



Rayat Shikshan Sanstha's
R. B. Narayanrao Borawake College, Shrirampur
(Autonomous)

**Program Outcomes (POs), Program Specific
Outcomes (PSOs) and Course Outcomes (COs)**

Faculty of Science and Technology

DEPARTMENT OF BOTANY

Programme Outcomes: B. Sc. Botany

Department of Botany	After successful completion of three-year degree program in Botany, a student will be able to:
Programme Outcomes	<p>PO-1. Students know about different types of lower & higher plants, their evolution from algae to angiosperm & also their economic and ecological importance.</p> <p>PO-2. Cell biology gives knowledge about cell organelles & their functions</p> <p>PO-3. Molecular biology gives knowledge about chemical properties of nucleic acid and their role in living systems.</p> <p>PO-4. Genetics provides knowledge about laws of inheritance, various genetic interactions, chromosomal aberrations & multiple alleles.</p> <p>PO-5. Structural changes in chromosomes.</p> <p>PO-6. Students can describe morphological & reproductive characters of plants and identify different plant families and classification.</p> <p>PO-7. They know economic importance of various plant products & artificial methods of plant propagation</p> <p>PO-8. Use modern Botanical techniques and decent equipment's.</p> <p>PO-9. To inculcate the scientific temperament in the students and outside the scientific community</p> <p>PO-10. Industrial Botany: By studying this course students can apply this knowledge in various industries such as Mushroom cultivation, biofertilizer production, biopesticide, etc. They can also set up their own industries.</p>

Program Specific outcome: B.Sc. (Botany)

Department of Botany	After successful completion of three-year degree program in Botany a student will be able to:
Programme Specific Outcomes	<p>PSO-1. Students acquire fundamental Botanical knowledge through theory and practical.</p> <p>PSO-2. To explain basis plant of life, reproduction and their survival in nature.</p> <p>PSO-3. Help us to understand role of living and fossil plants in our life.</p>

	<p>PSO-4. Understand good laboratory practices and safety.</p> <p>PSO-5. To create awareness about cultivation, conservation and sustainable utilization of biodiversity.</p> <p>PSO-6. To know advance techniques in plant sciences like tissue culture, Phytoremediation, plant disease management, formulation of new herbal drugs etc.</p> <p>PSO-7. Students able to start nursery, mushroom cultivation, biofertilizer production, fruit preservation and horticultural practices</p>
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Course Outcomes of B.Sc. Botany:

Course	Outcomes
	After completion of these courses' students should be able to:
Semester-I	
BS-BO-111T Plant Diversity	<p>CO-1: Classify and identify plants based on taxonomy and morphology.</p> <p>CO-2: Explain plant structure, function, and adaptations.</p> <p>CO-3: Analyze plant ecology, distribution, and their ecological roles.</p> <p>CO-4: Discuss plant evolution, diversity, and their evolutionary significance.</p> <p>CO-5: Analyze interactions between plants and other organisms.</p> <p>CO-6: Apply knowledge to conservation and sustainable practices related to plant diversity.</p>
BS-BO-112P Practical Course - I	<p>CO-1: Accurately identify and classify plants using dichotomous keys and field guides.</p> <p>CO-2: Dissect and analyze various plant organs to understand their morphology and function.</p> <p>CO-3: Perform and interpret experiments related to plant physiological processes.</p> <p>CO-4: Conduct field studies to observe and record plant distribution and ecological interactions.</p> <p>CO-5: Analyze interactions between plants and other organisms.</p>
SEC-BO-113P Organic Farming	<p>CO-1: Practice organic farming along with application of indigenous knowledge.</p> <p>CO-2: Establish entrepreneurial ventures and generate employment (Organic Grower).</p> <p>CO-3: Evaluate the organic produce as per FSSAI standards (Government rules).</p>

<p>OE-BO-01T मशरूम लागवड तंत्रज्ञान व फलोत्पादन</p>	<p>CO-1: विद्यार्थी मशरूम मध्ये आकार, विज्ञान आणि प्रकार यांचा अभ्यास करू शकतात.</p> <p>CO-2: विद्यार्थी मशरूम लागवडीचा उद्योग सुरु करू शकतात.</p> <p>CO-3: विद्यार्थ्यांना खाणे योग्य आणि विषारी मशरूम ओळख पटते.</p> <p>CO-4: विद्यार्थी स्वतः मशरूम बीज तयार करू शकतात.</p> <p>CO-5: लघु उद्योगात मशरूम लागवडीच्या संभावना आणि व्याप्ती जाणून घेतील.</p> <p>CO-6: विद्यार्थ्यांना या अभ्यासक्रमातून पोषण तत्वे व त्यांचा जीवनातील उपयोग याबद्दल महत्व पटते.</p> <p>CO-7: फळांची वाढ, देखभाल आणि विपणन याबद्दल विद्यार्थ्यांना माहिती मिळेल.</p> <p>CO-8: नवनवीन तंत्रज्ञानाचा वापर करून विद्यार्थी आर्थिकदृष्ट्या सक्षम होऊ शकतील.</p>
<p>Semester-II</p>	
<p>BS-BO-121T Fundamentals of Plant Morphology</p>	<p>CO-1: Understand plant morphology</p> <p>CO-2: Understand basics of floral morphology</p> <p>CO-3: Understand how plant morphology relates to plant reproduction</p> <p>CO-4: Understand significance of morphological modifications of plant parts</p> <p>CO-5: Have foundation for a course on Plant Systematics.</p>
<p>BS-BO-122P Practical Course-II</p>	<p>CO-1: Understand plant morphology</p> <p>CO-2: Understand basics of floral morphology</p> <p>CO-3: Understand how plant morphology relates to plant reproduction</p> <p>CO-4: Understand significance of morphological modifications of plant parts</p> <p>CO-5: Have foundation for a course on Plant Systematics.</p>
<p>SEC-BO-123P Floriculture and Landscaping</p>	<p>CO-1: Identify and describe the ornamental flowering plants in local region.</p> <p>CO-2: Practice the methods of preparing soil and water, cultivation and propagation methods.</p> <p>CO-3: Design, prepare and apply appropriate combinations of plants and methods of cultivation for commercial setup.</p> <p>CO4: Adopt to the job role of Floriculturist (employment/ entrepreneurship)</p>
<p>OE-BO-02P मशरूम लागवड तंत्रज्ञान व फलोत्पादन</p>	<p>CO-1: विद्यार्थी मशरूम मध्ये आकार, विज्ञान आणि प्रकार यांचा अभ्यास करू शकतात.</p> <p>CO-2: विद्यार्थी मशरूम लागवडीचा उद्योग सुरु करू शकतात.</p> <p>CO-3: विद्यार्थ्यांना खाणे योग्य आणि विषारी मशरूम ओळख पटते.</p> <p>CO-4: विद्यार्थी स्वतः मशरूम बीज तयार करू शकतात.</p> <p>CO-5: लघु उद्योगात मशरूम लागवडीच्या संभावना आणि व्याप्ती जाणून घेतील.</p>

	<p>CO-6: विद्यार्थीना या अभ्यासक्रमातून पोषण तत्वे व त्यांचा जीवनातील उपयोग याबद्दल महत्व पटते.</p> <p>CO-7: फळांची वाढ, देखभाल आणि विपणन याबद्दल विद्यार्थीना माहिती मिळेल.</p> <p>CO-8: नवनवीन तंत्रज्ञानाचा वापर करून विद्यार्थी आर्थिकदृष्ट्या सक्षम होऊ शकतील.</p>
Semester-III	
BO-MJ-231T: Plant physiology	<p>CO-1: Describe the concepts of plant water relations and importance of water.</p> <p>CO-2: Understand nitrogen metabolism in plants.</p> <p>CO-3: Explain the mechanism and significance of transpiration; distinguish between types of transpiration, guttation and exudation.</p> <p>CO-4: Write about biological nitrogen fixation and compile the steps involved in nitrogen metabolism.</p>
BO-MJ-232T: Taxonomy of Angiosperm and Plant Ecology	<p>CO-1: Students will understand principles of general taxonomy, and they can use nomenclature rules for plants.</p> <p>CO-2: Students will get knowledge about historical development of taxonomy.</p> <p>CO-3: After knowing this they should easily explain the concept of species.</p> <p>CO-4: Students should understand the sub and super categories of species according to Linne hierarchy.</p>
BO-MJ-233T Ethnobotany and Ethnopharmacology	<p>CO-1: To demonstrate the concept, scope and objectives of ethnobotany with reference to tribal lifestyle (Understanding).</p> <p>CO-2: To Interpret different ethnobotanical methodologies (Understanding).</p> <p>CO-3: To Examine the role of various plants in traditional and modern medicine (Analyzing).</p> <p>CO-4: To Apply Identification and separation techniques to evaluate medicinally important metabolites.</p> <p>CO-5: To Awareness about types of drugs and systems of medicine.</p>
BO-MJ-234P Practical Course-III	<p>CO-1: Understand the concepts of plant protein in germinating and non-germinating seeds.</p> <p>CO-2: Determine the role of Diffusion Pressure Deficit (DPD).</p> <p>CO-3: Students will understand principles of general taxonomy, and they can use nomenclature rules plants.</p> <p>CO-4: To examine the role of various plants in traditional and modern medicine (Analyzing).</p>

BO-MN-236T Floral Design Technology	<p>CO-1: Demonstrate proficiency in various floral design techniques and styles.</p> <p>CO-2: Showcase their creativity and innovation in designing floral arrangements.</p> <p>CO-3: Understand the business aspects of floral design and be able to apply marketing and sales.</p> <p>CO-4: Apply the principles of floral design to create aesthetically pleasing arrangements.</p>
BO-MN-237P Practical Based on Floral Design Technology	<p>CO-1: To understand and apply the principles and elements of floral design.</p> <p>CO-2: Identify and utilize a wide range of flowers, foliage, and botanicals in floral designs.</p> <p>CO-3: Use various floral design tools and materials safely and effectively.</p> <p>CO-4: Implement effective flower care and handling practices to maintain the quality of floral materials.</p>
BO-VSC-235T Hydroponics Practices	<p>CO-1: Understand the concept of hydroponics.</p> <p>CO-2: Get the knowledge on soilless cultivation system.</p> <p>CO-3: Prepare media for hydroponics cultivation.</p> <p>CO-4: Understand the soil profile and nutrients in the soil.</p>
BO-OE-201T वनस्पतीसह अंतर्गत सजावट	<p>CO-1: विद्यार्थी अंतर्गत सजावटीसाठी वापरल्या जाणाऱ्या वनस्पती ओळखण्यास सक्षम होतील.</p> <p>CO-2: घरगुती क्षेत्रांमध्ये सामान्य वनस्पती रोग व इतर समस्यांची विद्यार्थ्यांना जाणीव होईल.</p> <p>CO-3: विद्यार्थ्यांना भविष्यात एक स्वतःचा उद्योग सुरु करता येईल.</p> <p>CO-4: विद्यार्थी वनस्पतीसह अंतर्गत सजावटीसाठी औषधी वनस्पतीची माहिती होईल.</p>
Semester-IV	
BO-MJ-241T Plant Biotechnology	<p>CO-1: Understand the process of tissue culture.</p> <p>CO-2: Understand the germplasm conservation and cryopreservation.</p> <p>CO-3: Understand the tools and techniques used in genetic engineering.</p> <p>CO-4: Understand the methodology for DNA technology.</p>
BO-MJ-242T Plant Anatomy and Embryology	<p>CO-1: To gain knowledge of plant cells, tissues, and their functions.</p> <p>CO-2: To gain knowledge of plant cells, tissues, and their functions.</p> <p>CO-3: To identify and compare structural differences among different taxa of vascular plants.</p> <p>CO-4: To know the structure and development of monocot and dicot embryos.</p> <p>CO-5: To compare the function and morphology of pollen grains.</p>

