international financial markets and alsoreasons for financial crisis. • To help to understand the exchange rates, different concepts of foreign trade and balance of payments
	EC-H-4.3 DISSERTATION	• Able to perform investigative research skill and develop skill of writing report. • Capable of conducting project/research work in the field of economics • Prepare students for research work in future. • Create awareness about research issues in Economics and enable them

		to carry outindependent research. • Gain knowledge of different tools of data collection and application of statisticaltest as per the requirement of research/project.
	EC-S-4.4 BASIC ECONOMETRICS	• To understand econometrics for quantitative analysis in economics • Learn econometric modeling for analysis and decision making and use econometrics for data analysis with latest packages • Understand estimation issues and their implications including, biased selection, non-linearity, heteroskedasticity and mulitcollinearity • To make student conversant with econometrics as a forecasting tool. Use econometrics for model building and as a forecasting tool.
	EC-S-4.5 THEORY OF COOPERATION	• Understand working of Co-operatives and its movements in India. • To help students to get acquaintance about concepts, structureand theories. • To avail the notion about management of cooperatives • To help students to get knowledge about concepts, structure and theories • To help students to get knowledge about concepts, structure and theories • To avail the comprehension about management of cooperatives
	EC-S-4.6 URBAN ECONOMICS	• Familiar about various dimensions of urban economics. • Learn the theories of urban growth. • To build consciousness in Students regarding the urban problems, planning and its governance in India. • To understand the theories of urban growth. To create awareness in Students regarding the urban problems, planning and its governance in India.
	EC-S-4.7 ECONOMICS OF INSURANCE	• Analyze different products of general and life insurance for their practical life. • Help the society to get benefit from insurance as precautionary measures in distress. • Take lead/legal measures for the society in natural devastation/calamities • Undertake to become an agent as a future option for their livelihood. To assist students how to avoid risk through the means of insurance.

	EC-O-4.8 ECONOMICS OF GENDER AND DEVELOPMENT	• Capable of vital role of removing about gender discrimination to improve the growth rate • Learn to remove gender discrimination for the achievement of economicdevelopment • Gain understanding of expansion in gender budgeting and importance policies for equality • To teach reasons for gender discrimination relative economic development • To develop the need of gender budgeting and policies for improvement
6. Department of commerce		
First semester	H1.1 Management Process and Practices	1. To help the students gain understanding of 2. To provide them tools and techniques to be used in the performance of themanagerial job. 3. To enable them to analyze and understand the environment of theorganization. 4. To help the students to develop cognizance of the importance of management principles.
	H1.2 Financial Management	1. To Provide an in-depth view of the process in financial management of the firm 2. To Develop knowledge on the allocation, management and funding of financial resources. 3. To Improving students' understanding of the time value of money concept and the role of a financial manager in the current competitive business scenario. 4. To Enhancing student's ability in dealing short-term dealing with day-to- day working capital decision; and also longer-term dealing, which involves major capital investment decisions and raising long-term finance.
	H1.3 Marketing Management	1. To understand the changing business environment; to identify the indicators of management

		thoughts and practices 2. To outline key marketing concepts and its application to different markets 3. To identify factors and processes essential for designing marketing strategy 4. To analyze and examine the implementation of marketing concepts andstrategy to firms
	H1.4 Human Resource Management	1. To enable the students to understand the HR Management and system at various levels in general and in certain specific industries or organizations. 2. To help the students focus on and analyse the issues and strategies required to select and develop manpower resources 3. To develop relevant skills necessary for application in HR related issues 4. To Enable the students to integrate the understanding of various HR concepts along with the domain concept in order to take correct business decisions.
	S1.5 **Group A Finance** Financial Reporting and Analysis	1. To understand, analyses and interpret the basic framework of financialreporting 2. To study the role of accounting and financial reporting in capturing and conveying economic information about an organisation.
	S1.5 **Group B – Accounting and Taxation** Financial Reporting and Analysis	1. To understand the need and importance of Ind AS 2. To know the framework of presentation of Financial Statements as per Ind AS 3. To acquire the knowledge on Ind AS for Assets and Liabilities 4. To understand the preparation of Standalone and Consolidated FinancialStatements.
	S1.5 Group C Marketing Consumer Behaviour	1. To acquaint students with Consumer Behavior concepts and applications. 2. To enable students to demonstrate the ability to analyze the complexities of buying behavior and use the same to formulate

		successful strategies. 3. To create an understanding of the group influences and consumer behavior in cultural and contextual environment.
	S1.5 Group D Bank Finance Bank Financial Management	1. To help students to understand the conceptual framework of Bankingfinancial management. 2. To acquire the skills necessary to manage a financial firm, to describe and apply financial concepts, theories, and tools.
	O.E 1 Fundamentals of Accounting	1. The basic objective of the course is to equip the students with the understanding of accounting rules and double entry system. 2. To help the students to develop cognizance of the importance of accounting in organization financial statements 3. To enable students to describe how people analyze the corporate financial under different conditions and understand why people describe the financial statements in different manner.
SECOND SEMESTER	H2.1 Organizational Behaviour	**Course Learning Objectives:** 1. To learn the basic concepts of Organizational Behaviour and its applications in contemporary organizations. 2. To understand how individual, groups and structure have impacts on the organizational effectiveness and efficiency. 3. To appreciate the theories and models of organizations in the workplace. To creatively and innovatively engage in solving organizational challenges
	H2.2 Business Research Methods	1. To familiarize students with basic of research and the research process. 2. To Know the different sampling techniques available to conduct research. 3. To understand the various techniques available for testing the

		hypothesis To help students in conducting research work and making research reports
	H2.3 Contemporary issues in Accounting	1. to know the current issues in accounting such as Current cost accounting, Human resources accounting, social responsibility accounting and Inflation accounting. 2. To identify, analyse and interpret indicators of financially fraudulent activity and to explain investigative processes and the nature and range of investigative techniques, and identify situations for their application
	H2.4 Managerial Economics	1. to apply micro economic concepts and techniques in evaluating business decisions taken by firms. 2. To explain how tools of Production Function and price theory can be employed to formulate a decision problem, evaluate alternative courses of action and finally choose among alternatives.
	S2.5G 'A'* Investment Management (SAPM)	1. To understand different investment alternatives in the market 2. To understand how securities are traded in the market and be able to analyze and price different securities 3. To provide an exposure to the students on the various concepts ofinvestment management 4. To facilitate an in-depth study of various techniques and analytical tools there under.
	S2.5G 'B'* Cost Management	1. To understand the significance of Costing Strategy and to identify in costmanagement. 2. The understand the concept of activity-based costing 3. To understand the concepts of JIT, Kaizen Costing and TQM To comprehend the decision-making techniques of costing.
	S2.5G 'C'*	1. To understand the nature and

	Services Marketing	unique characteristics of services and will equip the students for designing appropriate marketing strategy. 2. To develop diagnostic ability, analytical skills, decision-making competency, etc. to different real-life situations.
	S2.5G 'D'* Banking Law and Practice	1. To acquire knowledge about banking laws in India as it is must formanagement students. 2. to have conceptual clarity about the process of banking, product and stakeholders with reference to particular acts passed in India. 3. A deep study about the remittance process, virtual banking, digital banking with various laws applicable in India.
	OE2 Personal Finance	1. To Recognize opportunities inherent with good personal financial planning. 2. To Examine the risks associated with poor personal financial planning. 3. To Analyze basic economic information. 4. To Demonstrate the use of economic information to make informed personal financial decisions.
THIRD SEMESTER	H3.1 Strategic Management	1. To expose students to various perspectives and concepts in the field ofStrategic Management. 2. The course would enable the students to understand the principles of strategy formulation, implementation and control in organizations. 3. To help students develop skills for applying these concepts to the solutionof business problems. 4. To help students to Formulate, implement and evaluate the strategy.
	H3.2 E-Commerce	1. To Explain the concept of ecommerce and its revolution. 2. To Explain the infrastructure of the Internet and how the various

		elements contribute to the marketing distribution solutions. 3. To Explain and develop solutions for implementing an ecommerce site. 4. To Discuss security and ecommerce and the ramifications of neglecting it. To Create a marketing plan and promotional plan for an ecommerce site
	H3.3 Women Entrepreneurship Development	1. To acquaint students to understand the basic concepts of Women Entrepreneurship. 2. To understand the role of Financial Institutions in support of Women Entrepreneurs. 3. To study the impact of SHGs and Microfinance on Empowerment of Women.
	H3.4 International Business	1. The purpose of this paper is to enable the students learn nature, scope and structure of International Business. 2. To enable the study of organisations, their management and the changing external and international contexts. 3. To apply knowledge and understanding of international business and management to complex issues, both systematically and creatively, to improve business and management practice.
	S3.5 G 'A'* Global Financial Management	1. Understand the various stages of expansion overseas that multinational corporations utilize in order to benefit from globalization. 2. Describe the international monetary system and the foreign exchangemarkets. 3. Examine the Balance of Payments (BOP) data and determine its implications for international competition. 4. Explain translation, transaction, and economic exposure to exchange rate

	S3.5 G 'B'*Corporate Tax Planning	1. To provide theoretical knowledge in the field of corporate tax planning. 2. To expose the students to the latest provisions of Income Tax Act. 3. To identify the Tax Planning and Assessment Procedures for Individuals,Firms and Companies. 4. To provide, master and reinforce skills in calculating tax savings and in applying methods of tax planning in companies and financial institutions.
	S3.5 G 'C'* Retail Management	1. To have students develop marketing competencies in retailing and retailconsulting. 2. To prepare students for positions in the retail sector or positions in theretail divisions of consulting companies. 3. Besides learning more about retailing and retail consulting, the course is designed to foster the development of the student's critical and crative thinking skills.
	S3.5 G 'D'* Treasury Management	1. To expose students to the various activities of the treasury department. 2. To provide students with a perspective of the various treasury functions and create an integrated mindset.
	OE3 Basics of Income Tax	1. To Explain the canon of taxation and types of assessment of individualassesse. 2. To Identify the residential status and incidence of tax for the computation taxable income from the perspective of Individual. 3. To Compute income from salary of an Individual assesse 4. To Compute income from House property an Individual assesse To Understand the Concepts of Income from Business and Profession,Capital Gain and Other Sources of Income
FOURTH SEMESTER	H4.1 Business Ethics and Corporate Governance	1. To understand the importance of ethical practices in business. 2. To know the various committee recommendations

		3. To understand the ethical issues in Marketing and Human ResourceManagement. 4. To understand the CSR activities and its provisions available in companies act 2013.
	H4.2 Corporate Law	1. To impart basic knowledge of the provisions and its procedures of theCompanies Act 2013. 2. to provide in-depth knowledge about incorporation, raising capital by companies, borrowings and investments by companies, foreign directinvestment in Indian companies. 3. To understand the procedure for accepting the deposits by Companies 4. To Know the procedure to appoint Auditor and his/her duties andresponsibilities.
	H4.3 Accounting Software Packages	1. To give students a foundation in functional use of the most commonly used accounting software in India 2. This course helps students to work with Microsoft Excel and the accounting software Tally Prime. 3. To understand the security problems faced in Computerized Accounting. 4. To understand the financial Functions in Microsoft Excel 2016.
	H4.4a Project Report **	
	H4.4b Viva-voce	
	S4.5 G 'A'* Risk Management	1. To familiar with derivatives valuation and their use in risk management. 2. To discuss and explain in detail financial derivatives such as options,futures, swaps. 3. To equip students with principles and techniques of Derivatives and its Greeks, and Risk Management through stock market.
	S4.5G 'B'* Indirect Taxes (GST and Customs)	1. To acquaint the students with basic principles underlying the provisions ofindirect tax laws and

		to develop a broad understanding of the tax laws and accepted tax practices. 2. To give an understanding of the relevant provisions of Goods & Service Tax. 3. To define various aspect of indirect taxes (GST) like, Registration, Concept of Supply etc.
	S4.5G 'C'* Digital Marketing	
	S4.5G 'D'* Innovative Perspectives in Banking	1. To familiarize the students about banking in a digitalized environment. 2. To understand the different technologies adopted in Banks. 3. To Learn in details E-banking Meaning, definition, features, advantages and limitations, Electronic Payment System.
	OE4 Goods and Services Tax (GST)	1. To enable students to explain the basic concepts, definitions and terms related to Goods and Service tax (GST). 2. To enable the students, discuss the compliance related to documentation under the new indirect tax regime. 3. To enable the students, analyze the persons liable for registration and the persons not required to obtain registration under the GST law

7. Department of MBA

First semester	H1.1 Principles of Management	• CSO1: To provide a comprehensive introduction to the study of management. • CSO2: To familiarize students into contemporary knowledge, time tested principles, basic concepts, evolving theories and practices in the field of management. students with different • tools, techniques and decision models.
	H1.2 Human Capital Management	• CSO1: To help students to sensitize to various facets of managing people and to focus on the development of knowledge and skills that all managers and leaders need. • CSO2: To familiarize students with current human resource practices that applies to their careers regardless of their field. • CSO3: To facilitate the development of better understanding of human resources issues as they relate to other managerial functions.