<p>BO-MJ-243T Analytical techniques in Plant Science</p>	<p>CO-1: To provide students with a comprehensive understanding of various analytical techniques used in plant science, their principles, applications, and significance in research.</p> <p>CO-2: Learn the details of Spectrophotometry.</p> <p>CO-3: Write down the details of chromatography.</p> <p>CO-4: Specify the details of cell fractioning.</p> <p>CO-5: Identify in detail with application, if applicable, biostatistics.</p>
<p>BO-MJ-244P Practical Course-IV</p>	<p>CO-1: Upon completion of this course, students will be able to integrate various analytical techniques to investigate biochemical and physiological processes in plants.</p> <p>CO-2: Students will demonstrate proficiency in using advanced analytical instruments and software for plant science research.</p> <p>CO-3: Student will possess the skills necessary to communicate scientific findings effectively through written reports and oral presentations.</p> <p>CO-4: Students will have a comprehensive understanding of the role of analytical techniques in advancing knowledge and innovation in plant science.</p> <p>CO-5: Understand the Instruments/equipment's used in plant tissue culture laboratory.</p>
<p>BO-MN-246T Vegan Diets</p>	<p>CO-1: Describe the concepts of veganism.</p> <p>CO-2: Understand nutritional requirements for vegan diet.</p> <p>CO-3: Explain the mechanism and significance of vegan cooking</p> <p>CO-4: Enhance critical thinking in response to dietary preferences, food preferences and nutritional needs.</p> <p>CO-5: Demonstration and hands on cooking in vegan food preparation.</p> <p>CO-6: Understand basic knowledge of processes involved in plants.</p>
<p>BO-MN-247P Vegan diet</p>	<p>CO-1: Understand nutritional requirements</p> <p>CO-2: Application of cooking techniques such as fermentation, dehydration for vegan recipes</p> <p>CO-3: Understanding the use of vegan substitutes for traditional food.</p> <p>CO-4: Analyses of vegan meals and recipes to meet the dietary need.</p>
<p>BO-SEC-245P Biofertilizer</p>	<p>CO-1: Comprehensive understanding of Biofertilizer.</p> <p>CO-2: Understanding the role of microorganisms in nutrient cycling, including the nitrogen and Phosphorus cycles.</p> <p>CO-3: Environmental and Economic Impact Analysis.</p> <p>CO-4: Conduct experiments to assess the efficacy of bio fertilizers on different crops and document The result.</p>

<p>BO-OE-202P आर्थिक वनस्पतीशास्त्र</p>	<p>CO-1: तांदूळ, गहू, मका आणि ज्वारी सारख्या धान्यांची वनस्पतीशास्त्रीय वैशिष्ट्ये आणि उपयोग ओळखणे.</p> <p>CO-2: घरगुती क्षेत्रांमध्ये सामान्य वनस्पती रोग व इतर समस्यांची विद्यार्थ्यांना जाणीव होईल.</p> <p>CO-3: विद्यार्थी विविध वनस्पतींच्या आर्थिक उपयोगाची माहिती प्राप्त करतील.</p> <p>CO-4: स्थानिक समुदायांमधील बिगर लाकूड जंगल उत्पादनांच्या (NTFPs-Non-Timber Forest Products) आर्थिक महत्त्व आणि शाश्वत व्यवस्थापनाचे मूल्यमापन करणे.</p> <p>CO-5: स्थानिक औषधी वनस्पती ओळखणे आणि त्यांचे उपयोग सूचीबद्ध करणे.</p> <p>CO-6: विद्यार्थी विविध वनस्पतींच्या लागवड, उत्पादन, आणि व्यवस्थापन पद्धतींमध्ये कौशल्य प्राप्त करतील.</p>
<p>Semester-V</p>	
<p>BO 351 Algae & fungi</p>	<p>CO- 1: It is useful to study lifecycle, thallus structure, classification of algae and fungi.</p> <p>CO-2: It is helpful to know about role in industry, agriculture, fodder and medicine.</p>
<p>BO 352 Archegoniate</p>	<p>CO-1: Study of bryophyte, pteridophyte general character, habit and habitat and lifecycle pattern.</p> <p>CO-2: To know about ecological and economic importance.</p>
<p>BO 353 Spermatophyte and Paleobotany</p>	<p>CO-1: Spermatophyta gives knowledge of general characters, economic importance and classification of Gymnosperm and Angiosperm.</p> <p>CO-2: Paleobotany provides information regarding the Fossils.</p>
<p>BO 354 Plant Ecology</p>	<p>CO-1: Plant ecology gives knowledge about interrelationship between the living world and the environment, levels of organization, components and dynamism of ecosystem, homeostasis.</p> <p>CO-2: It is helpful to study EIA, remote sensing and ecological management. solution about singular points.</p>
<p>BO 355 Cell and Molecular Biology</p>	<p>CO-1: Cell biology gives the knowledge of Internal organization of the cell</p> <p>CO-2: Cellular signaling, transport and trafficking, Cellular Processes.</p> <p>CO-3: Molecular biology provides Gene structure and Function, DNA: Structure, Functions and Damage</p>
<p>BO 356 Genetics</p>	<p>CO-1: Genetics provides knowledge regarding Classical Genetics, Microbial Genetics & Cytogenetics</p> <p>CO-2: Plant Breeding</p>

<p>BO 3510 Medicinal Botany</p>	<p>CO-1: Understand scope and importance of pharmacognosy.</p> <p>CO-2: Know the cultivation, collection, processing & importance of various herbal drugs and scope of economic botany.</p> <p>CO-3: Know the botanical resources like non wood forestproducts and study the concept of Ayurvedic pharmacy.</p>
<p>BO 3511 Plant diversity and Human Health</p>	<p>CO- 1: To study genetic diversity Species diversity, Plant diversity at the ecosystem level.</p> <p>CO-2: To know about conservation of biodiversity.</p>
<p>Semester-VI</p>	
<p>BO 361 Plant Physiology</p>	<p>CO-1: Plant physiology gives knowledge regarding Photosynthesis, Respiration, Translocation of Organic Solutes</p> <p>CO-2: Know disease cycle and disease development,</p>
<p>BO 362 Biochemistry</p>	<p>CO-1: Biochemistry gives the Knowledge regarding the various biochemical activity occurs in living organisms.</p> <p>CO-2: Carbohydrates, Amino acids and proteins, Secondary Metabolites</p>
<p>BO 363 Plant Pathology</p>	<p>CO-1: Study scope and importance of plant pathology.</p> <p>CO-2: Know disease cycle and disease development,</p> <p>CO-3: Effect of plant diseases on economy of crops.</p> <p>CO-4: Know the methods of studying plant diseases they can identify the plant diseases like bacterial, nematode, and fungal, disease forecasting.</p> <p>CO-5: Study prevention and control measures of plant diseases.</p>
<p>BO 364 Evolution and Population genetics</p>	<p>CO-1: To study the historical account of origin of life and organic evolution.</p> <p>CO-2: To know about organic evolution and population genetics.</p> <p>CO-3: It is helpful for the study of Hybrid in viability, Hybrid sterility & Hybrid breakdown.</p>
<p>BO 365 Advanced Plant Biotechnology</p>	<p>CO-1: To study Impact of Biotechnology on Health care, Agriculture, and Environment.</p> <p>CO-2: Understand Role of microbes in agriculture and medicine industry.</p> <p>CO-3: Study the concept of bioinformatics & genomics Proteomics.</p> <p>Understand technical germplasm & cryopreservation.</p>
<p>BO 366 Plant Breeding and Seed Technology</p>	<p>CO-1: Study the scope & importance of plant breeding.</p> <p>CO-2: Study the technique of production of new superior cropvarieties, heterosis, hybrid vigor etc.</p> <p>CO-3: Know the process of hybrid variety, development & their release.</p> <p>CO-4: Know about seed germination, processing, production etc.</p>

<p>BO 3610 Nursery and Gardening Management</p>	<p>CO-1: To know about idea of nursery and gardening management. CO-2: To study the different techniques of nursery such as cutting, budding grafting, air layering.</p>
<p>BO 3611 Bio fertilizers</p>	<p>CO-1: To study the different types of Bio fertilizers. CO-2: To know about the mass production techniques of bio fertilizers.</p>

Programme Outcomes: M. Sc. Botany

Department of Botany	After successful completion of Two-year degree program in Botany a student will be able to:
Programme Outcomes	<p>PO-1. Students can identify and classify all plant groups from algae to angiosperms, also understand the evolutionary relationship and their taxonomic aspects.</p> <p>PO-2. Knows the concept, process, physiology, and molecular basis of plant development. Also knows the methods of cultivation & economic importance of various species, millet's, leguminous plants, fruits, essential oils, vegetables etc.</p> <p>PO-3. Students know about economically important algae, their cultivation and applications. and methods of preparation and application of algal products.</p> <p>PO-4. Understand the application of Bio pesticides; know about sources, methods and production of biofuel.</p> <p>PO-5. Acquired knowledge of fermentation technology and production of fermented products.</p> <p>PO-6. In seed technology students gain knowledge about seed structure development, chemical composition, seed production, processing, seed testing, quality control, seed certification and new hybrid variety.</p> <p>PO-7. Students learn the basic biostatistics, experimental statistics and bio informatics.</p> <p>PO-8. Students understood plant organism interaction,</p> <p>PO-9. To inculcate the scientific temperament in the students and outside the scientific community</p>

Programme Specific Outcomes: M. Sc. Botany

Department of Botany	After successful completion of two-year degree program in Botany a student will be able to:
Programme Specific Outcomes	<p>PSO-1. Students acquired knowledge through practical work in fields as well as in laboratory.</p> <p>PSO-2. Students are exposed to various industrial process by industrial training.</p> <p>PSO-3. Project helps for creating research attitude among the post graduate students</p>