	H1.3 Accounting for Managers	• CSO1: Designed to provide a thorough understanding of the accounting concepts and methods with managerial perspective. • CSO2: Helps in decision making process in the total business information system.
	S1.4 Quantitative Analysis for Business Decisions	• CSO1: Familiarize with the role of quantitative methods in management decision-making and to improve analytical skills. • CSO2: Help students to apply relevant quantitative tools in research and decision making areas of management.
	S1.5 Managerial Economics	• CSO1: Familiarize the students with concepts and techniques used in Micro-Economic theory. • CSO2: To develop student capability to apply these concepts and techniques in making decisions pertaining to different businesssituations.
	S1.6 Managerial Communication and Skill Development	• CSO1: To develop skills and competencies to be able to communicate effectively through the written and oral medium. • CSO2: The pedagogical focus of the course will be workshop based with emphasis onpractice and skills development.
	OE1 Fundamentals of Management	• CSO1: To make students acquaint with Fundamentals of Management. • CSO2: To familiarize students with different tools, techniques and decision models.
Second Semester	H2.1 Marketing Management	• CSO1: To introduce the various concepts, principles, frameworks and terms related to the functionand role of marketing.. • CSO2: To make understand the impact of Macro and Micro environment on Marketing, Global Marketing.
	H2.2 Organisational Behaviour	• CSO1: To introduce the the major theories, concepts, terms, models, frameworks and research findings in the field oforganizationalbehavior. • CSO2: To analyze the role of individual, groups, managers and leaders in influencing how people behave and in influencing organizational culture at large.
	H2.3 Financial Management	• CSO1: To provide an understanding of the essential elements of financial management and the financial environment. • CSO2: Focuses on shareholder wealthmaximization which encompasses much of modern corporate finance and its implication for decision making in the present context.
	S2.4 Operation Research	• CSO1: To understand the characteristics of different types of decision-making environments and the appropriate decision making approaches and tools to be used in each type. • CSO2: To understand know how to use variables for formulating complex mathematical models in management science, industrial engineering and transportation science and in real life.

	S2.5 Business Research Methods	• CSO1: To provide understanding and learning fundamental concepts in the field of business research. • CSO2: To equip the students with research tools to conduct research and analysis for effective decision making.
	S2.6 Business Environment	• CSO1: To acquaint the students with concepts and economic frameworks. • CSO2: Helps in understanding the economic environment of an economy and also to present their usefulness for business decision making.
	OE2 Life Skills	• CSO1: Define and Identify different life skills required in personal and professional life. • CSO2: Develop an awareness of the self and apply well-defined techniques to cope withemotions and stress.
Third Semester	H3.1 Strategic Management	• CSO1: To cover the implementation and process aspects of strategy. • CSO2: Focuses on the link between strategic analysis and strategic management, Interdependence of strategic analysis.
	S3.2 Total Quality Management	• CSO1: To acquaint the students with the conceptualization of Total Quality. • CSO2: Aims to closely link management of quality with that of reliability and maintainability for total product assurance.
	S3.3 Innovation in Management	• CSO1: Helps to motivate students to innovate in business by introducing basic terminology, typology of innovations. • CSO2: To familiarize with the impact of innovation and technology on competitiveness with innovative processesand aspects that affect it, includingapplicable methods and innovation management techniques.
	H3.4 F1 Money Banking and Finance	• CSO1: To understand role of Banking and Financial Services in Business organizationsand to give an insight into the strategic, regulatory, operating and managerial issues. • CSO2: Examine the present status and developments that are taking place in the banking and financial services sector.
	H3.5 F2 Financial Services and Markets	• CSO1: Aims to understand the role of Financial Services in Business organizations and to give an insight into the strategic, regulatory, operating and managerial issues. • CSO2: Focuses on financial services sector and developing an integrated knowledge of the functional areas of financial services industry in the real world situation.

	H3.6 F3 International Financial Management	• CSO1: To acquaint the students with the conceptual framework of the key decision areas in international finance. • CSO2: To provide an overview of the financial environment in whichmultinational firms operate.
	H3.4 H1 Labour Law & Industrial Relations	• CSO1: Helps to acquaint the students with the basic labor laws which govern and regulate business entities and transactions. • CSO2: Expose students to the conceptual and practical aspects of industrial relations at the macro and micro levels.
	H3.5 H2 Performance Management and Counseling	• CSO1: Helps to provide a comprehensive conceptual and practical insight in to the entire cycle of performance management. • CSO2: Identifying KPAs and KRAs, designing performance management system. • CSO3: To provide some insights to students into handling behavioral issues at work place by developing counseling skills.
	H3.6 H3 Effective Training and Development Strategy	• CSO1: Provide an in-depth understanding to various stages in a training process • CSO2: Facilitates the students to learn some of the tools and techniques of training process.
	H3.4 M1 Consumer Behaviour and Brand Management	• CSO1: Focuses on Marketing involves decision making in areas like product, pricing, branding, distribution, and promotion. • CSO2: To provide insight into consumer psychology with special focus on how consumers think, feel and act about marketing stimuli that marketers develop. • CSO3: Describes Branding context: assets and the asset, concept of value, brand and marketing metrics.
	H3.5 M2 Services Marketing	• CSO1: To acquaint the participants with the unique challenges faced by service marketers and augment skills and thinking to effectively marketing of services. • CSO2: To emphasize on the emergence of service economy: contributory factors, consumption pattern analysis, economic transformation.
	H3.6 M3 Rural Marketing	• CSO1: Understanding the complex dimensions of the business marketing by focusing on the critical elements of value offerings in rural marketing. • CSO2: Focuses on models and methods for design of rural marketing strategies in a business-to business context.
	OE3 Management and Behavioural Process	• CSO1: Help students develop an understanding of the basic management concepts and behavioral processes in organizations. • CSO2: To introduce the concept of organization structure and design.

Forth Semester	H4.1 Global Business Strategies	• CSO1: Helps students to understand the contemporary changes in the global business environment. • CSO2: To familiarize with the extent of embeddedness of global business in the international institutional setting.
	S4.2 Entrepreneurship Development & Project Management	• CSO1: Provides students with a solid introduction to the entrepreneurial process of creating new businesses. • CSO2: Aim is to provide a suitable framework for gaining insight in the process of preparation, appraisal, monitoring and control of a project.
	S4.3 Advanced Information Technology & MIS	• CSO1: To develop a macro-level perspective of the information technology and its potential. • CSO2: To help organizations create sustainable competitive advantage in respective industries.
	H4.4 F4 Strategic Financial Management	• CSO1: To acquaint the students with the conceptual framework of the key decision areas in international finance. • CSO2: To provide an overview of the financial environment in which multinational firms operate.
	H4.5 F5 Security Analysis and Portfolio Management	• CSO1: Helps to impart knowledge to the participants regarding the theory and practice of Security Analysis and Investment Decision Making Process. • CSO2: Introduction to Investment theory; Investment objectives, constraints andpolicies.
	H4.6 F6 Financial Derivatives and Risk Management	• CSO1: Aims to sets up study in the field of investments related to options, futures and other derivative securities. • CSO2: To acquaint students with derivative securities, markets, pricing, hedging and trading strategies of derivative. • CSO3: To provide the skills to identify and measure risks, quantify risks and create risk response strategies to deliver decisions that meet stakeholder expectations.
	H4.4 H4 Global Human Resource Management	• CSO1: Helps to sensitize students to various facets of managing people and to focus on the development of knowledge and skills that all managers and leaders need in the global scenario. • CSO2: Familiarize students with current global human resource practices that apply to their careers regardless of their field. • CSO3: To facilitate the development of better understanding of global human resources issues as they relate to other managerial functions.
	H4.5 H5 Strategic Talent Management	• CSO1: Aimed at helping students gain an insight into the basic concepts and application of Talent Management in
		business and industry. • CSO2: To emphasize on Talent Management & Talent Engineering.
	H4.6 H6 Compensation & Benefits	• CSO1: Develop, amongst students, an understanding on various issues, approaches and practices of compensation management. • CSO2: To design, analyze and restructure

		reward management policies, systems and practices.
	H4.4 M4 International Marketing Management	• CSO1: Introduce the students to the concepts, strategies and contemporary issues involved in the international marketing of products and services. • CSO2: Focuses on International Marketing Nature, Scope & Concepts.
	H4.5 M5 Digital Marketing	• CSO1: To introduce the students to the emerging dimensions of the internet marketing and develop suitable strategies. • CSO2: To leverage the potential of e- marketing for achieving organizational goals.
	H4.6 M6 Advertising Management	• CSO1: Familiarize the students with the role of advertising in the in context of promoting products and services. • CSO2: Understanding the advertising process and key decision areas for effective management of this function.
	OE4 Business Communication Skills	• CSO1: Aim of the course is to develop skills and competencies in participants to be able to communicate effectively through the written and oral medium. • CSO2: The pedagogical focus of the course will be workshop based with emphasis on practice and skills development.

8. Department of Library and information science

FIRST SEMESTER	ML-H-1.1 Foundations Of Library And Information Science	1. Identify the different types of libraries and differentiate between Academic / Public /Special libraries 2. Understand the importance of the five laws of library science and their implications in Library and Information Centers' activities. 3. Understand the basic philosophy of Librarianship / LIS profession, professional ethics and its / their application / implementation in practicing the profession 4. Understand the significance of LIS education and research in the development of theprofession 5. Identify the nature of information and able to understand the basics of communication
	ML-H-1.2 MANAGEMENT OF LIBRARY AND INFORMATION CENTERS	1. Able to draw up and apply the concept of management theories and principles to library . 2. Toprovide basic knowledge of different sections of the library including the functions and activities. 3. Should be capable of understanding the collect development policy

	IML-H-1.3 INFORMATION PROCESSING:CATALOGUING	• The student will be able to Apply principles of subject cataloguing • Physically describe a document according to different codes of cataloguing. • Catalogue different types of documents by applying standard codes of cataloguingsystems. • Use different metadata describing techniques
	ML-HP-1.4 INFORMATION PROCESSING: CATALOGUING	• Will be able to catalog the documents by using AACR-2R and MARC-21 and learn theSkills of subject cataloguing
	ML-HP-1.5 FUNDAMENTALS OF INFORMATION TECHNOLOGY	**1.** Should be able to use application software like word processor, spread sheets, power point presentation and **MS access** 2. Designing of web page by using HTML tags
	ML-S-1.6 FUNDAMENTALS OF INFORMATION TECHNOLOGY	1. Understand and learn the basic skills of Information Technology and computer 2. Identify and understand the different useful application software and Learn system software 3. Learn about the different Number Systems (Binary, Octal, Decimal and Hexadecimal) 4. Analyze the different programming languages (Machine, Assembly and High-LevelLanguages) 5. Understand fundamentals of Telecommunication and e-publishing
	ML-S-1.7 DATABASE MANAGEMENT SYSTEM	• Students will beAble to understand the functioning of Database Management system. • Acquire hands – on – experience in operating any RDBMS
	ML-S-1.8 ELECTRONIC COMMERCE	1. Should be able to understand the issues and technology involved in e-ommerce. 2. 2.Should be able to plan and implement e-commerce.
	ML-OE.1.9 Reference and Information Sources (Print and electronic)	1. Understand the nature, structure and uses of reference and information sources 2. Identify the primary sources of information and their characteristics 3. Effectively use secondary sources of information with required information searching skills.
SECOND SEMESTER	ML-H-2.1 INFORMATION SOURCES	1.Understand the characteristics of different sources of information 2.Gain the Knowledge of non-print and electronic sources of information. 3.Know the structure of different sources of information. 4.Understand the nature and characteristics of electronic resources. 5.Know about different

		Human and Institutional sources of information.
	ML-H-2.2 MANAGEMENT OF LIBRARY AND INFORMATION CENTRES	1. Should be able to draw up and apply the techniques of planning and implementation of policies and procedures. 2. Should comprehend the basic knowledge and skills of handling the library finances. 3. Should be capable of managing the human resources beneficially. 4. should be able to understand the principle of TQM
	ML-H-2.3 LIBRARY CLASSIFICATION	1. Understand the native of Universe of Knowledge 2. Understand the basics of classification, importance of Library Classification 3. Understand the logic of Knowledge Organization by learning different schemes ofLibrary Classification 4. Familiarize with latest trends in Library Classification
	ML-HP-2.4 INFORMATION SOURCES	1. Understand the nature and structure of informationsources. 2. Able to effectively search different typs of informationsources
	ML-HP-2.5 LIBRARY CLASSIFICATION	• Identify the specific subject of the document by analyzing the contents. • Build call numbers of the documents by constructing class numbers (using DDC and UDC)and book numbers • Understand the logic of mapping of subjects in DDC and UDC.
	ML-S-2.6 INFORMATION LITERACY	1.Understand the different category of library users and their information needs and informationseeking behavior 2.Conduct User Study by adopting different methods and techniques. 3.Understand the importance of informationliteracy in the life – long learning 4.Understand various informationliteracy models and to apply them in different settings
	ML-S-2.7 MARKETING OF INFORMATION PRODUCTS AND SERVICES	1. Will be able to Market the information products based on marketing principles andtechniques 2. Will be able to assess the implications of marketing on LI services and design the LI services.
	ML-S-2.8 CONSERVATION AND PRESERVATION OF INFORMATION RESOURCES	1. Will be able to understand the issues of preservation of information sources. 2. Will be able to preserve and conserve the informationresources 3. Will be able to understand the practice of digital preservation

	ML-OE.2.7 ELECTRONIC AND NON-DOCUMENTARY INFORMATIONRESOURCES	1. Effectively use electronic information sources of information 2. Make use of Open Educational Resources 3. Identify different types of non-documentary sources of information
THIRD SEMESTER	ML-H-3.1 LIBRARY AUTOMATION	1. Understand the basics of Library Automation. 2. Learn different Library Software Packages including Open-Source Software DBMS 3. Get acquainted with different kinds of RDBMS and understand their structure andcomponents. 4. Know about emerging technologies including Barcode, RFID, QR Code Smart card andArtificial Intelligence
	ML-H-3.2 INFORMATION SERVICES AND SYSTEMS	1. Understand the importance of information services. 2. Identify different kinds of Information Centers and their role in information dissemination 3.. 3.Familiarize with different types of information systems at the National and International level. 4..Understand the significance of institutional repositories, open and archives and VRD. understand the nature of information products
	ML-H-3.3 INFORMATION STORAGE, REPACKAGING AND RETRIEVAL	1. Produce/generate manual and computerized indexes by applying different indexing techniquesand methods. 2. Abstract documents using standard guidelines. 3. Design and construct an IR thesaurus
	ML-HP-3.4 Library Automation Practical	1. Should be able to understand technology and issues involved in using library automation software's. 2. To select appropriate library automation software and effectively use it. 3. To plan and design automated library system.
	ML-HP-3.5 RESEARCH METHODOLOGY	Should be able to analyse the data using statistic package
	ML-S-3.6 RESEARCH METHODOLOGY	1. The Student should be able to understand the basic theory and practice of research and be familiar with qualitative and quantitative methods. 2. Carry out a small research project under the guidance/supervision of a teacher. 3. Evaluate and use a wide range of research techniques and methods. 4. Analyze, present and interpret the qualitative and quantitative data with proper statisticaltools. 5. Draw the appropriate findings and produce research report and bring out the knowledge ofethical issues in research
	ML-S-3.7 TECHNICAL WRITING	1. Understand the basic theory and practice of technical writing 2. Prepare technical document.