Course Outcomes: M. Sc. Botany

Course	Outcomes
	After completion of these courses' students should be able to:
Semester-I	
BOTANY. BOUT 111 Plant Systematic-I	<p>CO-1. To study the classification of Bryophytes.</p> <p>CO-2. Understand the evolutionary relationships between plant groups.</p> <p>CO- 3. Know about systematic classification & nomenclature.</p> <p>CO-4. Knows about taxonomic aspects of Cryptogamic plants.</p>
BOUT 112 Cell Biology and Evolution	<p>CO-1. Knows about cell structure and cell organelles</p> <p>CO2. Cell Signaling and Cell cycle.</p> <p>CO-3. Study of Evolution, Cellular and Molecular evolution.</p>
BOUT 113 Cytogenetics and plant breeding	<p>CO-1. Study of Classical genetics</p> <p>CO-2. Study of recombination, Linkages and Mutations</p> <p>CO-3. Study of Microbial Genetics and Cytogenetics</p> <p>CO-4. Study of Different Techniques of Plant Breeding.</p>
BODT 114: Pomo culture and Fruit Processing Technology	<p>CO-1. To know about scope and importance of Pomo culture and Fruit Processing Technology.</p> <p>CO-2. To study the different techniques of fruit processing and preservation techniques.</p>
Semester-II	
BOTANY BOUT 121 Plant Systematics-II	<p>CO-1. To study the classification of pteridophyte, gymnosperms and angiosperms.</p> <p>CO-2. Understand the evolutionary relationships between plant groups.</p> <p>CO- 3. Know about systematic classification</p> <p>CO-4. Knows about taxonomic aspects of gymnosperms and angiosperms.</p>
BOUT 122 Molecular Biology	<p>CO-1. Study of Structure and properties of Nucleic acid.</p> <p>CO-2. Study of Gene structure, Transcription and Translation.</p> <p>CO-3. To study the advanced techniques of Genomics and Proteomics.</p>
BOUT 123 Biochemistry	<p>CO-1. Know about Enzymes and Biomolecules such as amino acids, carbohydrates, Proteins.</p>
BODT 124 Mushroom cultivation and Bio-pesticides	<p>CO-1. To know the idea about Mushroom cultivation, spawn preparation. And their economic values.</p> <p>CO- 2. TO study the techniques of preparation of mushroom recipes.</p> <p>CO-3. Studying bio-pesticide</p>
Semester-III	
BO-MJ-631	CO-1: Understand the process of photosynthesis in higher plants, with special

<p>Plant Physiology and Biochemistry</p>	<p>emphasis on light reactions, dark reactions, and the C3 and C4 pathways.</p> <p>CO-2: Understand the process of respiration in higher plants, focusing on aerobic and anaerobic respiration.</p> <p>CO-3: Gain knowledge of the chemical nature and classification of biomolecules.</p> <p>CO-4: Understand the different types of interactions among biomolecules.</p> <p>CO-5: Understand the structure and general characteristics of enzymes.</p>
<p>BO-MJ- 632T – Developmental Botany & Plant Tissue Culture.</p>	<p>CO-1: To demonstrate the concept, scope and objectives of plant tissue culture.</p> <p>CO-2: To Student will develop the understanding of growth, development and reproduction in plants as well as understand the physiological and metabolic changes happening along with the Environmental impact.</p> <p>CO-3: To Student will understand the basic properties of plant cell and with apply the basic knowledge of PTC in various fields for conservation, medicine, product development.</p> <p>CO-4: To Understand the growth and development processes in plants.</p> <p>CO-5: Employment opportunities in the private sector across various Industries.</p>
<p>BO-MJ-633T - Spermatophyta</p>	<p>CO-1: Understand the differences in higher plant structure.</p> <p>CO-2: Understand the diversity among gymnosperms and angiosperms</p> <p>CO-3: Know the distinct features of gymnosperms and angiosperms.</p> <p>CO-4: Know the systematic, morphology and structure of gymnosperms and angiosperms</p> <p>CO-5: Study the life cycle pattern of gymnosperms and angiosperms.</p> <p>CO-6: Get knowledge about the biodiversity of gymnosperms and angiosperms.</p> <p>CO-7: Know the Economic Importance of gymnosperms and angiosperms.</p> <p>CO-8: Learn the morphological diversity of gymnosperms and angiosperms.</p>
<p>BO-MJ- 634P - Practical based on BO-MJ-631T, BO-MJ-632T(Part-A) and BO-MJ-633T (Part -B)</p>	<p>(Part-A)</p> <p>CO-1: Qualitative and Quantitative analysis of nutritive value of ethno-food plants and other economically useful species.</p> <p>CO-2: Learn to the production of commercially important plants including food plants like to Tomato, banana, apple.</p> <p>CO-3: To identify plant seeds, organs, explants, tissues, cells or protoplasm.</p> <p>CO-4: Understand the Sterilization and tissue culture technique.</p> <p>CO-5: Learn to the isolation technique for organelles.</p> <p>(Part -B)</p> <p>CO-1: Demonstrate a comprehensive understanding of the external, internal, and reproductive morphology of various gymnosperm species.</p>

	<p>CO-2: Identify and analyze fossil specimens from significant gymnosperm orders gaining Insights into their evolutionary history and morphological diversity.</p> <p>CO-3: Recognize and describe the characteristics of locally available dicotyledonous and Monocotyledonous plant families, demonstrating their ability to classify and distinguish between different plant tax.</p> <p>CO-4: Identify and classify genus and species of locally available wild plants, applying their knowledge of plant morphology and taxonomy.</p>
BO-ME-635(A)T – Seed Science and Technology-I	<p>CO-1. To enrich students about basics concepts in seed technology.</p> <p>CO-2. To enrich students about the basic concept in seed physiology.</p> <p>CO-3. To introduce the concept of different methods of seed testing.</p> <p>CO-4. To introduce the methods of seed quality control.</p>
BO-ME-636(A)P – Seed Science and Technology-I	<p>CO-1. To enrich students about basics concepts in seed technology.</p> <p>CO-2. To enrich students about the basic concept in seed physiology.</p> <p>CO-3. To introduce the concept of different methods of seed testing.</p> <p>CO-4. To introduce the methods of seed quality control.</p>
BO-MJ-635 (B)T Advanced Medicinal Botany	<p>CO-1. To develop the ability of the students to transform society through their education.</p> <p>CO-2. To acquaint the students about the methods used in the maintenance of different natural resources.</p> <p>CO-3. Critical Thinking: to include creative thinking, innovation, inquiry and analysis, evaluation and synthesis of information.</p>
BO-ME-636 (B) P- Practical based on BO-MJ- 635 (B) T	<p>CO-1. Students will develop the ability to transform their knowledge to society through their education.</p> <p>CO-2. To acquaint the students about the methods used in the maintenance of different natural resources.</p> <p>CO-3. Critical Thinking: to include creative thinking, innovation, inquiry and analysis, evaluation and synthesis of information.</p>
Semester-IV	
BO-MJ-641T Plant Organism Interaction	<p>CO-1. To explain key ecological and evolutionary theories and concepts about plant-organism interactions.</p> <p>CO-2. Describe the mechanism driving the interaction between two or more organisms.</p> <p>CO-3. Identify the outcomes of species interactions at multiple levels.</p> <p>CO-4. Synthesize current literature on a specific topic.</p>

BO-MJ-642T Genetic Engineering and Bioinformatics	CO-1: Use genetic engineering tools in crop improvement. CO-2: Use the Bioinformatics tool in biological data analysis. CO-3: Explain the methods used for characterizing and managing biological data.
BO-MJ-643T Herbal Technology	CO-1: Identify and describe the medicinal properties and traditional uses of key medicinal plants. CO-2: Perform phytochemical analyses and identify active constituents of medicinal plants. CO-3: Apply sustainable cultivation techniques for medicinal plants. CO-4: Develop and prepare various herbal formulations ensuring safety and efficacy. CO-5: Implement quality control measures for herbal products. CO-6: Understand and apply regulatory guidelines and ethical considerations in herbal medicine. CO-7: Critically evaluate and integrate herbal remedies with conventional treatments.
BO-MJ-644P Practical based on BO-MJ-641T, BOMJ-642T (Part-A) and BO-MJ- 643 T (Part-B)	CO-1: Students will understand the multiple plant-animal interactions, using real examples CO-2: Students should know how pollination, herbivory, and dispersal strongly influence ecological communities. CO-3: Students should predict the outcome of multiple plant-animal interactions, using real examples. CO-4: Students will get practical knowledge and skills about Genetic Engineering and Bioinformatics. CO-5: Students will be encouraged to understand the techniques and safety measures of the practical. CO-6: Students will know tools and strategies used in Genetic Engineering. CO-7: Identify and classify medicinal plants. CO-8: Perform phytochemical analyses and identify active constituents of medicinal plants. CO-9: Develop and prepare various herbal formulations ensuring safety and efficacy.
BO-ME- 645 (A)T – Seed Science & Technology - II	CO-1: To get scientific knowledge and skills about Seed Science and Technologies for seed processing. CO-2: Encouraged to develop new cultivars, improved Seed varieties. CO-3: To Study and find out most effective strategies keeping Seed trees healthy and productive. CO-4: To Get practical knowledge and information for Seed preservation. CO-5: To acquire knowledge that enables them to identify the main key processing

	<p>steps used.</p> <p>During Seed transformation, we understand the main effect of the processing on the quality Characteristics of processed Seeds.</p> <p>CO-6: To Get knowledge about job and entrepreneurial opportunities.</p>
<p>BO-ME-646(A)P - Part- A (Practical based on BO-ME-645(A)T)</p>	<p>CO-1: To Get scientific knowledge and skills about Seed Science and Technologies for seed processing.</p> <p>CO-2: Encouraged to develop new cultivars, improved Seed varieties.</p> <p>CO-3: To Study and find out most effective strategies keeping Seed trees healthy and productive.</p> <p>CO-4: To get practical knowledge and information for Seed preservation.</p> <p>CO-5: To acquire knowledge that enables them to identify the main key processing steps used During Seed transformation, understand the main effect of the processing on the quality Characteristics of processed Seeds.</p> <p>CO-6: To Get knowledge about job and entrepreneurial opportunities.</p>
<p>BO-ME-645(B)T – Plant Tissue Culture</p>	<p>CO-1: Students will understand the basic theory and history of plant tissue culture, including key terms and concepts.</p> <p>CO-2: Students will demonstrate proficiency in maintaining sterile conditions in a tissue culture lab, including the use of laminar flow hoods and sterilization methods.</p> <p>CO-3: Students will be able to prepare various types of culture media, including understanding the role of macro and micronutrients, vitamins, and plant growth regulators.</p> <p>CO-4: Students will be skilled in subculturing techniques to ensure continuous growth and proliferation of plant tissues.</p> <p>CO-5: Students will be proficient in using tissue culture methods for the clonal propagation of plants, including shoot multiplication and root induction.</p> <p>CO-6: Get knowledge about job and entrepreneurial opportunities.</p>
<p>BO-ME-646(B)P – Practical based on BO-ME-645(B)T</p>	<p>CO-1: Students will understand the basic theory and history of plant tissue culture, including key terms and concepts.</p> <p>CO-2: Students will demonstrate proficiency in maintaining sterile conditions in a tissue culture lab, including the use of laminar flow hoods and sterilization methods.</p> <p>CO-3: Students will be able to prepare various types of culture media, including understanding the role of macro and micronutrients, vitamins, and plant growth regulators.</p> <p>CO-4: Students will be skilled in subculturing techniques to ensure continuous growth and proliferation of plant tissues.</p> <p>CO-5: Students will be proficient in using tissue culture methods for the clonal</p>

DEPARTMENT OF CHEMISTRY

Programme Outcomes: B. Sc. Chemistry

Department of Chemistry	After successful completion of three-year degree program in Chemistry a student is able to:
Programme Outcomes	<p>PO-1. Demonstrate, solve and an understanding of major concepts in all disciplines of chemistry.</p> <p>PO-2. Solve the problem and also think methodically, independently and draw a logical conclusion.</p> <p>PO-3. Employ critical thinking and scientific knowledge to design, carry out, record and analyze the results of chemical reactions.</p> <p>PO-4. Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.</p> <p>PO-5. Find out the green route for chemical reaction for sustainable development.</p> <p>PO-6. To inculcate the scientific temperament in the students and outside the scientific community.</p> <p>PO-7. Use modern techniques, decent equipment and Chemistry software's.</p>