		3. Distinguish between different types of technical comments. 4. Use software tools to prepare technical comment.
	ML-S-3.8 INFORMETRICS AND SCIENTOMETRICS	1. Conduct Scientometric studies. 2. Describe the growth of literature using various growth models. 3. Identify the latest trends and technology in this area. 4. understand the concepts of research metrics
	ML- OE-3.7 INFORMATION LITERACY	1. Understand the different category of library users and their information needs and information seeking behaviour 2. Conduct User Study by adopting different methods and techniques. 3. Understand the importance of informationliteracy in the life – long learning 4. Understand various informationliteracy models and to apply them indifferent settings.
FOURTH SEMESTER	ML-H- 4.1 NETWORKS, NETWORKING, CONSORTIA AND INTERNET TECHNOLOGY	1. Aware of standards connected with networking and consortia. 2. Learn the activities of library network 3. Able to search Internet resources and use Internet services. 4. Aware of the implications of cyber laws
	ML-H-4.2 DIGITAL LIBRARIES	Get Familiarized with conceptualization l library Understand the design and organization of l library for accessing information online. Know the scripts and standards required for web n. 4. Identity computer hardware, software and other infrastructure required to develop digitallibrary and Multimedia products.
	ML-H-4.3 3PERSONALITY DEVELOPMENT & COMMUNICATION SKILLS	1. Understand the factors influencing personality. 2. Know the significance of communication skills and leadership qualities 3.Able to prepare their biodata. 4. Able to understand the market needs. 5. Capability of self analysis.
	ML-HP 4.4 Digital Library Practical	• Use the digital library software, • Demonstrate the skills for installation of digital library software and digitization process.
	ML-H- 4.4 STUDY TOUR AND INTERNSHIP	1. Gain exposure to different kinds of libraries and their services. 2. Gain the practical knowledge of library housekeeping activities. 3. Understand the practical problems of library

		management. 4. Develop leadership qualities
	ML- S- 4.4 Dissertation and Viva-voce	
	ML-S-4.5 Compilation of Information Product	
	ML-S-4.5 Development of a KOS Tool	1. Subject the dissertation by conducting a research study or report of compiling an info product/KOS tool. 2. Face vive-voce confidently
	ML-OE- 4.7 KNOWLEDGE SOCIETY	1. Understand the characteristics of Knowledge Society. 2. Aware of cyber laws and their implications
VALUE ADDED CERTIFICATE/PROFIENCY COURSES		
	LS-VC-1.1: Knowledge Management	1. Understand the basic of knowledge management. 2. Apply the skills required for knowledge management.
	L-VC-1.1: Knowledge Management L-VC-1.2 Content Management	1. Understand the conceptualization of content. 2. Able to work on different CMS softwares.
	L-VCP-2.1 Libraries and Users	1. Understand the role of libraries in modern society. 2. Understand the basic library operations like classification, Cataloguing Circulation ofbooks. 3. Understand the information gatheringneeds and gathers habits of users.
	L-VCP-2.2 (3-1-0) Information Literacy	1. Able to understand the characteristics of information literacy. 2. Able to imbibe the IL Skills. Use style manuals effectively and provide reference scientifically
	L-VCP-2.3 : Scholarly Communication	1. Able to understand the characteristics of scholarly communication. 2. To imbibe the scholarly writing Skills. 3. To understand the ethical issues in scholarly communication and writing
	CL-1.1: FOUNDATIONS OF LIBRARY SCIENCE	1. Understand the role of libraries in society. 2. Understand the importance of five laws of library science. 3. Get acquainted with laws related to libraries. 4. Became aware of the activities of national documentation centers. 5. Will understand the professional ethics.
	CL-1.2: MANAGEMENT OF LIBRARIES	1. Will understand the basics of library management. 2. Understands the basics of FRM & HRM 3. Able to identity different section and their activities. 4. Know the importance of library.
	CL-1.3: LIBRARY CATALOGUING AND LIBRARY CLASSIFICATION	1. Will understand the significance of cataloguing and classification. 2. Become aware of normative principles of

		library cataloguing an classification. 3. Understand the features, structures and applications of RDA and DDC
	CL-1.4:LIBRARY CATALOGUING AND LIBRARY CLASSIFICATION (PRACTICALS)	Able to cataloguing the documents and classify the books.
	CL-1.5: INFORMATION SOURCES	. Become aware of the users of different types of inf[n] sources.
	CL-1.6: INFORMATION TECHNOLOGY	1. Will be able to work on computers. 2. Able to work with SUUL/NIC- e-granthalaya

9. Department of Political Science

First semester	Paper -PS-H – 1.1 Ancient, Medieval Western Political Thoughts	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Ancient and Medieval Western Political Thoughts
	Paper -PS-H – 1.2 Theories of Public Administration	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Theories of Public Administration
	Paper -PS-H – 1.3 Theories of International Relations	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Theories of International Relations
	Paper -PS-S – 1.4 Constitutional Developments in India	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Constitutional Developments in India
	Paper –PS-S – 1.5 Government and Politics of Karnataka	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Government and Politics of Karnataka
	Paper –PS-S – 1.6 Political Sociology	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Political Sociology
Second semester	PS-H – 2.1 Modern Western Political Thoughts	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Modern Western Political Thoughts
	Paper -PS-H – 2.2 Good Governance – Practice and Challenges	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Good Governance
	Paper –PS-H – 2.3 Major issues in Contemporary World Politics	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Major issues in Contemporary world Politics.
	Paper –PS-S – 2.4 Dynamics of Indian Political System	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Dynamics of Indian Political System
	Paper –PS-S – 2.5 Organizations and Management	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Organisation and Management

	Paper –PS-S – 2.6 International Organizations	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the International Organisations
Third semester	Paper –PS-H – 3.1 Ancient and Medieval Indian Political Thoughts	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Ancient and Medieval Indian Political Thoughts
	Paper –PS-H – 3.2 Foreign Policy of India	After Successful Completion of this course the student shall Understand Comprehend andanalyse Various aspects and dimension of the Foreign Policy of India
	Paper –PS-S –3.3 Research Methodologies and Computer Application	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Research Methodologies and Computer Application
	Paper –PS-H – 3.4 Major Issues in Indian Administration	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Major issues in Indian Administration
	Paper –PS-H – 3.5 Contemporary Political Theories: Concepts & Debates	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Contemporary Political Theories: Concepts & Debates
	Paper –PS-S – 3.6 Financial and Personnel Administration	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Contemporary Political Theories: Concepts & Debates
	Paper –PS-O -3.7 Women In Politics	Students will demonstrate knowledge of social, economic, *political*, intellectual and cultural contributions of *women in the* past and present
Fourth semester	Paper –PS-H – 4.1 Modern Indian Political Thinkers	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Modern Indian Political Thinkers
	Paper –PS-H – 4.2 India and its Neighbors	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the India and its Neighbors
	PS -H 403 : Project Work	The rationality of the project work is to make the student to acquire the ground reality of the area that he/she chose. It gives a practical experience to the student to prepare ideas, analysis, estimate and come out with facts and solutions. The theoretical frame work is also very much essential to formulate objectives and to prepare the analysis on the chosen area. The student will have to attain the knowledge of getting sources, investigate, formulations and arriving at conclusions. The project work will be a prelude to research.
	Paper –PS-H– 4.4 Contemporary Political Thoughts	ter Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Contemporary Political Thoughts
	Paper –PS-S – 4.5 Development Administrations	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Development Administration

	Paper –PS-S - 4.6 Comparative Government and Politics	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Comparative Government and Politics
	Paper –PS-O – 4.7 Public Administrations	After Successful Completion of this course the student shall Understand Comprehend and analyse Various aspects and dimension of the Public Administration
10. Department of English		
First semester	***1.1HC*** **THE ENGLISH LANGUAGE**	CO 1: The students shall have comprehended the evolution of the English Language historically. CO 2: The students shall have undestood how the spelling, word order and pronunciation were developed and standardized in the English Language CO 3: The students shall have learnt the English grammar. CO 4: The students shall have understood how American English evolved and how the English Language has attained the status as World Language
	1.2HC **BRITISH LITERATURE - I(1450 -1750)**	CO 1: The students shall get introduced to the history of English Literature from 1450 to 1750. CO 2: The students shall have learnt the factors that led to the change in the Age of English Literature CO 3: The Students shall be able to study the poetry, drama, novel, short-story and Essays of the said Ages.
	1.3 HC **LITERARY CRITICISM**	CO 1: understand the significant developments in literary criticism. CO 2: identify the major literary traditions. CO 3: understand the art of practical criticism. CO 4: understand the different perspective on literature.
	1.1SC INDIAN LITERATURE IN ENGLISH TRANSLATION	CO 1: appreciate the variety of Indian literature, ethos and culture CO 2: understand the skill and significance of translation CO 3: be motivated to undertake research in the field of translation studies andcomparative literature
	1.2 SC CHILDREN'S LITERATURE	CO 1: The students shall have got acquainted with the history ofChildren‟s Literature. CO 2: The students shall h""""ave learnt the major writers and their works of Children‟s Literature. CO 3: The students shall be introduced to all forms of Children‟s Literature. CO 4: The students shall have understood the principles and motto of Children‟s Literature
Second semester	**2.1 HC BRITISH LITERATURE – II (1750 -1966)**	CO 1: The students shall get introduced to the history of English Literature from **1750 -1966**. CO 2: The students shall have learnt the factors that led to the change in the Ages of English Literature CO 3: The Students shall be able to study the poetry, drama, novel, short-story and Essays ofthe said Ages.
	2.2 HC DALIT LITERATURE	CO 1: Students will also be able understand the revolutionary and transformative tone of dalit

		scholars. CO 2: Students will also be able to know the newer writings in dalit culture andappreciate it. CO 3: Students will also be able know the history of social and cultural change. CO 4: Students will also be know the stories of sorrow, tribulations, slavery, degradation, ridicule and poverty underwent by Dalits.
	2.3 HC AMERICAN LITERATURE	CO 1: Appreciate the literary tradition of the United States of America CO 2: Understand the variety of literary output in American Literature CO 3: Understand the socio-cultural movements in the United States of America
	2.1 SC AUSTRALIAN LITERATURE	CO 1. Through this course the students shall be able to understand and appreciate the birth, growth, and development of Australian Literature. CO 2. The students shall have got acquainted with the major writers and their works of Australian Literature. CO 3. This course can give a foundation of research in Australian Literature.
	2.2 SC CANADIAN LITERATURE	CO 1: The students shall get familiarize with the tendencies and trends that exist in Canadian Literature. CO 2: The students shall get familiarize with the various aspects of CanadianLiterature. CO 3: The students may become aware of Canadian culture and its Literatures. CO 4: The students shall study the major Canadian writers and their works.
Third semester	**3.1 HC World literature**	CO 1: The students shall have learnt concept of world literature by way ofstudying literary works of various countries to the students. CO 2: The students shall have learnt forms of literature (Poetry, Drama, Novel, short story and essays beyond our country to the students
	3.2 HC INDIAN WRITING IN ENGLISH	CO 1: The Students Shall Have Learnt The Literary Theories To The Students. CO 2: The Students Shall Have Learnt The Application Of Literary Theories In Various Forms Of The Literary Works.
	3.3 HC BOOKER PRIZE WINNING NOVELS	CO 1: Students will be able to read the texts closel and within the tradition. CO 2: Students will develo the resources to critically asses the canon. CO 3: Students will be able to criticize the nationalists‟ ideologies of the writers. CO 4: Students will be able to know the growth & development of Indian fiction, drama and prose in English.
	3.1 SC SUBALTERN LITERATURE	CO 1: Students will be able to read the texts closely from the various traditions. CO 2: Students will develop the resources to critically asses the canon. CO 3: Students will be introduced to the significant

		developments in the evolution of Booker Prize. CO 4: Students will be introduced to Booker prize winners and their literary contribution.
	3.2 SC LITERARY THEORY	CO 1: The students get introduced to the concept and Literature dealing withvarious kinds the subalterns(Racial; Religious; Gender) CO 2: The students get the exposure to the poetry, drama, novel, short story and prose of Subaltern Literature CO 3: The students shall gain the critical insight and thinking about the issues and treatment of subalterns in the society.
Fourth semester	**4.1 HC BLACK BRITISH LITERATURE**	CO 1: Appreciate the literature of the Blacks in England CO 2: Understand the politics, dynamics and effects of migration CO 3: Have mastery over genres in Black literature
	4.2 HC CULTURAL STUDIES	CO 1: Students will also be able the paradigm shifts in various cultures CO 2: Students will also be able know the basis of the formation of culturalconstructs. CO 3: Students will also be able to understand functionality of cultures. CO 4: Students will also be able analyse culture and its multidimensional
	4.3 HC WOMEN'S LITERATURE	CO 1: The students shall have understood the creative sensibility of Women literary writers of national and international
	4.1 SC INDIAN DIASPORIC Literature	CO 1: Understand the nuances of Diasporic literature and culture CO 2: Analyze the chief concerns of the diaspora such as alienation, uprootedness, cultural hybridity, etc. CO 3: Possess an all-round knowledge of the Indian Diasporic Literature
	4.2 SC LITERATURE OF THE NOBEL LAUREATES	CO 1: Know the various criteria considered while awarding the Nobel Prize forLiterature CO 2: Have a knowledge of the modern classics in world literature CO 3: Appreciate the values presented in the literature of the Nobel Prize WinnersCO 4: Broaden their horizons in the study of literature
11. Department of HINDI		