Programme Specific Outcomes: B. Sc. Chemistry

Department of Chemistry	After successful completion of three-year degree program in Chemistry a student is able to;
Programme Specific Outcomes	<p>PSO-1. Gain the knowledge of Chemistry through theory and practicals.</p> <p>PSO-2. To explain nomenclature, stereochemistry, structures, reactivity, and mechanism of chemical reactions.</p> <p>PSO-3. Identify chemical formulae and solve numerical problems.</p> <p>PSO-4. Use modern chemical tools, Models, Chem-draw, Charts and Equipment.</p> <p>PSO-5. Know structure-activity relationship.</p> <p>PSO-6. Understand good laboratory practices and safety.</p> <p>PSO-7. Develop research-oriented skills.</p> <p>PSO-8. Make aware and handle the sophisticated instruments/equipment's.</p>

Course Outcomes: B. Sc. Chemistry

Course	Outcomes After completion of these courses' students should be able to;
Semester-I	
BS-CH-111T: Fundamentals of Chemistry I	<p>CO-1: Apply basic algebraic operations for unit conversions, no. of moles and concentration of solutions in analytical and physical chemistry.</p> <p>CO-2: Calculate thermodynamic properties like enthalpy, bond energy, resonance energy, entropy etc.</p> <p>CO-3: Formulate relation between Free energy and equilibrium constant, identify exergonic and endergonic reactions.</p> <p>CO-4: Calculate equilibrium constant and predict the directionality of reaction with respect to various factors like concentration, pressure, volume, temperature etc.</p> <p>CO-5: Calculate ionization pH, pKa of acidic/basic solutions as well as buffer solutions</p> <p>CO-6: Calculate solubility and solubility product for different types of salt and explain factors affecting their solubilities.</p> <p>CO-7: Calculate pH of resultant solution after salt hydrolysis.</p>
BS-CH-112P - Chemistry Practicals-I	<p>CO-1: Preparation of buffer solutions and significance.</p> <p>CO-2: Qualitative analysis of organic compounds (non-instrumental).</p> <p>CO-3: Chromatographic Techniques for separation of constituents of mixtures.</p>
SEC-CH-113T - Instrumental Techniques – Paper I	<p>CO-1: Describe the principles regions of electromagnetic regions.</p> <p>CO-2: Discuss / explain / derive Beer's law of absorptivity.</p> <p>CO-3: Explain / define different terms in Colorimetry such as radiant power, transmittance, absorbance, molar, Lamberts Law, Beer's Law, molar absorptivity.</p> <p>CO-4: Explain construction and working of colorimeter; Hence apply colorimetric methods of analysis to real problems in analytical laboratory.</p> <p>CO-5: Describe the principles of the IR spectroscopy and its instrumentation.</p> <p>CO-6: Define chromatography, describe thin layer chromatography.</p> <p>CO-7: Describe types of electro-analytical methods and interfacial methods of analysis.</p>

<p>IKS-GE-01: Indian Knowledge System</p>	<p>CO-1: Define and explain the core concepts and scopes of the Indian Knowledge System (IKS).</p> <p>CO-2: Articulate the need for and importance of IKS in both ancient and modern contexts.</p> <p>CO-3: Describe the salient features and organization of IKS.</p> <p>CO-4: Demonstrate an understanding of the historical development of IKS from ancient times to the present.</p> <p>CO-5: Identify and describe the key elements and significance of the ancient Indian education system.</p> <p>CO-6: Analyze the structure and functioning of the Gurukul education system.</p> <p>CO-7: Assess the contributions of ancient educational institutions such as Takshashila, Nalanda, Vikramshila, and Valabhi to the Indian Knowledge System.</p> <p>CO-8: Know the work done by the Ancient Indian Mathematicians and the role in developing the number system.</p> <p>CO-9: Understand the chemical approach adapted by ancient Indian cultures in glass making and dyeing processes.</p> <p>CO-10: Analyze the Interdisciplinary nature of Indian knowledge integrating philosophy, historical development, animal science and literature through the study of IKS.</p> <p>CO-11: Understand the growth and development of Ayurveda.</p> <p>CO-12: Identify and realize the diversity of seeds, their values, and delectation and conservation methods.</p> <p>CO-13: Describe the theoretical aspects of observational Astronomy.</p>
<p>OE-CH-01T – माती आणि पाणी परीक्षण – पेपर १</p>	<p>CO-1: मातीच्या विविध घटकांची तपासणी करता येईल.</p> <p>CO-2: माती आणि पाण्याच्या नमूऱ्यांचे प्राथमिक परिमानांचे निर्धारण करता येईल.</p> <p>CO-3: शेतातील मातीच्या नमूऱ्यांचे भौतिक, रासायनिक पृथक्करण करून त्यातील उपलब्ध अन्नद्रव्याची प्रमाण तपासणी करता येईल.</p> <p>CO-4: माती आणि पाणी परीक्षणाशी निगडित विविध संकल्पनांची शास्त्रोक्त माहिती असेल.</p>
<p>Semester-II</p>	
	<p>CO-1: Origin of quantum mechanics and its need to understand structure of hydrogen atom.</p> <p>CO-2: Explain rules for filling electrons in various orbitals- Aufbau's principle, Pauli's Exclusion Principle, Hund's rule of maximum multiplicity.</p> <p>CO-3: Discuss electronic configuration of an atom and anomalous electronic</p>

<p>BS-CH-121T - Fundamentals of Chemistry II</p>	<p>configurations.</p> <p>CO-4: Discuss concept of energy exchange and relative energies of atomic orbitals.</p> <p>CO-5: Design and describe the skeleton of long form of periodic table, blocks, groups, modern periodic law and periodicity.</p> <p>CO-6: Understand the classification of elements as main group, transition and inner transition elements; know their names, symbol and electronic configurations.</p> <p>CO-7: Explain periodicity of elements based on various factors.</p> <p>CO-8: Study electronic effects of organic compounds.</p> <p>CO-9: Study the structure and reactivity of organic compounds.</p> <p>CO-10: Learn stereochemistry, conformations and configuration of organic compounds.</p> <p>CO-11: Study of various projection formulae to draw structures of molecule.</p> <p>CO-12: Understand Aromaticity and Huckel's rule.</p>
<p>BS-CH-122P - Chemistry Practicals-II</p>	<p>CO-1: Preparation of Inorganic compounds.</p> <p>CO-2: Synthesis of organic compounds (non-instrumental).</p> <p>CO-3: Chromatographic Techniques for separation of constituents of mixtures and classifications.</p>
<p>SEC-CH-123P - Instrumental Techniques – Paper II</p>	<p>CO-1: Handle electrochemical and optical instruments for analysis.</p> <p>CO-2: Apply chromatographic techniques for separation and purification of compounds.</p> <p>CO-3: Explain scientific principles behind instrumental techniques.</p> <p>CO-4: Observe and interpret instrumental demonstrations and results.</p>
<p>OE-CH-101P - माती आणि पाणी परीक्षण – पेपर २</p>	<p>CO-1: मातीच्या विविध घटकांची तपासणी करता येईल.</p> <p>CO-2: माती आणि पाण्याच्या नमूऱ्यांचे प्राथमिक परिमानांचे निर्धारण करता येईल.</p> <p>CO-3: शेतातील मातीच्या नमूऱ्यांचे भौतिक, रासायनिक पृथक्करण करून त्यातील उपलब्ध अन्नद्रव्याची प्रमाण तपासणी करता येईल.</p> <p>CO-4: माती आणि पाणी परीक्षणाशी निगडित विविध संकल्पनांची शास्त्रोक्त माहिती असेल.</p>
<p>Semester-III</p>	
	<p>CO-1: Define / Explain concept of kinetics, terms used, rate laws, molecularity, order.</p>

**CH-MJ-231T –
Physical
Chemistry-II**

- CO-2:** Explain factors affecting rate of reaction.
- CO-3:** Explain / discuss / derive integrated rate laws, characteristics, expression for half-life and examples of zero order, first order, and second order reactions
- CO-4:** Derivation of Arrhenius equation and evaluation of energy of activation graphically.
- CO-5:** Derivations of collision theory and transition state theory of bimolecular reaction and comparison.
- CO-6:** Solve / discuss the problem based applying theory and equations.
- CO-7:** Define / explain adsorption, classification of given processes into physical and chemical adsorption.
- CO-8:** Discuss factors influencing adsorption, its characteristics, differentiates types as physisorption and Chemisorption.
- CO-9:** Classification of Adsorption Isotherms, to derive isotherms
- CO-10:** Explanation of adsorption results in the light of Langmuir adsorption isotherm, Freundlich's adsorption Isotherm and BET theory.
- CO-11:** Define the terms in phase equilibria such as- system, phase in system, components in system, degree of freedom, one / two component system, phase rule, etc.
- CO-12:** Explain meaning and Types of equilibrium such as true or static, metastable and unstable equilibrium.
- CO-13:** Discuss meaning of phase, component and degree of freedom.
- CO-14:** Derive of phase rule.
- CO-15:** Explain of one component system with respect to: Description of the curve, Phase rule relationship and typical features for i) Water system ii) Carbon dioxide system Define various terms, laws, differentiate ideal and no-ideal solutions.
- CO-16:** Discuss / explain thermodynamic aspects of Ideal solutions-Gibbs free energy change, Volume change, Enthalpy change and entropy change of mixing of Ideal solution.
- CO-17:** Explain / discuss azeotropes, Lever rule, Henrys law and its application.
- CO-18:** Discuss / explain solubility of partially miscible liquids- systems with upper critical. Solution temperature, lower critical solution temperature and having both UCST and LCST.

<p>CH-MJ-232T - Organic Chemistry-II</p>	<p>CO-1: Identify and draw the structures aromatic hydrocarbons from their names or from structure name can be assigned.</p> <p>CO-2: Explain /discuss synthesis of aromatic hydrocarbons.</p> <p>CO-3: Explain /Discuss important reactions of aromatic hydrocarbon After studying the Alkyl and Aryl Halides student will able to-.</p> <p>CO-4: Identify and draw the structures alkyl/aryl halides from their names or from structure name can be assigned.</p> <p>CO-5: Explain/discuss synthesis of alkyl /aryl halides.</p> <p>CO-6: Explain/Discuss important reactions of alkyl/aryl halides.</p> <p>CO-7: Identify and draw the structures alcohols/phenols from their names or from structure name can be assigned.</p> <p>CO-8: Able to differentiate between alcohols and phenols.</p> <p>CO-9: Explain/discuss synthesis of alcohols/phenols.</p> <p>CO-10: Write/discuss the mechanism of various reactions involved.</p> <p>CO-11: Explain /Discuss important reactions of alcohols/phenols.</p> <p>CO-12: Give synthesis of expected alcohols/phenols.</p>
<p>CH-MJ-233T - Inorganic Chemistry-II</p>	<p>CO-1: Understand terms related to molecular orbital theory (AO, MO, sigma bond, pi bond, bond order, magnetic property of molecules, etc) and apply LCAO principle for the formation of MOs from AOs.</p> <p>CO-2: Distinguish between atomic and molecular orbitals, bonding, anti-bonding and non-bonding molecular orbitals and explain MO energy level diagrams for homo and hetero diatomic molecules.</p> <p>CO-3: To Study formation and stability of molecule based on bond order</p> <p>CO-4: To Study different terms related to the coordination chemistry (double salt, coordination compounds, coordinate bond, ligand, central metal ion, complex ion, coordination number, magnetic moment, crystal field stabilization energy, types of ligands, chelate effect, etc.</p> <p>CO-5: To Study Werner's theory of coordination compounds. Differentiate between primary and Secondary valency. Correlate coordination number and structure of complex ion.</p> <p>CO-6: IUPAC nomenclature to coordination compound.</p> <p>CO-7: To understand Chemistry of transition elements.</p> <p>CO-8: To understand Chemistry of P- block elements.</p>