First semester	**HC.1.1 History of Hindi Literature (Aadikaal se Ritikaal)**	**CO:**To understand the literatures of Adikal and Bhaktikal in context of socio- economic, cultural and political condition of those periods. To identify the all eminent Hindi writers of Adikal, Bhaktikal and Ritikaal. To understand the philosophy of life as well as literature of Vidyapati To study the writings of Bhaktikalin Sant poet Kabirdas andJayasi. To study the Krishna bhakti and Ram bhakti poem of Surdas and Tulsidas along with their philosophy of bhakti culture and its impact on our day to day life. To understand the philosophy of life as well as literary works of Dadudayal , Mirabai and Raskhan. To understand the basis of the name Ritikal. To know the basis of the name of Ritibadha, Ritisidha ,Ritimukta. To understand the whole literatures of Ritikal and its characteristics. To identify and analysis the eminent Hindi writers and their literatures of Ritibadha, Ritisidha, Ritimukta
	H.C1.2 General Linguistics	**CO:**To understand the meaning, concept, characteristics, ,kinds, development of a language. To understand the meaning, concept, kinds and different part of linguistics. It is a complete paper on linguistics. To know about the origin of Hindi language .To knows about the meaning, its history, Hindi speaking area etc. To identify the dialects of Hindi language. To understand the phonetics of Hindi language. To know sentence making of Hindi. To understand Hindi grammar which helps students to become creative writers as well as they will speak and

		write Hindi language without any mistake. To know about script of Devnagri.
	H.C.1.3 Ancient and Medieval Hindi Poetry	**CO:**Understanding the role played by the poets of Prachinkaal culture in literature and society. Understanding the role played by the poets of Bhakti cult in literature and society. Describing the progressive nature of sant Kabir and his writings. Describing the krishna leela poetry of Surdas by relating it with his philosophy of hislife. Describing the Rama Bhakti poetry of Tulsidas along with the philosophy of Bhakti cult. Understanding the vision of Mira in context of her Krishna Bhakti poetry. Describing the content and the skill of writings of Bihari in context of the socio cultural condition of his period.
	SC.1.1 Krishna Sobati	**CO:**Describing the dual nature of modern people in present era. Describing the nature of revolt of Krishna Sobati through her Prose. Understanding the importance of environmental protection through Krishna Sobatis 'writings. To give specific knowledge of modern era of Hindi literature. Understanding of major Novels and Short Stories will develop.
	SC 1.2: Dhoomil	**CO:** Dhoomil is a famous contemporary poet in Hindi. The course shall help the students to understand the contribution of Dhoomil to Hindi literature.
	OE. 1.1. Hindi Language, Grammar& Literature	**CO:** The students will be able to improve their linguistic skills such as listening, speaking, reading and writing in Hindi. The basic knowledge of Hindi grammar is essential for the students to be better communicators.
Second semester	**HC 2.1: History of Modern Hindi Literature**	**CO:** Through this course, the students will be able to understand the significance of Modern Hindi literature, by studying various genres such as novel, stories, poetry and drama. They will also have a sound knowledge of the history of Hindi literature in modern times. This course will help the students in competitive exams such as NET/SLET.etc.
	HC 2.2: History of Hindi Language and Structure	**CO:** By studying this course, the students will have knowledge of the evolution of Hindi language, sounds in Hindi language, sentence patterns, word patterns, etc. This shall increase their knowledge about Hindi language in general and help them pursue research in the field.

	HC 2.3: Modern Hindi Poetry	**CO:** This course includes a detailed study of famous Hindi poets such as Maithili Sharan Gupt, Ramdhari Singh Dinkar, Nagarjun, Muktibodh, etc. and their poetical works. The students shall be able to understand Hindi poetry and it shall help them in competitive examinations such as NET/SLET.etc.
	SC 2.1: Hindi Dalit Literature	**CO:** Through this course, the students will be socially aware of the problems and challenges faced by the underprivileged classes of the society. It shall sensitivise them about human rights of Dalits and other people belonging to lower social class
	SC 2.2: Women's Writing in Hindi	**CO:** This course focuses on women empowerment by introducing women writers to students. Through the study of women's writings in Hindi the students will be able to understand various perspectives of women's lives, women'sliberation movement, changing status of women in the modern society and other aspects that relate to gender equality.
	OE 2.1: **Prose - diverse dimensions**	**CO:** Through this course, the students will acquire knowledge about the variety of genres in Hindi prose literature. This shall encourage them to read and write stories, essays, novels, etc.
Third semester	**HC 3.1: Indian Poetics**	**CO:** Through this course, the students shall learn about the Indian poetics. Through this comparative approach the students will have a critical knowledge required to understand Hindi literature. iii. By studying this course, the students can compete well in the examinations such as NET/SLET.etc This course provides a vast scope for research.
	HC 3.2: Hindi Fiction	**CO:** The students, by studying this course will know about the history of Hindi fiction, famous novelists and story writers and their works in Hindi.
	HC 3.3: Hindi Criticism andCritics	**CO:** This course is very significant as it enhances analytical and critical thinking in students about literature. Through a study of history of criticism and theory, types of criticism and criticism of Hindi literary world, the students will have an in-depth knowledge in this field. Various critical approaches of famous Hindi critics such as Acharya Ramchandra Shukla, Acharya Hajari Prasad Dwivedi, Dr. Ram Vilas Sharma and others are also taught to students. This course helps them in competitive examinations such as NET/SLET and research..
	SC 3.1: Hindi Media and Journalism	**CO:** Students gain knowledge of Hindi news, media, report writing and journalism. Through this practical and skill

		based course, the students will become employable in thefield of journalism.
	SC 3.2 Functional Hindi and Translation (Theory & Practical)	**CO:**To understand the various forms of Functional Hindi.To study the meaning and area of application of Functional Hindi. To understand the uses of Hindi in various field. To study the official language Acts of 1963 and 1976. To know about different types of official letters and students able to know how to write letters. To know about technical terms of Hindi language. To practice of annotation writing, report writing, condensation writing. TO acquire good knowledge of translation. To learn about translation from English to Hindi they can become translator, interpreter etc. Students can easily be employed in various sectors after successfully completing this paper. To learn communicative skill.
	SC 3.3: Cyber Hindi	**CO:** Technology is the need of the hour. Computer technology is also used in literature and languages today. This course is intended to teach the students how to use computer based technology in the context of Hindi language and literature. The students, after completing this course, will be able to learn Hindi typing, browsing and creating Hindi material online, mailing, etc in Hindi language.
Fourth semester	**HC 4.1: Western Poetics**	**CO:** Through this course, the students shall learn about the Western poetics. Through this comparative approach the students will have a critical knowledge required to understand Hindi literature. iii. By studying this course, the students can compete well in the examinations such as NET/SLET.etc iv. This course provides a vast scope for research.
	HC 4.2: Drama and Other Formsof Prose	**CO:** Through this course, the students will have a sound knowledge of dramaturgy along with other forms of prose such as essays, autobiography, biography, reports, travelogues and memoirs. They will be able to utilize these forms of literature in future for their creative expression.

	HC 4.3: Hindi and Indian Comparative Literature	**CO:** By undergoing this course, the students shall be able to know Hindi literature in comparison with literature in other Indian languages. This shall increase their research acumen. The students will learn to appreciate the content and significance of literature in other Indian languages as well.
	SC 4.1: Hindi Cinema and Literature	**CO:** BothCinema and literature express various aspects of human life. Most of the cinemas are based on literary works. Through this course, the students shall be able to understand the relationship between these two fields. They will also understand the concepts such as script writing, photography and other technical knowledge about films and can take up a career in this field in future.
	SC 4.2: Folk Literature	**CO:** Through the study of folk literature, the students shall have a knowledge of Dakkhani Hindi literature, regional writings of Karnataka (Kalyan Karnataka) and contributionof scholars and writers of this region.
	OE 4.1: Contemporary	**CO:** This course is offered with the aim of introducing Hindi literature to the students of other departments of the university. They will be able to understand the uniqueness of Hindi literature. They will have a basic knowledge of various writers and genres in contemporary Hindi literature.

12. Department of Kannada

semester	Course Code and name	**Course outcome**
First semester	KAN-HC.1.1 Pracheen Kannada Sahitya	1. ThiscoursebasedonoldKannadaLanguageand Literature. 2. Bystudyingthis courseStudentsget an opportunitytoknow the ancientsocial values.Andunderstandingold KannadaPoetry. 3. ToknowingTraditionandcultureofancient Societythrough thiscourse.
	KAN-HC.1.2 Bharateeya Kavya Meemamse	1. ThiscoursebasedonAncientIndianPoetics. 2. Bystudyingthis courseStudents geta KnowledgeaboutIndian poetryInthesamewayStudentsget a different KnowledgeofIndian poetry.
	KAN-HC.1.3 Karnataka Sanskriti mattu	1. ThiscoursebasedonKarnatakaCulture and InscriptionStudy.

	Shashana Sahitya	2. ThisSubjecthelpstoStudentsunderstandour KarnatakaregionalCulture.
	KAN HC 1.4 Kannada Nataka Sahitya	1. Thiscoursebasedonfeminismandtheories. 2. ByStudyingthiscoursestudentsgetsknowledgeaboutfeminist criticism. 3. Thispapercreatesawarenessaboutgenderdiscrimination.
Second semestser	Madhya Kaleena Kannada Sahitya KAN-HC.2.1	1. Thiscoursebasedonmedievalperiodof KannadaLiterature. 2. BystudyingthissubjectStudent cangetknowledgeofhistoricalchangesin KannadaLiteraturestep bystep. 3. Thissubjectwill helpwholeM.A.Kannadacourse.
	Paschatya Kavya Meemamse KAN-HC.2.2	1. Thissubjectbased onEuropean Poetryand criticism. 2. StudyingthissubjectStudentcangetknowledgeofEuropeanThinkers aboutglobalLiterature.
	KAN-HC.2.3 Sahitya Vimarshe	1. ThiscoursebasedonliteraryCriticism. 2. Otheradvantageofthecoursethat Student will developtherecriticismability. 3. Studentstudiesdifferentcriticaltheoriesaboutliterature.
	KAN HC 2.4 Janapada Sahitya	1. ThiscoursebasedonwomenLiterature. 2. Thissubjecthelpstostudents understand the Feminismtheoryand practice. 3. ItChangetheStudentsaspecttoknowingtheSociety.
	KAN-OE02	1. ToStudyingthispaperstudentgetsknowledgeaboutsharanaLiterature. 2. Studentawreaboutsharana'smovementof12th centuryinKarnataka. Student studiesthestyleofNadugannada Languegeand Poetry.

Third semester	KAN HC 3.1 Adhunika Kannada Sahitya	1. ThiscoursebasedonModernKannada Literature. 2. By studying this course Student can get awareof Modern thinking aboutsocial life byKannadaLiterature andinthesame way. 3. Studentcanget knowledgeModernformsofLiteratureinKannada.
	KAN HC 3.2 Toulanika Sahitya	1. ThiscoursebasedonLangueges. 2. Student canget knowledgeaboutoriginoflanguage. 3. BenfitofthisCourseisScientificstudyoflanguages. 4. StudentsLearntlanguageStructureanditsClassification
	KAN HC 3.3 Bhasha Vijnana	1. ThiscoursebasedonKannadaResearch Methodology,bystudyingthissubject 2. StudentcangetknowledgeResearchtechniquesandanalisationofliteraturefacts. 3. Student canlearnhowtoresearchindifferentsubjects.
	KAN HC 3.4 Kannada Sanoshodhane	1. WomenLiteratureismost Important partofKannadaLiterature. 2. AfterstudyingofthisPaperstudentareget awarenessofwomenissuesinSociety. 3. ThiscourseischangingtheTraditionalthinking.
	KAN SC 3.5.1 Mahila Sahitya-3	1. Todevelopstudents' creativityofKirtanaformin15thcentury. 2. Todevelopthesocialcriticebility.
	KAN SC 3.5.2 Vishesha Kavi Adhyana: Kanakadas	1. Tounderstandandcriticalevaluatethemordent Kannadalitreture. 2. Itdevelopsemosnalintaligensandcreativity.
	KAN SC 3.5.3 Adhunika Samooha Madhyamagalu	1. Literaturehelpsthestudenttodevelopinterpretativeabilities. 2. TounderstandthecultureofKarnataka
Fourth semester	KAN HC 4.1 Adhunika	1. Demonstrate knowledge and

	Kannada Sahitya -2	understanding of **report**writing Demonstrate appropriate referencing anddevelop skills in other aspects of academic writing …Identify, summaries and critically evaluate relevantliteratureandwrite a literaturereviewofthe relevantfield
	KAN HC 4.2 Kannada Mahakavagalu	1. Student getsknowledgeabouthowtoeditoldKannada Books.Studyingthiscoursestudentsgetknowledgeaboutchandassu
	KAN HC 4.3 Chandassu mattua Grantha sampadane	1. Tounderstandthegrammarofkannadalanguage. 2. Improvethegrammaticallywritingskills. 3. Studentawarerulesofkannadalanguage.
	KAN HC 4.4 Kannada Vyakarana	1. WomenLiteratureismost Importantpart ofKannadaLiterature. 2. AfterstudyingofthisPaperstudentareget awarenessofwomenissuesinSociety. 3. ThiscourseischangingtheTraditionalthinking.
	KAN SC 4.5.1 Mahila Sahitya pathya -4	3. Litrectrehealpsthestudenttodevelopenterpretativeabilitys. 4. TounderstandtheculctureofKarnataka.
	KAN SC 4.5.2 Sangatya Sahitya	1. litrectredevelopthestudentpersonality. 2. Itscultivetswisdom. 3. Itcreatesgoodspeakersandwirters.
	KAN-O E 04. Vyavaharika Kannada	1. To improves comunucative skills correspondence ability like letter wirting applicationwirtingect. 2. Studentimprove theirredingandwirtingskills. 3. Studentdemonstratebothoralcommunicationskills.