CH-MJ-234P – Practical Chemistry-III	CO-1: Determine the rate constant (k). CO-2: Determination of type and separation of components from organic binary mixture. CO-3: Determination of Hardness of water
CH-VSC-235T - Chemistry of Food Adulteration	CO-1: Understand the adulteration of common foods and their adverse effect on health. CO-2: Acquired the basic skills of detecting adulteration in common foods. CO-3: Extend their knowledge of detecting other kinds of adulteration. CO-4: Learn the food safety and standardization acts.
CH-MN-236T - Fundamentals of Chemistry-I	CO-1: To understand thermodynamic properties like enthalpy, bond energy, resonance energy, entropy etc. CO-2: Formulate relation between Free energy and equilibrium constant, identify exergonic and endergonic reactions. CO-3: Study electronic effects of organic compounds. CO-4: Study the structure and reactivity of organic compounds. CO-5: Learn stereochemistry, conformations and configuration of organic compounds. CO-6: Study of various projection formulae to draw structures of molecule. CO-7: Understand Aromaticity and Huckel's rule. CO-8: Understand the properties of alkali and alkaline metals.
CH-MN-237P - Basic Chemistry Practical-I	CO-1: Preparation of buffer solutions and significance. CO-2: Qualitative analysis of organic compounds (non-instrumental). CO-3: Chromatographic Techniques for separation of constituents of mixtures.
CH-OE-201T: Chemistry of Food and Nutrients – Paper I	CO-1: To know and understand the functions, importance of all nutrients presents in food. CO-2: To know about the various types of nutrients and their functions in the body. CO-3: To familiarize with the recent advances in field of nutrition. CO-4: To understand the different types of newly developed food products.
Semester-IV	
CH-MJ-241T - Analytical Chemistry-II	CO-1: Define, explain and compare meaning of accuracy and precision. CO-2: Apply the methods of expressing the errors in analysis from results. CO-3: Explain / discuss different terms related to errors in quantitative analysis CO-4: Apply statistical methods to express his / her analytical results in laboratory. CO-5: Solve problems applying equations.

CO-6: Explain / define different terms in volumetric analysis such as units of concentration, indicator, equivalence point, end point, standard solutions, primary and secondary standards, complexing agent, precipitating agent, oxidizing agent, reducing agent, redox indicators, acid base indicators, metallochrome indicators, etc.

CO-7: Perform calculations involved in volumetric analysis.

CO-8: Explain why indicator show colour change and pH range of colour change.

CO-9: To prepare standard solution and b. perform standardization of solutions.

CO-10: To construct acid – base titration curves and performs choice of indicator for titration.

CO-11: Explain/discuss acid-base titrations, complexometric titration/precipitation titration /redox titration.

CO-12: Apply volumetric methods of analysis to real problem in analytical chemistry / industry

CO-13: Explain / define different terms in conductometry such as electrolytic conductance, resistance, conductance, Ohm's law, cell constant, specific and equivalent conductance, molar conductance, Kohlrausch's law, etc.

CO-14: Discuss / explain Kohlrausch's law and its Applications, Conductivity Cell, Conductivity Meter, Whetstone Bridge.

CO-15: Explain / discuss conductometric titrations

CO-16: Apply conductometric methods of analysis to real problem in analytical laboratory. Solve problems based on theory / equations.

CO-17: Correlate different terms with each other and derive equations for their correlations.

CO-18: Explain / define different terms in column chromatography such as stationary phase, mobile phase, elution, adsorption, ion exchange resin, adsorbate, etc.

CO-19: Explain properties of adsorbents, ion exchange resins, etc.

CO-20: Discuss / explain separation of ionic substances using resins.

CO-21: Discuss / explain separation of substances using silica gel / alumina.

CO-22: Apply column chromatographic process for real analysis in analytical laboratory.

<p>CH-MJ-242T - Organic Chemistry-III</p>	<p>CO-1: Write / discuss the mechanism reactions aldehydes and ketones</p> <p>CO-2: Explain /Discuss important reactions of aldehydes and ketones.</p> <p>CO-3: Give synthesis of expected aldehydes and ketones.</p> <p>CO-4: Explain / discuss synthesis of carboxylic acids and their derivatives.</p> <p>CO-5: Write / discuss the mechanism reactions carboxylic acids and their derivatives</p> <p>CO-6: Explain /Discuss important reactions of carboxylic acids and their derivatives.</p> <p>CO-7: Give synthesis of expected carboxylic acids and their derivatives.</p> <p>CO-8: Identify and draw the structures amines from their names or from structure name can be assigned.</p> <p>CO-9: Explain / discuss synthesis of carboxylic amines.</p> <p>CO-10: Explain /Discuss important reactions of carboxylic amines</p> <p>CO-11: To correlate reagent and reactions of carboxylic amines.</p> <p>CO-12: Give synthesis diazonium salt from amines and reactions of diazonium salt.</p> <p>CO-13: Perform inter conversion of functional groups.</p> <p>CO-14: Draw the structures of different conformations of cyclohexane.</p> <p>CO-15: Define terms such as axial hydrogen, equatorial hydrogen, confirmation, substituted cyclohexane, etc.</p> <p>CO-16: Convert one conformation of cyclohexane to another conformation and should be able to identify governing structural changes</p> <p>CO-17: Explain / discuss stability with respect to potential energy of different conformations of cyclohexane.</p> <p>CO-18: Draw structures of different conformations of methyl / t-butyl monosubstituted cyclohexane (axial, equatorial) and 1, 2 dimethyl cyclohexane.</p> <p>CO-19: Identify cis- and trans-isomers of 1, 2 dimethyl substituted cyclohexane and able to compare their stability</p>
<p>CH-MJ-243T – Inorganic Chemistry-III</p>	<p>CO-1: To study Isomerism in coordination complexes.</p> <p>CO-2: To explain different types of in coordination compound of different geometries.</p> <p>CO-3: Correlate no of unpaired electrons and orbitals used for bonding.</p> <p>CO-4: Identify / explain / discuss inner and outer orbital complexes and limitations.</p>

	<p>CO-5: To study principle of CFT and apply crystal field theory to different type of complexes (Td, Oh, Sq. Pl complexes).</p> <p>CO-6: IUPAC nomenclature to coordination compound.</p> <p>CO-7: Describe strong field and weak field ligand approach in Oh complexes.</p> <p>CO-8: To understand Magnetic properties of coordination compounds based on weak and strong field ligand concept and origin of colour of coordination complex.</p> <p>CO-9: Students should be able to calculate field stabilization energy and magnetic moment for various complexes.</p> <p>CO-10: To identify Td and Sq. Pl complexes based on magnetic properties / unpaired electrons.</p> <p>CO-11: Explain spectrochemical series, tetragonal distortion / Jahn-Teller effect in Cu (II) Oh complexes.</p> <p>CO-12: To explain different types of Redox Reactions.</p>
CH-MJ-244P – Practicals Chemistry-IV	<p>CO-1: Verify theoretical principles by performing experiments.</p> <p>CO-2: Interpretation of the experimental data on the basis of theoretical principles.</p> <p>CO-3: Acquire the knowledge of systematic separation of cations by Column Chromatography.</p> <p>CO-4: Learn the synthesis of coordination compounds.</p> <p>CO-5: Set up the apparatus properly for the assigned experiments.</p> <p>CO-6: Acquire the knowledge of Freundlich and Langmuir adsorption isotherm.</p> <p>CO-7: Perform the quantitative chemical analysis of substances and able to explain principles behind it.</p>
CH-SEC-245T – Fuel Chemistry	<p>CO-1: To learn energy sources (renewable and non-renewable)</p> <p>CO-2: To study the classification of fuels</p> <p>CO-3: To study use of coal in various industries</p> <p>CO-4: To learn fractionation of coal.</p> <p>CO-5: To understand Petroleum and Petrochemical Industry</p> <p>CO-6: To study various procedure used in petrochemical Industries</p> <p>CO-7: Differentiate between quantitative and qualitative analysis.</p> <p>CO-8: To study lubricant</p>
CH-MN-246T - Fundamentals of Chemistry-II	<p>CO-1: Study of various projection formulae to draw structures of molecule.</p> <p>CO-2: To understand the perspectives of analytical Chemistry.</p> <p>CO-3: To learn the relation between molecular formula and empirical formula.</p> <p>CO-4: To calculate of no. of moles, molar concentrations and various units of</p>

	<p>concentrations.</p> <p>CO-5: To study Stoichiometric calculations.</p> <p>CO-6: Describe various types of chemical bonds- Ionic, covalent, coordinate and metallic</p> <p>CO-7: Describe VB approach, Hybridization with example of linear, trigonal, square planer, tetrahedral, TBP, and octahedral.</p> <p>CO-8: Discuss assumption and need for VSEPR theory.</p> <p>CO-9: Basic understanding of geometry and effect of lone pairs with examples such as ClF_3, Cl_2O, BrF_5, XeO_3 and XeOF_4.</p>
CH-MN-247P - Basic Chemistry Practicals-II	<p>CO-1: Preparation of Inorganic compounds.</p> <p>CO-2: Synthesis of organic compounds (non-instrumental).</p> <p>CO-3: Chromatographic Techniques for separation of constituents of mixtures.</p>
CH-OE-201P: Chemistry of Food and Nutrients – Paper II	<p>CO-1: To study various tests for food analysis.</p> <p>CO-2: To study methods and conditions for some important components of food.</p> <p>CO-3: To study mineral analysis.</p> <p>CO-4: To study vitamin analysis by simple methods.</p>
Semester-V	
CH-501 Physical Chemistry-I	<p>CO-1. To know historical of development of quantum mechanics in chemistry.</p> <p>CO-2. To understand and explain the differences between classical and quantum mechanics.</p> <p>CO-3. To understanding the operators: Position, momentum and energy</p> <p>CO-4. To solve Schrodinger equations for 1D, 2D and 3D model</p> <p>CO-5. To understand the term additive and constitutive properties.</p> <p>CO-6. To understand the term specific volume, molar volume and molar refraction.</p> <p>CO-7. To diplomatic and experimental determination by temperature variation method.</p> <p>CO-8. To understand electromagnetic spectrum, Nature of wave and its characteristics such as wavelength, wave number, frequency and velocity, Energy level diagram,</p> <p>CO-9. To know classification of molecules based on moment of Inertia.</p> <p>CO-10. To draw the Stokes and anti-Stokes lines in a Raman spectrum</p>