13 . Department Of Music

Semester	Course Code and name	Course Outcome

First Semester	MM-SC-1.1 HindustaniVocalTheory-1	**CO 1:** By studying this course, the students shall get a thorough theoretical knowledge in Music **CO 2:** After studying this course, the students shall acquire theory of practical music **CO 3:** Studying this course, the students will be introduced to various important literature related to musicology.
	MM-SC-1.2 HindustaniVocalTheory-2	**CO 1:** By studying this course, the students shall get a thorough theoretical knowledge in Hindustani Classical Music **CO 2:** After studying this course, the students shall acuqire theory of practical music like a Raaga etc... also got the inspiration of legend artists. **CO 3:** Studying this course, the students will be introduced to various important literature related to musicology. **CO4:** Students learning this course can compete effectively in the examinations such as NET/SLET.
	MM-HC-1.3 PracticalHindustanivocal-I	**CO1:**After completing this course, the students shall be able to perform in Hindustani classicalmusic. **CO 2:** Studying this course, the students shall beableto perform'KhyaalGayan' **CO 3:**Studying this course, the students shall beable to perform in semi-classical forms such as'Thumri' **CO 4:** This course gives them a soundknowledge of rhythm (Taal) which is importantin music.
	MM-HC-1.4 PracticalHindustanivocal-II	**CO1:**Aftercompletingthiscourse,thestudentsshall be able to perform in Hindustani classicalmusic. **CO2:** Studyingthiscourse, thestudentsshall be abletoperform'KhyaalGayan' **CO 3:**Studying this course, the students shall beable to perform in semi-classical forms such as'Thumri' **CO 4:** This course gives them a soundknowledge of rhythm (Taal) which is importantin music.
	MM-HC-1.5 PracticalHindustanivocal-III	**CO1:**Aftercompletingthiscourse,thestudentsshall be able to perform in Hindustani classicalmusicAlaap, Sarigam, Taan etc. **CO2:** Studyingthiscourse, thestudentsshall be abletoperform'KhyaalGayanandTarana' **CO 3:** This course gives them a soundknowledge of rhythm (Taal) which is importantin music.

Second semester	MM-SC-2.1 HindustaniVocalTheory-1	**CO 1:** Bystudyingthiscourse,thestudents shallget a thorough theoretical knowledge in Music**CO 2:** After studying this course, the studentsshall acuqiretheoryofpracticalmusic **CO 3:** Studying this course, the students will beintroduced to various important literature relatedtomusicology. **CO 4:** Studying this course, the students will beintroduced to various important literature relatedtomusicology.
	MM-SC-2.2 HindustaniVocalTheory-2	**CO 1:** Bystudyingthiscourse,thestudents shallget a thorough theoretical knowledge inHindustani ClassicalMusic **CO 2:** After studying this course, the studentsshall acuqire theory of practical music lika aRaaga etc... also got the ispiration of legendartists. **CO 3:** Studying this course, the students will beintroduced to various important literature relatedtomusicology. **CO 4:** Students learning this course can competeeffectively in the examinations such asNET/SLET.
	MM-HC-2.3 PracticalHindustanivocal-I	**CO1:**Aftercompletingthiscourse,thestudentssha ll be able to perform in Hindustani classicalmusic. **CO2:** Studyingthiscourse, thestudents shall be abletoperform'KhyaalGayan' **CO 3:**Studying this course, the students shall beable to perform in semi-classical forms such as'Thumri' **CO 4:** This course gives them a soundknowledge of rhythm (Taal) which is importantin music.
	MM-HC-2.4 PracticalHindustanivocal-II	**CO1:**Aftercompletingthiscourse,thestudentssha ll be able to perform in Hindustani classicalmusicAlaap, Sarigam, Taan etc. **CO2:** Studyingthiscourse, thestudentsshall be abletoperform'KhyaalGayanandTarana' **CO 3:**Studying this course, the students shall beableto performin semi-classicalformssuch as 'Thumri' **CO 4:** This course gives them a soundknowledge of rhythm (Taal) which is importantin music.

	MM-HC-2.5 PracticalHindustanivocal-III	**CO1:**Aftercompletingthiscourse,thestudentsshall be able to perform in Hindustani classicalmusicAlaap, Sarigam, Taan etc. **CO2:** Studyingthiscourse, thestudentsshall be abletoperform'KhyaalGayanandTarana' **CO 3:**Studying this course, the students shall beable to perform in semi-classical forms such as'Thumri' **CO 4:** This course gives them a soundknowledge of rhythm (Taal) which is importantin music.
Third Semester	MM-SC-3.1 HindustaniVocalTheory-1	**CO 1:** Bystudyingthiscourse,thestudents shallget a thorough theoretical knowledge in Music**CO 2:** After studying this course, the studentsshall acuqiretheoryofpracticalmusic **CO 3:** Studying this course, the students will beintroduced to various important literature relatedtomusicology.
	MM-SC-3.2 HindustaniVocalTheory-2	**CO 1:** Bystudyingthiscourse,thestudents shallget a thorough theoretical knowledge of FolkMusicand Hindustani ClassicalMusic **CO 2:** After studying this course, the studentsshall acquire theory of practical music likeaRaaga etc... Students also got the inspirationfromthe legend artists. **CO 3:** Studying this course, the students will beintroduced to various important literature relatedtomusicology. **CO4:** Studentslearningthiscoursecancompeteeffectively in the examinations such asNET/SLET.
	MM-HC-3.3 PracticalHindustanivocal-I	**CO1:**Aftercompletingthiscourse,thestudentsshall be able to perform in Hindustani classicalmusic. CO2: Studyingthiscourse, thestudentsshall be abletoperform'KhyaalGayan' CO3:Studyingthiscourse,thestudentsshallbe ableto performin semi-classicalforms such as 'Thumri' CO 4: This course gives them a soundknowledge of rhythm (Taal) which is importantin music.

	MM-HC-3.4 PracticalHindustanivocal-II	CO1:Aftercompletingthiscourse,thestudentsshall be able to perform in Hindustani classicalmusic. CO2: Studyingthiscourse, thestudentsshall be abletoperform'KhyaalGayan' CO 3:Studying this course, the students shall beable to perform in Light Music forms such asVachana,Bhavagita etc.. CO 4:Studying this course, the students shall beable to perform in semi-classical forms such as'Thumri'
	MM-HC-3.5 PracticalHindustanivocal-III	CO1:Aftercompletingthiscourse,thestudentsshall be able to perform in Hindustani classicalmusicAlaap, Sarigam, Taan etc. CO2: Studyingthiscourse, thestudentsshall be abletoperform'KhyaalGayanandTarana' CO 3:Studying this course, the students shall beable to perform in Light Music forms such asDasarapada,Rangagite etc.. CO 4: This course gives them a soundknowledge ofTaranawhich is important inmusic.
Fourth semester	MM-SC4.1 HindustaniVocalTheory-1	CO 1: Bystudyingthiscourse,thestudents shallget a thorough theoretical knowledge in MusicCO 2: After studying this course, the studentsshall acuqiretheoryofpracticalmusic CO 3: Studying this course, the students will beintroduced to various important literature relatedtomusicology. CO4: Studentslearningthiscoursecancompeteeffectively in the examinations such asNET/SLET.
	MM-SC-4.2 HindustaniVocalTheory-2	CO 1: Bystudyingthiscourse,thestudentsshall get a thorough theoretical knowledge inHindustani ClassicalMusic CO 2: After studying this course, the studentsshall acuqire theory of practical music lika aRaaga etc... also got the ispiration of legendartists. CO 3: Studying this course, the students will beintroduced to various important literature relatedtomusicology. CO4: Studentslearningthiscoursecancompeteeffectively in the examinations such asNET/SLET.

PracticalHindustani vocal-I	MM-HC-4.3	CO1:Aftercompletingthiscourse,thestudentsshall be able to perform in Hindustani classicalmusic. CO2: Studyingthiscourse, thestudentsshall be abletoperform'KhyaalGayan' CO 3:Studying this course, the students shall beable to perform in classical forms such asDhrupad CO 4: This course gives them a soundknowledge of rhythm (Taal) which is importantin music.
PracticalHindustani vocal-II	MM-HC-4.4	CO1:Aftercompletingthiscourse,thestudentsshall be able to perform in Hindustani classicalmusic. CO2: Studyingthiscourse, thestudentsshall be abletoperform'KhyaalGayan' CO 3:Studying this course, the students shall beable to perform in semi-classical forms such as'Thumri' CO 4: This course gives them a soundknowledge of rhythm (Taal) which is importantin music. CO 5:Studying this course, the students shall beable to perform in Light Music forms such asBhajan
PracticalHindustani vocal-III	MM-HC-4.5	CO1:Aftercompletingthiscourse,thestudentsshall be able to perform in Hindustani classicalmusicAlaap, Sarigam, Taan etc. CO2: Studyingthiscourse, thestudentsshall be abletoperform'KhyaalGayan' CO 3:Studying this course, the students shall beabletoperformancetoin front of audience. CO 4:Thiscoursegives thema sound knowledge Of music research
P.G. Diploma In Music POCO **Programme Code:PGDH2**		
First semester	DM 1.1 HindustaniMusicTheory-1	CO 1: Bystudyingthiscourse,thestudents shallget a thorough theoretical knowledge in MusicCO 2: After studying this course, the studentsshall acquiretheoryofpracticalmusic CO 3: Studying this course, the students will beintroduced to various important literature relatedtomusicology.
	DM 1.2 HundustaniMusicTheory-2	CO 1: Bystudyingthiscourse,thestudents shallget a thorough theoretical knowledge inHindustani ClassicalMusic CO 2: After studying this course, the studentsshall acuqire theory of practical music lika aRaaga etc... CO 3: Studying this course, the students will beintroduced to various important literature relatedtomusicology.

	DM 1.3 PracticalHindustaniVocal-1	CO 1: After completing this course, thestudents shall be able to perform in Hindustaniclassicalmusic. CO2: Studyingthiscourse, thestudentsshall be abletoperform‘KhyaalGayan’ CO 3: This course gives them a soundknowledgeof rhythm(Taal)whichisimportant inmusic. CO 4: Studying this course, the students shall beableto performLightmusic style.
	DM 1.4 Practical HindustaniVocal-2	CO 1: After completing this course, the studentsshall be able to perform in Hindustani classicalmusic. CO2: Studyingthiscourse, thestudentsshall be abletoperform‘KhyaalGayan’ CO 3:Studying this course, the students shall beable to perform in Light Muisic forms such asVachana,Dasarapada etc.. CO 4: This course gives them a soundknowledge of rhythm (Taal) which is importantin music.
Second semester	DM 2.1 HindustaniMusicTheory-3	CO 1: Bystudyingthiscourse,thestudents shallget a thorough theoretical knowledge in MusicCO 2: After studying this course, the studentsshall acquiretheoryofpracticalmusic CO 3: Studying this course, the students will beintroduced to various important literature relatedtomusicology.
	DM 2.2 Hindustani MusicTheory-4	CO 1: By studying this course, the students shallget a thorough theoretical knowledge inHindustani ClassicalMusic CO 2: After studying this course, the studentsshall acquire theory of practical music lika aRaaga etc... CO 3: Studying this course, the students will beintroduced to various important literature relatedtomusicology.
	DM 2.3 PracticalHindustaniVocal-3	CO 1: After completing this course, the studentsshall be able to perform in Hindustani classicalmusic. CO2: Studyingthiscourse, thestudents shall be abletoperform‘KhyaalGayan’ CO 3: This course gives them a soundknowledge of rhythm (Taal) w hich is importantin music. CO 4: Studying this course, the students shall beableto performLightmusic style.
	DM 2.4 PracticalHindustaniVocal-4	CO 1: After completing this course, the studentsshall be able to perform in Hindustani classicalmusic. CO2: Studyingthiscourse, thestudentsshall be abletoperform‘KhyaalGayan’ CO 3:Studying this course, the students shall

14. Physical education B.P. Ed and M.P. Ed Courses		
Course code	**Title of the Course**	**Course out comes**

		beable to perform in Light Muisic forms such asVachana,Dasarapada etc.. CO 4: This course gives them a soundknowledge of rhythm (Taal) which is importantin music.
Certificate Course in Music Programme Code: MUS		
CourseName		**Course Outcome**
HindustaniVocalTheory		**CO 1:** By studying this course, the students shall get athoroughtheoreticalknowledgein Music **CO 2:** After studying this course, the students shallacquiretheoryof practicalmusic **CO 3:** Studying this course, the students will beintroduced to various important literature related tomusicologyand Biographyof Legend Artists.
HindustaniVocal Practical		**CO1:**Aftercompletingthiscourse,thestudentsshallbeableto performinHindustaniclassicalmusic. **CO2:** Studyingthiscourse,thestudentsshall beable toperform'KhyaalGayan' **CO 3:** This course gives them a sound knowledge ofrhythm(Taal) whichisimportantin music. **CO 4:** Studying this course, the students shall be abletoperformLightmusic style.