	<p>CO-11. To understand difference between thermal and photochemical processes.</p> <p>CO-12. To know quantum yield and reasons for high and low quantum yield,</p>
<p>CH-502 Analytical Chemistry-I</p>	<p>CO-1. To know basic terms in gravimetry, spectrophotometry, qualitative analysis and parameters in instrumental analysis. Such as: Gravimetry, precipitation, solubility product, ionic product, common ion effect, precipitating agent, washing of ppt., drying and ignition of ppt., linearity range, detection limit, precision, accuracy.</p> <p>CO-2. To identify important parameters in analytical processes or estimations. Example: minimum analyte concentration in particular method, reagent concentration in particular analysis, reagent for analysis, reaction condition to convert analyte into measurable form, drying and ignition temperature for ppt in gravimetry</p> <p>CO-3. To discuss / Describe procedure for different types of analyses</p> <p>CO-4. To Select method of analysis if analyte sample is given to him.</p> <p>CO-5. To differentiate / distinguish / Compare among the different analytical terms, process and analytical methods.</p> <p>CO-6. To demonstrate theoretical principles with help of practical.</p> <p>CO-7. To design analytical procedure for given sample.</p> <p>CO-8. To understand Apply whatever theoretical principles he has studied in theory during practical session in laboratory.</p>
<p>CH-503 Physical Chemistry Practical-I</p>	<p>CO-1. To determine the molecular refractivity of the given liquids A, B, C and D.</p> <p>CO-2. To determine the molar refraction of homologues methyl, ethyl and propyl alcohol and show the constancy contribution to the molar refraction by CH₂ group.</p> <p>CO-3. To titrate Cu²⁺ ions with EDTA photometrically.</p> <p>CO-4. To determine the indicator constant of methyl red indicator</p> <p>CO-5. To determine the order of reaction for the oxidation of alcohol by potassium dichromate and potassium permanganate in acidic medium calorimetrically.</p> <p>CO-6. Titration of a mixture of weak acid and strong acid with strong alkali.</p> <p>CO-7. To determine the velocity constant of hydrolysis of ethyl acetate by NaOH solution by conducting metric method.</p> <p>CO-8. To determine the molecular weight of a high polymer by using solutions of different concentrations.</p>

	<p>CO-9. Determine the radius of glycerol molecule from viscosity measurement.</p>
<p>CH-504 Inorganic Chemistry-I</p>	<p>CO-1. To explain electroneutrality principle and different types of pi bonding.</p> <p>CO-2. Able to explain Nephelauxetic effect towards covalent bonding.</p> <p>CO-3. Able to explain Charge Transfer Spectra.</p> <p>CO-4. To understand about inert and labile complexes and stability of complexes in aqueous solutions</p> <p>CO-5. To Understand basic mechanisms of ligand substitution reactions.</p> <p>CO-6. To understand Tran's effect and applications of Trans effect.</p> <p>CO-7. To know position of d-block elements in periodic table.</p> <p>CO-8. To know the general electronic configuration & electronic configuration of elements.</p> <p>CO-9. To Understand term f-block elements, Inner transition elements, lanthanides, actinides.</p>
<p>CH-505 Industrial Chemistry</p>	<p>CO-1. To know importance of chemical industry,</p> <p>CO-2. To Understand Their uses and manufacturing process.</p> <p>CO-3. To learn Importance of sugar industry,</p> <p>CO-4. To understand consumption (plantation white) sugar with flow diagram.</p> <p>CO-5. To know Cane juice extraction by various methods,</p> <p>CO-6. To understand concentration of juice by using multiple effect evaporator system.</p> <p>CO-7. To know basic requirement of fermentation process,</p> <p>CO-8. To know washing action of soap and detergents</p> <p>CO-9. To know classification of dyes,</p> <p>CO-10. To understand synthesis, Structures, properties and applications of dyes</p>
<p>CH-506 Inorganic Chemistry Practical-I</p>	<p>CO-1. Gravimetric estimation of Fe as Fe₂O₃.</p> <p>CO-2. Gravimetric estimation of Ba as BaSO₄ using homogeneous precipitation method.</p> <p>CO-3. Analysis of sodium bicarbonate from mixture by thermal decomposition method.</p> <p>CO-4. Determination of water of crystallization by thermal decomposition.</p> <p>CO-5. Preparation of hexamminenickel (II) chloride, [Ni (NH₃)₆] Cl₂.</p> <p>CO-6. Preparation of Potassium trioxa latoferrate (III), K₃[Fe(C₂O₄)₃].</p> <p>CO-7. Inorganic Qualitative analysis</p>
	<p>CO-1. To understand Polynuclear and Heteronuclear Aromatic Compounds</p>

<p>CH-507 Organic Chemistry-I</p>	<p>CO-2. Write the structure, synthesis of polynuclear and heteronuclear aromatic hydrocarbons.</p> <p>CO-3. Understand the reactions and mechanisms</p> <p>CO-4. To describe the synthesis of chemical reactions of polynuclear and heteronuclear aromatic Hydrocarbons.</p> <p>CO-5. To know meaning of active methylene group</p> <p>CO-6. To understand reactivity of methylene group,</p> <p>CO-7. To Study different types of intermediate in rearrangement reactions.</p> <p>CO-8. To write the mechanism of some named rearrangement reactions and their applications.</p> <p>CO-9. To study of E1, E2 and E1cB mechanism with evidence of these reactions</p> <p>CO-10. Understand stereochemistry by using models and learn reactivity of geometrical isomers.</p>
<p>CH-508 Chemistry of Biomolecules</p>	<p>CO-1. Understanding Cell types, Difference between a bacterial cell, Plant cell and animal cell. Biological composition and organization of cell membrane, structure and function of various cell organelles of plant and animal cell.</p> <p>CO-2. To understand the types of carbohydrates and their biochemical significance in living organisms, structure of carbohydrates and reactions of carbohydrates with Glucose as example. Properties of carbohydrates.</p> <p>CO-3. The student needs to know the types of lipids with examples, structure of lipids, properties of lipids</p> <p>CO-4. The student will understand the structure and types of amino acids. formation. Types of proteins. Structural features in proteins. Effect of pH on structure of amino acid, Determination of N and C terminus of peptide chain.</p> <p>CO-5. The student knows the classes of enzymes with subclasses and examples. Enzyme specificity, Equations of enzyme kinetics K_m and its significance, features of various types of enzyme inhibitions,</p> <p>CO-6. To know basic concepts of Endocrinology. Types of Endocrine glands and their hormones. Biochemical nature of hormones. Mechanism of action of lipophilic and hydrophilic hormones</p>
	<p>A) Separation of Binary Mixtures and Qualitative Analysis The students will be able to</p> <p>CO-1. Perform the quantitative chemical analysis of binary mixture, explain</p>

<p>CH-509 Organic Chemistry Practical-I</p>	<p>principles behind it.</p> <p>CO-2. Separate, purify and analyses binary water insoluble mixture.</p> <p>CO-3. Separate, purify and analyses binary water-soluble mixture.</p> <p>CO-4. Understand the techniques involving drying and recrystallization by various methods.</p> <p>CO-5. Learn the confirmatory test for various functional groups.</p> <p>B) Preparations The students will be able to</p> <p>CO-1. Systematic working skills in laboratory will be imparted in students.</p> <p>CO-2. Learn the basic principles of green and sustainable chemistry.</p> <p>CO-3. Synthesis of various organic compounds through greener approach.</p> <p>CO-4. Do and understand stoichiometric calculations and relate.</p> <p>CO-5. Understand the techniques involving drying and recrystallization by various methods.</p> <p>CO-6. Understand principle of Thin Layer Chromatographic techniques.</p>
<p>CH-510 Polymer Chemistry</p>	<p>CO-1. To know History of polymers.</p> <p>CO-2. To Difference between simple compounds and polymer.</p> <p>CO-3. Understand various ways of nomenclature.</p> <p>CO-4. To know difference between natural, synthetic, organic and inorganic polymers.</p> <p>CO-5. Understand the terms-Monomer, Polymer, Polymerization, Degree of Polymerization, Functionality, Number average, Weight average molecular weight.</p> <p>CO-6. To study mechanisms of polymerization.</p> <p>CO-7 Understand uses & properties of polymers.</p> <p>CO-8 Role of polymer industry in the economy.</p> <p>CO-9 To know advantages of polymers.</p>
<p>CH-511 Environmental Chemistry</p>	<p>CO-1. Importance and conservation of environment.</p> <p>CO-2. Importance of biogeochemical cycles</p> <p>CO-3. To know water resources</p> <p>CO-4. Understand Hydrological Cycle</p> <p>CO-5. To know Organic and inorganic pollutants</p>
<p>T. Y. B. Sc. Semester – VI</p>	

<p>CH-601 Physical Chemistry-II</p>	<p>CO-1. To know Explanation of Daniell cell, Conventions to represent electrochemical cells</p> <p>CO-2. Understand EMF of electrochemical cells and its measurement.</p> <p>CO-3. To know Secondary reference electrodes: (a) The calomel electrode, (b) The glass electrode (c) The silver-silver chloride electrode. Understanding of these electrodes with reference to diagram, representation, Construction, working</p> <p>CO-4. To know types of Reversible electrodes: Metal-metal ion electrodes, Amalgam electrodes, Gas electrodes, Metal-metal insoluble salt electrodes, Oxidation-reduction electrodes with respect to examples, diagram, representation, construction, working and electrode potential.</p> <p>CO-5. To study Liquid junction potential and salt bridge</p> <p>CO-6. To know applications of emf measurements:</p> <p>CO-7. Applications for Secondary Batteries</p> <p>CO-8. To understand distinguish between crystalline and amorphous solids / anisotropic and isotropic solids.</p> <p>CO-9. To explain the term crystallography and laws of crystallography.</p> <p>CO-10. To know Cubic lattice and types of cubic lattice</p> <p>CO-11. Understand types and properties of radiation: alpha, beta and gamma</p> <p>CO-12. To know types of radioactive decay: α- Decay, β-Decay and γ-Decay</p> <p>CO-13. To study kinetics of Radioactive Decay, Half-life, average life and units of radioactivity</p> <p>CO-14. To study application of radioisotopes as a tracer.</p>
<p>CH-602 Physical Chemistry-III</p>	<p>CO-1. To know meaning of the terms-Solution, electrolytes, nonelectrolytes and colligative properties,</p> <p>CO-2. To study lowering of vapor pressure of solvent in solution, elevation of B.P. of solvent in solution, Landsberger's method,</p> <p>CO-3. To study application of colligative properties to determine molecular weight of nonelectrolyte, abnormal molecular weight,</p> <p>CO-4. To Know factors affecting on solid state reactions,</p> <p>CO-5. To understand cohesive Energy of ionic crystals based on coulomb's law and Born Haber Cycle</p> <p>CO-6. To understand Conductors and insulators – Its correlation with Extent of energy in energy bands</p>

	<p>CO-7. To Study temperature dependent conductivity semiconductors.</p>
<p>CH-603 Physical Chemistry Practical-II</p>	<p>CO-1. To determine the PKa value of monobasic weak acid by potentiometric titration.</p> <p>CO-2. To determine the formal redox potential of Fe²⁺/ Fe³⁺ system potentiometrically.</p> <p>CO-3. To determine the solubility product and solubility of AgCl potentiometrically using chemical cell.</p> <p>CO-4. To prepare standard 0.2 M Na₂HPO₄ and 0.1 M Citric acid solution, hence prepare four different buffer solutions using them. Determine the pH value of these and unknown solution.</p> <p>CO-5. To determine the degree of hydrolysis of aniline hydrochloride.</p> <p>CO-6. To determine the dissociation constant of oxalic acid by pH-metric titration with strong base.</p> <p>CO-7. To determine the molecular weight of solute by depression in freezing point method</p>
<p>CH-604 Inorganic Chemistry-II</p>	<p>CO-1. To understand M-C bonds and to define organometallic compounds.</p> <p>CO-2. To understand the multiple bonding due to CO ligand.</p> <p>CO-3. To know methods of synthesis of binary metal carbonyls.</p> <p>CO-4. To understand the catalytic properties of binary metal carbonyls.</p> <p>CO-5. Understand the phenomenon of catalysis, its basic principles and terminologies.</p> <p>CO-6. Understand the essential properties of homogeneous catalysts.</p> <p>CO-7. Understand the principle of heterogeneous catalyst and development in it.</p> <p>CO-8. Identify the biological role of inorganic ions & compounds.</p> <p>CO-9. Know the abundance of elements in living system and earth crust.</p> <p>CO-10. Understand the toxicity of CN⁻ and CO binding to Hb.</p> <p>CO-11. Understand Preparation of inorganic solids by various methods.</p>
<p>CH-605 Inorganic Chemistry-III</p>	<p>CO-1. Student will learn the concept of acid base and their theories.</p> <p>CO-2. They will also come to know different properties of acids and bases.</p> <p>CO-3. Know the nature of solids.</p> <p>CO-4. Know the crystal structures of solids.</p> <p>CO-5. Draw the simple cubic, BCC and FCC structures.</p> <p>CO-6. Identify the C.N. of an ion in ionic solid.</p> <p>CO-7. Know the effect of radius ratio in determining the crystal structure.</p>

	<p>CO-8. Know how to draw Born-Haber cycle.</p> <p>CO-9. Be able to solve simple problems based on Born- Haber cycle.</p> <p>CO-10. Know about carbon nanotube and its application</p> <p>CO-11. To know toxic chemicals in the environment.</p> <p>CO-12. To know the impact of toxic chemicals on enzyme.</p>
<p>CH-606 Inorganic Chemistry Practical-II</p>	<p>CO-1. Analysis of Phosphate (PO₄³⁻) from Fertilizer.</p> <p>CO-2. Analysis of Iodine from Iodized salt.</p> <p>CO-3. Estimation of Na by flame photometry by calibration curve method.</p> <p>CO-4. Estimation of Na by flame photometry by regression method.</p> <p>CO-5. Purification of water using cation/anion exchange resin and analysis by qualitative analysis /conductometry.</p> <p>CO-6. Synthesis of Silver nanoparticles.</p> <p>CO-7. Verification of periodic trends using solubility of alkaline earth metal hydroxides Ca (OH)₂, Mg (OH)₂, Cr (OH)₂, Ba (OH)₂.</p>
<p>CH-607 Organic Chemistry-II</p>	<p>CO-1. Students will learn the interaction of radiation with matter.</p> <p>CO-2. They will understand different regions of electromagnetic radiation. They will know different wave parameters.</p> <p>CO-3. Students will learn the principle of mass spectroscopy, its instrumentation and nature of mass spectrum.</p> <p>CO-4. Students will understand the principle of UV spectroscopy and the nature of UV spectrum. They will learn types of electronic excitations.</p> <p>CO-5. Students will understand the principle of NMR spectroscopy and will understand various terms used in NMR spectroscopy. They will learn measurement of chemical shifts and coupling constants.</p> <p>CO-6. Students will be able to interpret the NMR data, and they will be able to use it for determination of structure of organic compounds.</p> <p>CO-7. Students will be able to determine the structure of simple organic compounds based on spectral data such as λ max values, IR frequencies, chemical shift (δ values).</p>
<p>CH-608 Organic Chemistry-III</p>	<p>CO-1. To know disconnection, Synthons, Synthetic equivalence, FGI, TM. One group disconnection, Retrosynthesis and Synthesis of target molecules: Acetophenone, Crotonaldehyde.</p> <p>CO-2. To Know chemistry of reactive intermediates (carbocations, carbanions, free radicals, carbenes, nitrenes, benzynes etc....).</p>

	<p>CO-3. To study Michael reaction,</p> <p>CO-4. To Understand Wittig reaction and McMurry reaction,</p> <p>CO-5. To know Diels-Alder reaction,</p> <p>CO-6. To know Preparation and Applications of following reagents.</p> <p>CO-7. To study Natural products.</p>
<p>CH-609 Organic Chemistry Practical-II</p>	<p>1. Interpretations of IR and PMR Spectra The students will be able to</p> <p>CO-1. Explain “fingerprint region” of an infrared spectrum can used in the identification of an unknown compound.</p> <p>CO-2. Identify the functional group or groups present in a compound.</p> <p>CO-3. Identify the broad regions of the infrared spectrum in which occur absorptions caused by N–H, C–H, and O–H, C≡C and C≡N, C=O, C=N, and C=C.</p> <p>CO-4. Understand uses NMR spectra to determine the structures of compounds.</p> <p>CO-5. Interpret integration of NMR spectra</p> <p>CO-6. Interpret elemental analysis technique</p> <p>2. Organic Estimations The students will be able to</p> <p>CO-7. Practical knowledge of handling chemicals.</p> <p>CO-8. Achieve the practical skills required to estimate glucose and glycine.</p> <p>CO-9 Achieve the practical skills required to Saponification value of oil.</p> <p>3. Organic Extractions The students will be able to</p> <p>CO-10. Apply the principles of extraction</p> <p>CO-11. Understand the equipment for extraction.</p> <p>CO-12. Gain practical hands-on experience of modern Extraction.</p> <p>4. Column chromatography the students will be able to</p> <p>CO-13. Defines the basic parameters in chromatography</p> <p>CO-14. Explain the processes of a chromatography analysis</p> <p>CO-15. Describes the types and materials of column.</p>
<p>CH-610 Chemistry of Soil and Agrochemi cals</p>	<p>CO-1. Understood various components of soil and soil properties and their impact on plant growth.</p> <p>CO-2. Understood the classification of the soil.</p> <p>CO-3. Understood the Reclamation and management of soil physical and chemical constraints.</p> <p>CO-4. Got experience on advanced analytical and instrumentation methods in the estimation of soil.</p> <p>CO-5. Understood various Nutrient management concepts and Nutrient use</p>

	<p>efficiencies of major and micronutrients and enhancement techniques.</p> <p>CO-6. Proper understanding of chemistry of pesticides will be inculcated among the students.</p> <p>CO-7. Imparts knowledge on different pesticides, their nature and, mode of action and their fate in soil to monitor their effect on the environment</p>
<p>CH-611 Analytical Chemistry-II</p>	<p>CO-1. To know basic terms in solvent extraction, basics of chromatography, HPLC, GC, and AAS and AES. Some important terms are: solvent extraction, aqueous and organic phase, distribution ratio and coefficient, solute remain unextracted.</p> <p>CO-2. Identify important parameters in analytical processes or estimations.</p> <p>CO-3. To explain different principles involved in the analyses using solvent extraction, basics of instrumental chromatography, HPLC, GC, and atomic spectroscopic techniques.</p> <p>CO-4. To perform quantitative calculations depending upon equations students have studied in the theory. Furthermore, students should able to solve problems based on theory.</p> <p>CO-5. To demonstrate / explain theoretical principles with help of practical.</p> <p>CO-6. To design analytical procedure for given sample.</p>

Programme Outcomes: M. Sc.

Department Of Chemistry	After successful completion of two-year degree program in Analytical Chemistry a student is able to:
Programme Outcomes	<p>PO-1. Demonstrate, operate and analyze all the concepts of Analytical Chemistry</p> <p>PO-2. Solve the problems independently with logical thinking</p> <p>PO-3. Understand basic concepts, historical background, instrumentation, applications of different analytical techniques</p> <p>PO-4. Apply statistical treatment to analytical data</p> <p>PO-5. Understand principle, theory, instrumentation and optimization parameters of chromatography techniques</p> <p>PO-6. Analyze the food and drug substances qualitatively and quantitatively</p> <p>PO-7. Describe the basic principles of spectroscopic techniques</p> <p>PO-8. Explain importance of soil, detergents, pesticides and polymer analysis</p> <p>PO-9. Use of analytical techniques, standard operating procedure</p> <p>PO-10. Inculcate scientific temperament in the students and in the society</p>

Programme Specific Outcomes: M. Sc.

Department of Chemistry	After successful completion of two-year degree program in Analytical Chemistry a student is able to:
Programme Specific Outcomes	<p>PSO-1. To gain knowledge of Analytical Chemistry through theory, practical and project</p> <p>PSO-2. Able to handle instruments with SOP</p> <p>PSO-3. Interpret the results according to quality and quantity of a sample</p> <p>PSO-4. Understand the good laboratory practices</p> <p>PSO-5. Develop research-oriented skills</p>

Course Outcomes of M.Sc. -I Semester-I

Course Outcomes	After completion of these courses' students should be able to:
Semester-I	
CH-MJ-511T - Fundamentals of Physical Chemistry	<p>CO-1: Demonstrate on paper why Internal Energy has to be a state function.</p> <p>CO-2: Identify various types of process and apply thermodynamic laws to them.</p> <p>CO-3: Define ideal solutions and real solutions.</p> <p>CO-4: Show that colligative properties depend on no. of solute particles in the solution and not on the nature of them.</p> <p>CO-5: Explain specific characteristics of Black Body Radiation Curves.</p> <p>CO-6: Explain particle nature of light with the help of photoelectric effect.</p> <p>CO-7: Understand the linear variation method as an approach to solving the Schrödinger equation.</p> <p>CO-8: Know the difference between order and molecularity of a reaction.</p> <p>CO-9: Calculate the rate of given reaction using concentration data.</p> <p>CO-10: Understand basic working principles of flash photolysis, flow technique, stopped flow technique, relaxation method</p> <p>CO-11: Understand types of polymer formation and apply laws of kinetics to obtain overall rate of polymerization.</p> <p>CO-12: Understand the significance of effective collisions in determining the rate of reactions.</p> <p>CO-13: Realize solvent effects in governing overall rate of the reaction.</p> <p>CO-14: Understand the underlying mechanism behind enzyme catalysis and effect of external factors i.e., pH, Temperature on the its rate.</p> <p>CO-15: Solve and simplify Michael Menten equation to obtain different plots to obtain values of Km, substrate concertation and enzyme concentration.</p>
CH-MJ-512T - Basic Organic Chemistry	<p>CO-1: To understand some fundamental aspects of organic chemistry, to learn the concept of aromaticity, to understand the various types of aromaticity.</p> <p>CO-2: To study heterocyclic compound containing one and two hetero atoms with their structure, synthesis and reactions.</p> <p>CO-3: To know stereochemistry of organic compounds; able to do interconversion of Fischer to Newmann, Newmann to Sawhorse and vice versa, Able to assign R and S to given molecules; understand stereoselective and stereospecific reactions; acquire knowledge on toxicity.</p>