Semester 1	**CC-101** Principles and Foundation of Physical Education	• Understandtherelationshipbetweengeneraleducationandphysicaleducation. • Understand the process of socialization through physical education ○ Understand the philosophical ○ Foundations of physical education • Understand the philosophical the or disrelated to physical education. • Able to classify the body types. • Understand the theories of learning.
	CC-102 Anatomy and Physiology	• Students understand and the meaning and definition of anatomy and physiology. • Underset and the functions of skeleton system and types of joints. • Underset and the structure and functions of various systems of human body. • Underset and the effect of exercise on various systems of human body
	CC-103 History of Physical Education	• Underset and the historical foundation of physical education. • Underset and the process of development to physical education in India. • Underset and the contributions of various personalities related to physical education. • Students will familiar with the origin and history of Olympics, Asian, Commonwealth and Afro-Asian Games. • Enable the student to gain the knowledge on major international tournaments and cups.
	EC-101 Health Education and Environmental Studies	• Understand the concept and dimensions of health. • Gaintheknowledgeaboutprev

		entionandtreatmentofcommunicableandnon-communicable diseases. • Understand and the students with school health program. • Underset and the process of plastic recycling and prohibition of plastic. • Understand the causes and prevention of environmental pollution.
	EC-102 General Science and Computer Applications in Physical Education	• Understand the or y of evaluation and heredity. • Know the Components and sources of balance diet. • Understand the principles of physics as applied to sports skills • Applications of latest technology in physical education and sports. • Familiarize the students with fundamental concept of computer.
Second semester	**CC-201** Educational Technology and Methods of Teaching in Physical Education	• Familiarize the students with meaning, definition and types of education. • Understand the various methods of teaching. • Enable the student to gain the knowledge about different teaching aids. • Familiarize the students with the command and their practical application. • Enable the students to develop presentation techniques.
	CC-202 Organization and Administration in Physical Education	• Familiarize the students with meaning and definition of organization and administration. • Underset and the steps of planning process. • Know the methods of maintaining various records and registers related to physical education and sports.

		• Understand the methods of maintenance of infrastructures. • Understand the process of making timetable. • Underset and the organizational procedure of various types tournaments
	CC-203 Sports Nutrition and Weight Management	• Familiarize the students with meaning and definition of sports nutrition. • Underset and the role of nutrition in sports. • Know the components of nutrition and their functions. • Know the relationship between exercises and weight management. • Acquire the knowledge regarding ○ Healthy lifestyle approach. • 6.Gain the knowledge to design diet plan for different sport
	EC-201 Yoga, Fitness and Wellness	• Familiarize the students with meaning and definition of yoga. • Understand the difference between yogi practice and physical exercise. • Underset and the Antanagoge and their principles. • Enable the students to differentiate the band has, kriyas and mudras. • Understand the relationship between fitness and wellness. ○ Gain knowledge regarding various aspects and its practical implications fitness lifestyle management.
	EC-202 History of Games and Sports	• Familiarize the students with meaning and definition of games and sports. • Underset and the role of games and sports in physical education.

		• Know about them is conception about sports and games. • Underset and the origin and history of indigenous and western games. ○ Familiarize the students with history, objectives and functions of various national and international sports bodies
Third semester	**CC-301** Sports Training	• Work as physical education teachers and coaches with greater efficiency. • Apply the acquired and in-depth knowledge as well as their methodical competences in practical sports training under different conditions. • Choose appropriate and more effective training measures for the preparation of athletes for national and international competitions • Canastas multipliers in the selected sports discipline, e.g.by organizing training and further education courses for sports instructors in their home country. ○ Promote further development of sports structures and acquisition of new target groups in the field of sport.
	CC-302 Officiating and Coaching	• Work as physical education teachers, coaches and referees with greater efficiency. • Underset and the philosophy and duties of a coach. • Know the different method so officiating. • Apply the acquired and in-depth knowledge as well as their methodical competences in practical sports training under different conditions.
	CC-303 Sports Medicine, Physiotherapy and	○ • Understand the meaning, definition and importance of

	Rehabilitation	sports medicine in physical education. • Familiarizewiththemethodandprocedureoffirstaidandtypesofbandage. • Gainknowledgeabouttherapeuticmodalitiesaswellastheirpracticalapplication. • Familiarize the students with various types of massage. • Enablethestudentstogaintheknowledgeaboutfreemobilityexercisesofvariousjointsofhumanbody.
	EC-301 Curriculum Design and Supervision	○ • Underset and the role of a teacher in curriculum design. • Underset and the steps of curriculum design. • Familiarize the students with the construction of curriculum. • Discuss the meaning, definition and importance of supervision in physical education. ○ Understand the supervision techniques at various level.
	EC-302 Recreation and Camp	• 1.Orient the students about meaning, scope, importance and principles of ○ recreation. • Familiarize the students to make planning of recreational programmers. • Gain knowledge about availability of various recreational facilities. • Underset and them earning and definition of camping. • Underset and the method of selecting camping site. ○ Underset and the role and responsibility of camp leader.

Fourth semester	**CC-401** Test, Measurement and Evaluation in Physical Education	• Understand the meaning of test, measurement and evaluation. • Enable the student to construct a standardized test. • Familiarize the student with the procedure of administrating the test. • Underset and practice various test to measure physical fitness. ○ Understand and practice various test to measure physical fitness
	CC-402 Kinesiology and Biomechanics	• Underset and the meaning and scope of Kinesiology and Biomechanics in Physical Education and sports • Familiarize the students with movements at different joints. • Underset and different movement to muscles. • Know the principles of physics as applied to sports skills ○ Application of law so of biomechanics in various skills and athletic events.
	CC-403 Sports Management	• Understand the meaning and scope of sports management. • Understand the procedure of event management in physical education and sports. • Underset and the meaning of leadership and different styles of leadership. • Familiarize the student with the procedure of program planning. ○ Underset and the steps in making a good sports budget.
	EC-401 Research and Statistics in Physical Education	• Familiarize the student with the dimensions and methods of research. • Orient the student to make

		an in for med choice fromthelargenumberofalternativemethodsandexperimentaldesignsavailable. • Analyze an even to reprocess or phenomenon to identify the cause-and-effect relationship • Enable the student to present good research proposal. ○ Familiarize the student with the nature of research and scientific writing.
	EC-402 Sports Journalism and Sociology	• Meaning, scope and changing trends journalism sports. • Role of journalism in sports promotion advice-versa and Media. • Develop professional competencies, skills and knowledge regarding sports journalism. • Acquire the writing skills in the field of sports. • Underset and the socialization process through physical education. • Understand the status of women proteinemia. ○ Understand the importance of women participation in sports.
• **M.P. Ed Courses**		
First semester	MPECC101 Research Process in Physical Education & Sports Sciences	• Familiarize the student with the dimensions and methods of research. • Orient the student to make an informedchoicefromthelargenumberofalternativemethodsandexperimentaldesignsavailable. • Analyze an event or process or phenomenon to identify the cause-and-effect relationship • Enable the student to present a good research proposal.

		• Familiarize the student with the nature ○ Of research and scientific writing • Empower the student with the knowledge and skills the they need to under a kea research project, to present conference paper and to write a scientific article. • Find solution to scientific or non-scientific and social problem to overcome or solve the problem in occurring in our day life
	MPECC102 Physiology of Exercises	• Understand the meaning and scope of sports physiology in physical education. • Understand the skeletal and muscular system and their role in improving performance. • Understand the changes in cardiovascular, respiratory and hormonal system during exercise. • Underst and the effect of exercise on various physiological systems. • Exercise prescription for special conditions such as hypertension, diabetes, obesity etc. • Underset and the changes during exercise in various environmental conditions. ○ Understand the physiological differences in women and their performances
	MPEOEC101 **Open Elective Paper** – Health Education and Sports Nutrition	• Understand the concept and dimensions of health. • Gaintheknowledgeaboutprev entionandtreatmentofcommunic ableandnon-communicable diseases. • Familiarize the students with school health program. • Underst and concept sports nutrition.

		○ Underst and the concept of BMI and weight management.
	MPEEC101 Test, Measurement and Evaluation in Physical Education	• Place mention classes/programs or grouping based on ability ○ Determine what knowledge, skills, abilities, habits and attitudes have been acquired. • Determine what progress or extent of learning attained. • Determine strengths, weaknesses, difficulties and needs of students. • Help in study habits formation. • Develop the effort-making capacity of sports persons. • Serve as aid for guidance, counselling, and prognosis. • Serve as basis or guide for curriculum making and developing. • Evaluation of achievement to determine even if individuals have reached important objectives.
	MPEEC102 Health Education and Sports Nutrition	• Understand the concept and dimensions of health. • Gaintheknowledgeaboutprev entionandtreatmentofcommunic ableandnon-communicable diseases. • Familiarize the students with school health program. • Underst and concept sports nutrition. • Underset and the concept of BMI and weight management.
Second semester	MPECC201 Sports Psychology and Sociology	• Underset and the profile of psychological requirements of an applied sports psychology. • Psychological aspects and methods for effective motor learning. • Psychological training for optimizing gone mental state, to cope with stress and

		to increase psychological load to relance. • How to psychologically work with difficult athletes and in juries in sports. • Successful coaching in individual sports and team sports. • Mean sand methods of an event–specific, psychological preparation for competitions. • Psychological training methods in sport.
	MPECC202 Sports Management and	• 1.Understandtheimport anceofsport
	Curriculum design in Physical Education	• Management of physical education sports • Gain the knowledge regarding planning and personal, facility. Budget. management. Sports physical education • Understandthevariousaspects curriculumdesigninginprofessi onalpreparationPhysicaleducat ion • Gain the knowledge regarding HRM, Scientific purchasing. Job analysis and its process, sports communication. Health and fitness industry in sports
	MPECC201 Open Elective Recreation and Leadership	• Orient the students about meaning, scope, importance and principles of recreation. • Familiarize the students to aquaplaning recreational programmers. • Gain knowledge about availability of various recreational facilities. • Underset and the meaning and definition of camping. • Underset and the method of selecting camping site. • Underset and the or le and responsibility of a camp leader

	MPEEC202 Athlete care and Rehabilitation	• Participate regularly in develop mentally age-appropriate movement and motors kills. • Develop a healthy level of flexibility, balance, muscular strength and endurance, body composition and cardio-respiratory endurance. • Develop competency in movement and motor skills. • Learn game rules and strategies and demonstrate the ire use in game settings. • Demonstrate appropriate social skills in physical activity setting. • Underset and the benefit so of regular physical activity. • The adapted physical education program also emphasizes the importance of physical activity and personal fitness.
Third semester	MPEEEC Sports Journalism	• Meaning, scope and changing trends of journalism in sports. • Role of journalism in sports promotion advice-versa and Media. • Develop professional competencies, skills and knowledge regarding sports journalism. • Acquire the writing skills in the field of sports.
	MPECC301 Scientific Principles of Sports Training	• Work as physical education teachers and coaches with greater efficiency. • Train athletes and teams appropriately to their age in the selected sports discipline. • Apply the acquired and in-depth knowledge as well as their methodical competences in practical sports training under different conditions. • Analyze development tendencies in their selected

		sports discipline and to take this into consideration when planning their own training process; • Chooseappropriateandmoreeffectivetrainingmeasuresfortheprepparationofathletesfornationalandinternationalcompetitions • Acta multipliers in the selected sports discipline, e.g., by organizing training and further education courses for sports instructors in their home country. • Promote further development t of sports structures and acquisition of new target groups in the field of sport.
	MPECC 302 Sports Bio-Mechanics and Kinesiology	• The meaning and scope of Kinesiology and Biomechanics in Physical Education and sports • The location of muscles and the involvement of muscles in movement • Principles of physics as applied to sports skills • Application of laws of biomechanics in various skills and athletic events. • The methods of analyzing skills and detecting faults during the performance of these skills. • Usage of various technique and tools to analyze skills. • The method of improving skills there by increasing efficiency of skill performance
	MPEOEC301 Open Elective Health Fitness and Wellness	• Development competencies, skill and knowledge required for the fitness and life style management • Underst and the relationship between fitness and wellness • Acquire the knowledge regarding healthy lifestyle

		approach. • Gainknowledgeregardingvariousaspectsanditspracticalimplicationsfitnesslifestylemanagement
	MPEEC 301 Sports Medicine	• Theconceptofsportsmedicineanditssignificanceinsports performance. • The development of the profession of sports medicine and its regularity bodies. • Injuries occurring in the upper extremities and their rehabilitation • Injuries occurring in the lower extremities and the ire-habilitation • The technique and benefits of massage
	MPEEC302 Sports Nutrition	• Underst and the concept and Nutrition. • Role of nutrition in sports performance. • Familiarize the students with school health program. • Underst and concept sports nutrition. • Underst and the concept to BMI and weight management.
Fourth semester	MPECC401 Applied Statistics in Physical Education	• Understand the concepts of statistics in physical education. • To use population, mean, as an estimate of the sample mean, • To make inferences about a population based on information we get from as ample taken from the population • To make inferences about a sample with a high degree of reliability
	MPECC 402 Information Communication Technology in Physical Education (ICT)	• State the meaning of information and communication technology • Concept, elements, process and types of communication • Concept and importance of

		ICT • Fundamentals of computers • MS office applications. • ICT in teaching learning process project-based learning • Justify the need and significance of ICT in education. • Explain the historical perspective of educational technology • State the emerging trends in educational technology • E-learning and web-based learning
	MPEOEC 401 Health Fitness and Wellness	• Development competencies, skill and knowledge required for the fitness and life style management Understand the relationship between fitness and wellness • Acquire the knowledge regarding healthy lifestyle approach. Gain knowledge regarding various aspects and its practical implications fitness lifestyle management
	MPEEC 401 Yoga Studies	• Understand the common grounds of yoga and physical education and sports • Understand the anatomy and Physiology of asanas and pranayama kriyas. • Gain knowledge regarding the application yoga • Gain knowledge regarding the effects of yoga exercise on the human body health and sports • Understand the teacher role, responsibilities to promote yoga education school and society • Knowledge of classical and theoretical foundations of the field of Yoga.

	MPEEC402 A) Values and environmental Education OR A) Sports Journalism (Open Elective)	• Promote a new understanding and framework to help students achieve positive and purposeful lives for themselves and their communities through engaging with values to guide and inform their behavior. • This approach offers a new way of thinking about education and how children and young people can be supported to develop to become successful and happy members of the society • Environmental education is concerned with those aspects of human behavior which are more directly related to • man's interaction with bio-physical environment and his ability to understand this interaction. • Help the social group and individuals to acquire knowledge of pollution and environmental degradation. • Help social groups and individual to acquire a set of values for environmental protection
15. Department of Education		
Semester -I	**Ed-I** Childhood And Adolescence	○ Understand the concept and scope of Educational Technology. ○ Understand the concept of Approaches of Educational Technology. ○ Explain the meaning and use of cybernetics. ○ Understand and use the different Media in Education. ○ Understand thedifferentlearningExperiencesandusetheminth eteaching–learningprocess. ○ Integrate ICT into

		Teaching Learning, administration and Evaluation. ○ Develop information Management, Communication and collaborative skills. ○ Design undeveloped use learning materials in Teaching. ○ Use ICT for making classroom processes Inclusive.
	ED-II Philosophy And Sociology of Education	• To develop understanding of the interrelationship between philosophy and education • Codeveloped appreciation of the basic tends and principles and development of the major Western schools and philosophy • Todevelopunderstandingoftheinterrelationshipbetween Sociology andeducation • To develop understanding of the relationship between State and education • To develop under and in g of the impact of sociological Principles of education
	Ed-III Educational Technology	○ Understand the concept and scope of Educational Technology. ○ Understand the concept of Approaches of Educational Technology. ○ Explain the meaning and use of cybernetics. ○ Understand and use the different Media in Education. ○ Understandthediffe rentlearningExperience sandusetheminteteachi ng–learningprocess. ○ Integrate ICT into Teaching Learning, administration and Evaluation. ○ Developing formation Management, Communication and call adorative skills. ○ Design undeveloped use learning materials in Teaching. ○ Use ICT for making

		classroom processes Inclusive.
	Ed-IV(UDP-I) UNDERSTANDING DISCIPLINEAND PEDAGOGY: SCIENCES	• Sciences adisciplinethroughitsphilosophicalandepistemologicalperspectives. • The insights into the nature of science and how children construct knowledge • In developing a critical understanding about the curriculum in science NOW it unfolds through the transactional processes at the various levels of school education. • Aholisticunderstandingabout science-educationsituatedinlearnercontextandsocialrealities.
	Ed-V UNDERSTANDINGDISCIPLINEANDPEDAGOGY: MATHEMATICS	• Understanding Mathematics as a humanly created subject The insights into the nature of Mathematic and how children construct knowledge • Acritical understanding about the progression in the learning of mathematical concepts. • A critical understanding about curriculum in Math's and how it unfolds through the Transactional processes at the various levels of school education. • Addressing the concerns of societal Issues of gender, class and culture in mathematics learning and achievement • The Transaction of Mathematics Curriculum in to Practice

	Ed-V **UNDERSTANDING** DISCIPLINE AND PEDAGOGY: BIO-SCIENCE	• Familiarize the students with meaning, definition and types of education. • Understand the various methods of teaching. • Enable the student to gain the knowledge about different teaching aids. • Familiarize the students with the command and their practical application. • Enable the students to develop presentation techniques.
	ED-V **UNDERSTANDINGDISCIPLINEANDPEDAGOGY**: COMMERCE(UDP-II)	• Commerce student store-engage with theirdisciplineandrevisitprevalentconceptualizationsandpractices. • Place of commerce education in society and the potential role that it can play in developing commercially conscientious citizens • To understand the Process of curriculum and its Transaction.
	Ed-V UNDERSTANDINGDISCIPLINES ANDSCHOOLSUBJECTS	• This course is to be second course for those who do not have a better choice of selection with the first discipline based pedagogic choice such as B.E, Nursing etc. Students)
	Ed.VI-A ICT-BASIC (Course for lab work-Internal Assessment)	• Thissetofexperiencesisvisualizedwithanassumptionthatstudentteachersshouldhaveabasicfamiliaritywith computers, and to have much hands-on-experience.
	Ed.VI-B LANGUAGE ACROSSTHESUBJECTS	• Understand the language background of students • Create sensitivity to the language diversity that exists in the classroom. • Understand the nature of classroom discourse and develop strategies for using or all age usage in the classroom. • Understand the nature of reading comprehension in the

		content area & writing in specific content areas. • Understand function of language and how to use it as a tool. • Understand language and speech disorder and makers medial measure, too.
	Ed.VI-C PSYCHO-SOCIALTOOLSAND TECHNIQUES	• This set of experiences is visualized with an assumption that student teachers should have a basic Knowledge about Various Psycho-Social Tools and Techniques, and Administering in the Practical situation and Reporting.
	Ed.VI-D MICROTEACHINGA NDINTEGRATION	• Each trainee teacher has to identify the Various Microteaching skills and identify the components of each skill and to practice in a simulated condition in a group of 10 peers. After the completion of at least one Cycle of each skill trainee has to integrate these skills and at the last a Macro lesson has to be practiced in the simulated condition by that each teacher trainee is going to get Mastery over the teaching competencies.
Semester -II	Ed:7 Learning, Teaching and Assessment	○ Comprehendthetheoriesoflearning andintelligenceandtheirapplicatio nsforteachingchildren ○ Analyze the learning process, nature and theory of motivation ○ Describe the stages of teaching and learning and the role of teacher ○ Situates the teaching learning process ○ 5.Analyze the scope and role of assessment in teaching learning processing order to introduce dynamic scheme of assessment for education set up towards enhanced learning.

	ED-8 Knowledge and Curriculum	• To understand meaning of Epistemological term in ologies and understand their similarities and differences. • To become familiar with ideologies related to child centered education. • To underset and the hangs in education in the context of society, culture and Modernization. • Reference to multiculture and democracy • To Understand the National, Global& Secular paradigms of education • To understand the concept, bases, various interpretation of curriculum, steps and process of curriculum construction • To clarify the interrelation among curriculum, syllabus & textbook • To understand the co-relation among power, principles and curriculum
	ED-9 EDUCATIONINCONTEMPORARYINDIA	• Contextualize on temporary India and Education. • Analyze the role of educational system in the on text of Modern Ethos. • Underst and the concept and Functions of Education. • Develop an understanding of the trends, issues, and challenges faced by the contemporary Indian Education in global context. • Identifythecontemporaryissuesineducationanditseducationalimplications • Examinetherecommendationsofcommissionreportandtheirimplications
	ED-10 METHODS, TECHNIQUESANDAPPROACHESOFPEDAGOGY	• Understand the teaching learnings system. • Differentiate-tools, techniques, methods and approaches and familiarize • Understand the schematic

		orientation towards classroom transaction. • Understand the role of teacher in various contexts. • Equip with abilities for TLM preparation
	Ed.11-A ICT-APPLICATION	• Recognize, understand and appreciate ICT as an effective tool for teaching and learning. • Understand ICT as enormous functional support to teacher. • Have basic familiarity with computers. • Have much hands-on experience.
	ED.11-B UNDERSTANDINGSELF, PERSONALITYYOGAAN DEDUCATIONALTOUR	• Appreciate the origin and history of Yoga in India1 • Underst and the concept and importance of yoga general health and quality lifestyle. • Integrate the practice of yoga and its asanas for better self-concept and esteem-personality
	Ed.11-C SIMULATIONANDICTBA SEDLESSONS	• Each trainee teacher has to practice the lessons in a simulated condition in a group of 10 peers in the college itself. After the completion of at least Three lessons in respective pedagogy each trainee has to practice at least Two lessons in each pedagogy with the help of integrating ICT such as OHP/SLIDES/PPT/TAPE RECORDER etc. The college has to provide ICT facilities, bathetic trainee will get skill of presenting less on s through ICT.
	Ed.11-D SCHOOL LESSONS AND REFLECTIVE DIARY	• Each trainee teacher has to keep the Various Microteaching skills and integrate these skills in the lesson each teacher trainee is going to get

		Mastery over the teaching competencies.
Semester III	Ed:12 INCLUSIVEEDUCATION	• Understand the term Inclusion, Trace the historical perspective of Inclusive Education, and justify the need for Inclusive Education. • Adjust with heterogeneous group in the class and different school atmosphere. • Co-operate with other disability learners. • Distinguish the concepts of Special Education, Integrated Education and Inclusive Education. • Analyze critically the needs, problems, causes and educational provisions meant for challenged children. • Interpret the policies and procedures for Inclusive Education. • Critically review issues and challenges in Inclusive Education.
	ED-13 EDUCATIONAL EVALUATION	• To understand the theory of evaluation. • To understand and to use the quantitative &qualitative tools and techniques of evaluation. • To develop the skill in preparing, administering and interpreting achievement test. • To familiarize with new trends in evaluation. • To develop the skill necessary to compute (with the help of Computer/calculator) important Statistical estimates and interpret the test scores by applying them.
	ED-14 A: GUIDANCEANDCOUNSELING	• To understand the concept to f Guidance and Counseling. • To know the types of guidance and counseling. • To orient teachers about Tools and Techniques in

		Guidance and Counseling. • To learn about Career Guidance in Secondary Schools • To understand and apply the techniques of Guidance and Counseling.
	ED-14 B: VALUEEDUCATION	• Understand the concept and types of values. • Get and insight in to the strategies of inculcation of values among children. • Develop awareness about the different agencies working in the sphere of value education. • Develop skills and techniques needed to teach value education. • Give reasons for role of the teacher in value education
	ED-14 ENVIRONMENTALEDUCATION	• Understanding the concept, Significance, Scope and terminologies, objectives and programmed of environmental Education. • Develop awareness about the various types of pollution, ecologically balances and life and contributions of environmental activities. • Interprettheenvironmentallegislationinconservationandprotectionofthe environment. • Understand the role of government and non-governmental agencies in environmental education. • Apply the methods of teaching and evaluation in environmental education. • Become aware of Environmental pollution and pollutant problems indifferent areas in Local and Regional
	ED-14 D: HEALTHANDPHYSICAL EDUCATION	• Understand the significance of Health Education for all-round development. • Maintain and promote good health. • Develop the understanding of physical education and its

		related fields. • Acquire the knowledge about the teaching methods of physical education and its activities. • Know about the effective organization of physical education activities.
	ED-15 PEDAGOGYOFSCHOOLSUBJECT(PSS)-I: ENGLISH	• Acquires knowledge of the nature, structure and components of English language. • AppreciatestheroleofEnglishinIndiaasaSecondlanguageandlibrary language. • Develops an awareness of concern for listening, speaking, reading and writing skills. • Learns responsibilities of an English teacher in school community • Designs lessons plans for teaching of prose, poetry and vocabulary • Employs different approaches and methods for teaching prose, poetry, grammar and Vocabulary etc. • Realize her responsibilities as language teacher and pursue towards the aim Professional growth
	ED-15 PEDAGOGYOFSCHOOL SUBJECT(PSS)-I: HINDI	• Underset and the aims and objectives of teaching Hindi in Secondary Schools. • Select methods, diaries and techniques of Hindi teaching. • Use variety of learning experiences and instructional materials while teaching Hindi. • Understand planning and organization of teaching Hindi. • Understand the technique, methods of Teaching Hindi • Toappreciatetheimportanceofsuitableteachingaidsinlanguageteachingprepare/selectthemforuse in his/her lesson.

	ED-15 PEDAGOGYOFSCHOOL SUBJECT(PSS)-I: URDU	• Understand the importance and place of Urdu in School curriculum. • Select methods, diaries and techniques of Urdu teaching. • Use variety of learning experiences and instructional materials while teaching Urdu. • Understand planning and organization of teaching Urdu. • Understand the technique, methods of Teaching Urdu • To appreciate the importance of suitable teaching aids in language teaching and prepare/select them for use in his/her lesson.
	ED-15 PEDAGOGYOFSCHOOL SUBJECT(PSS)-I: MARATHI	• Understand the importance and place of Marathi in School curriculum. • Select methods, diaries and techniques of Marathi teaching. • Use variety of learning experiences and instructional materials while teaching Marathi. • Understand planning and organization of teaching Marathi. • Understand the technique, methods of Teaching Marathi • To appreciate the importance of suitable teaching aids in language teaching and prepare/select them for use in her lesson.
	ED-15 PEDAGOGYOFSCHOOL SUBJECT(PSS)I: PHYSICS	• Understandandusesdifferentlear nercenteredandteachercentereda pproaches • Understand the planning for Teaching Physics • Understand the selection of various methods and models of teaching to teach different topics of physics. • Understand different Curricula in Physics
	ED-15 PEDAGOGYOFSCHOOL SUBJECT(PSS)-I:	• Acquire knowledge about the nature &zoochemistry

	CHEMISTRY	• Know the basic branches and the printer-relationship with other science subjects, and • Acquire the knowledge of modern trends in chemistry • Understand the objectives &values of teaching chemistry in secondary schools. • Development skills in: Analyzing the content in terms of concepts and learning experience Planning lessons, selecting appropriate media and materials, Preparation of resource unit suit plan, Improving teaching aids, • Maintaining laboratory. • Applying the knowledge chemistry develop scientific thinking and scientific outlook. • Appreciate the contribution chemistry serving the community in the fields of agriculture Industry, health and environment.
	ED-16 PEDAGOGY OF SCHOOL SUBJECT (PSS) II: HISTORY	• Understand the nature of History, Sociology &Political Sciences school subject • Articulate conception of History, Sociology and Political Science • Correlate History, Sociology Political Science with other subjects • Understand the language of History reconstruction. • Apply their knowledge of techniques to reconstruct the past • Understand the concept of differentiated teaching for History. Prepares differentiated lesson plain History, Political Science and Sociology. • Understanding the potential of History for development of skills • Analyze the history, political science and Sociology textbook and prepares appropriate work

		schemes and lesson plans in history, Political science and Sociology. • Critically analyze the History, Political science and Sociology textbooks. • Understand the significance of learning sources to teach the subject and apply the knowledge to select and improvise learning resources.
	ED-16 PEDAGOGYOFSCHOOLSUBJECT(PSS)-II: GEOGRAPHY	• To develop an understanding of Geography's subject • To acquire knowledge of approaches of arranging the subject content. • To develop an understanding of different types of learning resources. • To develop an understanding of the importance of organization of co-curricular activities in the teaching of geography. • To develop an understanding of different methods and techniques of teaching Geography
	ED-16 PEDAGOGYOFSCHOOLSUBJECT(PSS)-II: MATHEMATICS	• To develop an understanding of Mathematicises subject • To acquire knowledge of approaches of arranging the subject content. • To develop an understanding of differentiae's learning resources. • To develop an understanding of the importance for Organization of co-curricular activities in the teaching of Mathematics. • To develop an understanding of different methods and techniques of teaching Mathematics.
	ED-16 PEDAGOGYOFSCHOOLSUBJECT(PSS)-II: BIOLOGY	• Lesson planning and Evaluation on the lessons of CCE • Unit plan & unit test –concept, construction and administration. • Biological science curriculum • 1.3a) Principles of curriculum

		construction • 1.3b) NPE (National policy of education) – 1986&Programmeof action-1992 • 1.3c) NCF–2005(National Curriculum Framework)
	ED-16 PEDAGOGYOFSPECIFICSUBJECT(PSS)-II: COMMERCE	• To develop an understanding of the meaning, nature and scope of commerce education. • To develop an understanding of the maxims and principles of teaching commerce. • To develop understanding the basis of the commerce education and its relation with other disciplines. • To develop understanding of the objectives of teaching commerce at higher secondary level (NCF2005). • To understand various methods used in teaching of commerce. • To develop an understanding of the importance of latest trends in teaching of commerce
	ED-17-A UNDERSTANDINGDRAMAAND ARTINEDUCATION	• To enable learners to have a practical experience with drama a dart. • To introducer in concepts to enhance the understanding of drama and art. • To learn how to integrate drama and art in the school curriculum • To enable learners to develop their aesthetic sensibilities. • To develop understanding of the local culture through remainder. • Toenablelearnerstoperceivethesocialandenvironmentalissuesthroughdramaandart. • To high lighthouse drama and art in creative expression
	ED.17-B RESEARCHPROJECTS	• To familiarize with the concept of Action Research in Education and the Potential in holds for

		the improvement in the performance of the school. • To identify and formulate suitable problem s for Action Research. • To get acquainted with the various steps of conducting Action Research. • To understand and use descriptive statistical techniques in Action Research and • Toacquiretheskillsofplanningexecutingevaluatingandreportingofan ActionResearchProject.
	ED.17 FIELDASSIGNMENTAND CTC	• Each trainee teacher has to practice at least 3 Unit plan-based Lessons in each PSS-I&II, and conduct Unit-Testing each method, after analysis and Interpretation of result submit a report.
	ED.17 SCHOOLLESSONSANDRE FLECTIVEDIARY	• Each trainee teachers get Master over the teaching Skills/competencies and get over hands on experience to manage the classes efficiently.
Semester IV :	ED-18 GENDER, SCHOOL ANDSOCIETY	• To develop gender sensitivity among the student teachers. • To develop clarity about the concept of Gender and sexuality among the student teachers. • To make students understand about the gender issues faced in school and in Society. • To make students aware bout the role of education in relation to gender issues • To make students aware about constitutional provisions regarding human rights and women right
	ED-19 EDUCATIONALADMINIS TRATIONANDMANAGEM ENT	• Underst and the concept and concerns of educational organization, administration and management.

		• Understand the Educational Administration and management at different levels and their functioning. • Understand the role of head master and the teachers in school management: Supervision and inspection and acquaint the quality control measures in school management • Develop the skills in preparing and maintaining the school records. • Develop the practical skill sin organizing the school programmers and activities and acquaint the healthy school climate in the institution.
	ED-20 ADVANCEDPEDAGOGY OFSCHOOLSUBJECT(APSS-I): ENGLISH	• Acquire the knowledge about the basic concept of constructivism, meaning and importance. • Acquiretheknowledgeof5Ebasedlessonplanninganddeveloptheskillofwritinglessonplan based on 5E. • AcquiretheknowledgeofTLMand its'preparationanddeveloptheskillofusingTLMintheclassroom. • Acquiretheknowledgeofdevelopingtheskillofpreparinglinearprogrammeandassess • its' effectiveness. • Acquire the knowledge of models of teaching, unit test and laboratories. Acquire the knowledge of modern evaluation practices in English.
	ED-20: ADVANCEDPEDAGOGY OFSCHOOLSUBJECT(APSS-I): HINDI	• Acquire the knowledge about the basic concept to constructivism, meaning and importance. • Acquire the knowledge of 5 E based lesson planning and develop the skill of writing lesson plan based on 5E. • AcquiretheknowledgeofTLMand

		its'preparationanddeveloptheskillofusingTLMintheclassroom. • Acquiretheknowledgeabouttheconceptof Individualizedinstructionanddevelopthe • Skill of preparing linear program me and a assists' effectiveness. • Acquire the knowledge of models of teaching, unit test and laboratories. • Acquire the knowledge of modern evaluation practices in Hindi Language
	ED-20: ADVANCEDPEDAGOGY OFSCHOOLSUBJECT(APSS-I): URDU	• Acquire the knowledge about the basic concept of constructivism, meaning and importance. • Acquiretheknowledgeof5Ebasedlessonplanninganddeveloptheskillofwriting • Lesson plan based on5E'S. • AcquiretheknowledgeofTLMand its'preparationanddeveloptheskillofusingTLM • In the classroom. • Acquiretheknowledgeabouttheconceptof Individualizedinstructionanddevelopthe • Skill of preparing linear and Branch in g program me and assess its' effectiveness. • Acquire the knowledge of models of teaching, unattested laboratories. • Acquire the knowledge of modern evaluation practices in Urdu Language
	ED-20 ADVANCEDPEDAGOGYOFSCHOOLSUBJECT(APSS-I): MARATHI	• Acquire the knowledge about the basic concept of constructivism, meaning and importance. • Acquire the knowledge of 5 Eased lesson planning and develop the skill of writing • Lesson plan based on5E'S. • AcquiretheknowledgeofTLMand its'preparationanddeveloptheski

		llofusingTLM • In the classroom. • Acquiretheknowledgeabouttheconceptof Individualizedinstructionanddevelopthe • skillofpreparinglinearandBranchingprogrammeandassessits'effectiveness. • Acquire the knowledge of models of teaching, unit test and laboratories. • Acquire the knowledge of modern evaluation practices in Marathi Language
	ED-20 ADVANCEDPEDAGOGYOFSCHOOLSUBJECT(APSS-I): PHYSICS	• • Acquire the knowledge about the basic concept of constructivism, meaning and importance. • Acquiretheknowledgeof5Ebasedlessonplanninganddeveloptheskillofwriting • Lesson plan based on5E'S. • AcquiretheknowledgeofTLMandits'preparationanddeveloptheskillofusingTLM • And Improvised Apparatus in the classroom • Acquiretheknowledgeabouttheconceptof Individualizedinstructionanddevelopthe • skillofpreparinglinearandBranchingprogrammeandassessits'effectiveness. • Acquire the knowledge of models of teaching, unit test and laboratories. • Acquire the knowledge of modern evaluation practices in Physics.
	ED-20 ADVANCEDPEDAGOGYOFSCHOOLSUBJECT(APSS-I): CHEMISTRY	• Acquire the knowledge about the basic concept of constructivism, meaning and importance. • Acquiretheknowledgeof5Ebasedlessonplanninganddeveloptheskillofwriting • Lesson plan based on5E'S.

		• AcquiretheknowledgeofTLMand its'preparationanddeveloptheski llofusingTLM • and Improvised Apparatus in the classroom. • Acquire the knowledge about the concept of Individualized instruction and develop the skill of preparing linear and Branch in g program me and assess its' effectiveness. • Acquire the knowledge of models of teaching, unit test and laboratories. • Acquire the knowledge of modern evaluation practices in Chemistry.
	ED-21: ADVANCEDPEDAG OGYOFSCHOOLSUBJEC T(APSS-II): HISTORY	• Acquire the knowledge about the basic concept of constructivism, meaning and importance. • Acquiretheknowledgeof5Ebasedl essonplanninganddeveloptheskil lofwriting • Lesson plan based on5E'S. • AcquiretheknowledgeofTLMand its'preparationanddeveloptheski llofusingTLM • And n Models in the classroom. • Acquiretheknowledgeabouttheco nceptofIndividualizedinstructio nanddevelopthe • skillofpreparinglinearandBranch ingprogrammeandassessits'effec tiveness. • Acquire the knowledge of models of teaching, unit test and History Museum. • Acquire the knowledge of modern evaluation practices in History.
	ED-21 ADVANCEDPEDAGOGY OF SCHOOLSUBJECT(APSS -II): GEOGRAPHY	• Acquire the knowledge about the basic concept of constructivism, meaning and importance. • Acquiretheknowledgeof5Ebasedl essonplanninganddeveloptheskil lofwriting

		• Lesson plan based on5E'S. • AcquiretheknowledgeofTLMand its'preparationanddeveloptheski llofusingTLM • And Working-Models in the classroom. • Acquiretheknowledgeabouttheco nceptofIndividualizedinstructio nanddevelopthe • Skill of preparing linear and Branching program me and assess its 'effectiveness. • Acquire the knowledge of models of teaching, unit test and Geography Laboratory. • Acquire the knowledge of modern evaluation practices in Geography.
	ED-21 ADVANCEDPEDAGOGYO FSPECIFICSUBJECT(APS S-II): COMMERCE	• Acquire the knowledge about the basic concept of constructivism, meaning and importance. • Acquiretheknowledgeof5Ebasedl essonplanninganddeveloptheskil lofwriting • Lesson plan based on5E'S. • AcquiretheknowledgeofTLMand its'preparationanddeveloptheski llofusingTLM • In the classroom. • Acquiretheknowledgeabouttheco nceptofIndividualizedinstructio nanddevelopthe • skillofpreparinglinearandBranch ingprogrammeandassessits'effec tiveness. • Acquire the knowledge of models of teaching, unit test and Commerce Laboratory. • Acquire the knowledge of modern evaluation practices in Commerce.
	ED-21 ADVANCEDPEDAGOGYO FSCHOOLSUBJECT(APSS -II): MATHEMATICS	• Acquire the knowledge about the basic concept of constructivism, meaning and importance. • Acquiretheknowledgeof5Ebasedl

		essonplanning and develop the skill of writing Lesson plan based on5E'S. • AcquiretheknowledgeofTLMand its'preparationanddeveloptheskillofusingTLM • And Working-Models in the classroom. • Acquiretheknowledgeabouttheconceptof Individualizedinstructionanddevelopthe • skillofpreparinglinearandBranchingprogrammeandassessits'effectiveness. • Acquire ethe knowledge of models of teaching, unit test and Mathematics Laboratory. • Acquire the knowledge of modern evaluation practices in Mathematics.
	ED-21 ADVANCEDPEDAGOGYOFSCHOOLSUBJECT(APSS-II): BIOLOGY	• Acquire the knowledge about the basic concept to f constructivism, meaning and importance. • Acquiretheknowledgeof5Ebasedlessonplanninganddeveloptheskillofwriting • Lesson plan based on5E'S. • AcquiretheknowledgeofTLMand its'preparationanddeveloptheskillofusingTLM • And Working-Models in the classroom. • Acquire the knowledge about the concept of Individualized instruction and develop the skill of preparing linear and Branching programmer and assess its' effectiveness. • Acquire the knowledge models teaching, unit test and Biology Laboratory. • Acquire the knowledge of modern evaluation practices in Biology.