	<p>CO-4: To study structure, formation, stability and related name reaction of intermediates like Carbocation, Carbanion, Free Radical, Carbenes and nitrenes; Recognize neighboring group participation.</p> <p>CO-5: To study rearrangement reaction with specific mechanism and migratory aptitude of different groups.</p> <p>CO-6: To understand the basis of redox reaction; acquire knowledge about the reagents which cause selective oxidation / reduction in various compounds; learn the basic mechanism of oxidation / reduction in organic compounds.</p>
<p>CH-MJ-513T - Molecular Symmetry, Group Theory and their Applications</p>	<p>CO-1: Student should visualize/ imagine molecules in 3 dimensions.</p> <p>CO-2: To understand the concept of symmetry and able to pass various symmetry elements through the molecule.</p> <p>CO-3: Understand the concept and point group and apply it to molecules.</p> <p>CO-4: To understand product of symmetrical operations.</p> <p>CO-5: To apply the concept of point group for determining optical activity and dipole moment.</p> <p>CO-6: Student should understand the importance of Orthogonality Theorem.</p> <p>CO-7: They should be able to learn the rules for constructing character tables.</p> <p>CO-8: Using reduction formulae should be able to find out the possible type of hybridization.</p> <p>CO-9: Student should know the concept of SALC.</p> <p>CO-10: Student able to find out character for reducible representation.</p> <p>CO-11: To know about projection operators and apply projection operators to find out the normalized wave function for atomic orbital.</p> <p>CO-12: Student should correlate the application of symmetry to spectroscopy.</p>
<p>CH-MJ-514P - Basic Practical</p>	<p>CO-1: Know the concept of hypothesizing and hence perform the experiment accordingly.</p> <p>CO-2: Do molarity calculations, dilution calculations and prepare solutions of given concentrations.</p> <p>CO-3: Realize the need for calibration and standardization wherever and whenever necessary while performing experiments.</p> <p>CO-4: Do graphical presentation and interpretation of experimental data.</p> <p>1a. Statistical treatment of experimental data (calculation of mean and standard deviation for given data and least square method for calibration curve method) (compulsory).</p> <p>1b. Demonstration of MICRSOFT EXCEL in the statistical treatment of experimental data. (Calculation of mean, standard deviation, standard error,</p>

<p>Chemistry-I</p>	<p>graph plotting, error bars)</p> <p>CO-5: Students are made aware of safety techniques and handling of chemicals.</p> <p>CO-6: Students are trained in different purification techniques in organic chemistry like recrystallization, distillation, steam distillation and extraction.</p> <p>CO-7: Students are made aware of carrying out different types of reactions and their workup methods.</p> <p>CO-8: This practical course is designed to make students aware of green chemistry and role of green chemistry in pollution reduction.</p>
<p>CH-ME-515T - Theory Elective- I</p>	<p>CO-1: To understand the bonding in solids – band theory.</p> <p>CO-2: Students will learn how electronic properties of solids emerge.</p> <p>CO-3: Understand the role of non-stoichiometry, defects in deciding properties of solids.</p> <p>CO-4: Understand how magnetic properties arise in solids.</p> <p>CO-5: Realize how advanced solid materials can help in achieving sustainability by Understanding recent advances in clean energy harvesting and storage strategies.</p>
<p>CH-ME-516P - Practical Elective-I</p>	<p>CO-1: Calculate specific elemental content in the given ore.</p> <p>CO-2: Calculate %yield as well as estimate purity of the synthesized compounds/complexes.</p> <p>CO-3: Demonstrate photoactivity of inorganic complexes using spectrophotometer.</p> <p>CO-4: Design and conduct kinetic experiments for photocatalysis of dyes and be able to rationalise the experimental data.</p>
<p>CH-RM-517T - Research Methodology</p>	<p>CO-1: Understand the various methods of literature survey by offline & digitally.</p> <p>CO-2: Understand the chemical safety and ethical handling of chemicals.</p> <p>CO-3: Know the various methods of handling the data of research.</p> <p>CO-4: Know the methods of the data analysis.</p> <p>CO-5: Develop the writing skill of scientific manuscripts and be aware of scientific research methods.</p> <p>CO-6: Understand the Philosophy and ethics in research.</p>
<p>Semester-II</p>	
<p>CH-MJ-521T - Molecular</p>	<p>CO-1: To be able to extract key information such as bond length, rotational constant, vibrational constant, bond dissociation energy, functionalities of a molecule by interpreting its microwave, vibrational, Raman and electronic</p>

<p>Spectroscopy and Molecular Thermodynamics</p>	<p>spectra. CO-2: To understand the principle, instrumentation and application of Mossbauer Spectroscopy. CO-3: To be able to construct partition functions and obtain thermodynamic information from it.</p>
<p>CH-MJ-522T Photochemistry and Spectroscopic Methods of Structure Determination</p>	<p>CO-1: Show the photochemical reaction and their mechanism CO-2: Understand the various pericyclic reaction. CO-3: Analyse the pericyclic reaction by various methods. CO-4: To understand the basic principle of spectroscopic methods. CO-5: To understand the applications of spectroscopic methods. CO-6: Structure elucidation of organic compounds using given spectroscopic data or spectra.</p>
<p>CH-MJ-523T - Coordination and Bio-inorganic Chemistry</p>	<p>CO-1: Student should be able to find out the no of microstates and meaningful term symbols, construction of microstate table for various configuration CO-2: Hund's rules for arranging the terms according to energy. CO-3: Student should understand interelectronic repulsion. CO-4: Student should know the concept of weak and strong ligand field. CO-5: Student able to find out splitting of the free ion terms in weak ligand field and strong ligand field. CO-6: To draw correlations diagram for various configurations in Td and Oh ligand field. CO-7: Student should know basic instrumentation and selection rules and relaxation in rules. CO-8: Student should know basic d-d transition, d-p mixing, charge transfer spectra. CO-9: Interpretation of electronic spectra for spin allowed oh and td complexes using Orgel diagram. CO-10: Understand the concept of Spectro chemical series and Nephelauxetic series. CO-11: Should be able to solve numerical based on crystal field parameters. CO-12: Understand the various terms involved in magnetochemistry, various phenomena of magnetism and their temperature dependence.</p>
<p>CH-MJ-524P -</p>	<p>CO-1: Calculate %yield as well as estimate purity of the synthesized compounds/complexes CO-2: Demonstrate photo activity of inorganic complexes using spectrophotometer.</p>

<p>Basic Practical Chemistry- II</p>	<p>CO-3: Demonstrate strength of complexes based on spectrochemical series</p> <p>CO-4: To make students aware of how to perform organic compounds in laboratory.</p> <p>CO-5: To make student aware of green chemistry and role of green chemistry in pollution reduction.</p> <p>CO-6: The course includes synthesis of some derivatives and organic compounds, which will help them while working in research laboratory in future</p>
<p>CH-ME-525T - Theory Elective- II</p>	<p>CO-1: To understand bonding in Organometallic Molecules.</p> <p>CO-2: To study organic ligands, Nomenclature and bonding between metal atoms and organic pi system.</p> <p>CO-3: To understand catalysis: Hydroformylation, Monsanto acetic acid process, Wacker Process, Hydrogenation by Wilkinson's catalyst.</p> <p>CO-4: To get information about History and principles, Substitution reactions: Inert and labile complexes, mechanism of substitution. Kinetics Consequences of reaction pathway</p>
<p>CH-ME-526P - Practical Elective- II</p>	<p>CO-1: Know the concept of hypothesizing and hence perform the experiment accordingly.</p> <p>CO-2: Do molarity calculations, dilution calculations and prepare solutions of given concentrations.</p> <p>CO-3: Realize the need for doing calibration and standardization wherever and whenever necessary while performing experiments.</p> <p>CO-4: Do graphical presentation and interpretation of experimental data.</p>
<p>Course Outcomes: M. Sc. -II Analytical Chemistry Semester-III</p>	
<p>CHA-390 Electrochemical and Thermogravimetric Method of Chemical Analysis</p>	<p>CO-1. Study of coulometry, Faraday law, Faraday law.</p> <p>CO-2. Study of voltammetry and polarographic method of analysis, hydrodynamic voltammetry, plus polarography and cyclic voltammetry.</p> <p>CO-3. Study of amperometry and their applications.</p> <p>CO-4. Learn radio analytical methods of analysis, activation analysis, isotope dilution analysis, radio metric titration.</p> <p>CO-5. Understand thermal methods of analysis TGA, DTA, DSC.</p>

<p>CHA-391 Analytical Method Development and Extraction</p>	<p>CO-1. Study of Assay validation and Inter laboratory Transfer. CO-2. Study of Validation Parameter: Accuracy, Precision, Mean and Standard deviation, calibration response function CO-3. Study of Overview of world-wide regulation CO-4. Study of Dissolution Studies, USP- type I, USP –II</p>
<p>CHA-392: Advanced Chromatograph ic Methods Of Analysis</p>	<p>CO-1. Define / understand various terms in chromatography (GC and HPLC) and mass spectroscopy. CO-2. Explain instrumentations in chromatography (GC and HPLC) and mass spectroscopy. CO-3. Explain / describe i) basic principles of chromatography (GC and HPLC) and mass spectroscopy. ii) separation in GC / HPLC column. iii) Functioning and construction of GC /HPLC/ MS detectors. CO-4. Explain /Describe applications chromatography (GC and HPLC) in industry and in analytical laboratory. CO-5. Apply / select particular method / instrumental parameters for analysis for sample GC / HPLC. CO-6. Solve numerical problems on chromatography (GC and HPLC) and mass spectroscopy. CO-7. Integrate GC and HPLC chromatogram, Mass spectrum CO-8. Differentiate among the chromatography</p>
<p>CHA-393 B) Analysis of Food and Controlled Substances</p>	<p>CO-1. Define / understand various terms in food analysis techniques and methods, forensic science and drug substances. CO-2. Explain methods and principles of analysis of i) Food -carbohydrates, proteins, preservatives, ii) drug substances. CO-3. Select appropriate methods of food analysis for its quality. CO-4. Select appropriate methods for identification of drug and analysis of drug from sample. CO-5. Select and describe the parameters required for food quality. CO-6. Solve numerical problems on analysis food and drug substances. CO-7. Interpret food quality and drug substances from analytical results.</p>
<p>CHA-394 Analysis of materials</p>	<p>CO-1. Maintain proper record of analytical data in notebook. Observer personal safety in laboratory and able handle all chemicals, instruments, etc. safely in laboratory. CO-2. Define / understand various terms involved practical methods of quantitative analysis.</p>

	<p>CO-3. Explain instrumentations of colorimeter, spectrophotometer, photofluorometer, TGA, HPLC, GC, Flame-photometer, CV, AAS, etc.</p> <p>CO-4. Explain / describe basic principles of chromatography different instrumental methods of analysis. Able to handle particular instrument according to SOP.</p> <p>CO-5. Design / modify and validate new analytical method for chemical analysis of particular sample.</p> <p>CO-6. Apply / select particular method / instrumental parameters for analysis of given sample.</p> <p>CO-7. Give mathematical treatment to analytical data and able to interpret the results accurately.</p> <p>CO-8. Verify theoretical principle practically or apply theory to explain practical observations.</p> <p>CO-9. To conclude the results able to take the decision regarding quality of sample.</p> <p>CO-10. Differentiate among the various analytical methods / techniques of chemical analysis.</p>
Semester-IV	
<p>CHA-490: Advanced Analytical Spectroscopic Techniques</p>	<p>CO-1. Define / understand various terms in atomic absorption, atomic emission, fluorescence, ESR and electron spectroscopy.</p> <p>CO-2. Explain instrumentation of atomic absorption, atomic emission, ICPAES-MS, fluorescence, ESR and electron spectroscopy.</p> <p>CO-3. To describe basic principles of atomic absorption, atomic emission, ICPAES, ICPAES-MS, fluorescence, ESR and electron spectroscopy.</p> <p>CO-4. Select appropriate methods for sample treatment in AAS / AES, ICPAES, ICPAES-MS.</p> <p>CO-5. Explain advantages of ICPAES-MS over AES spectroscopy, fluorescence spectroscopy.</p> <p>CO-6. Solve numerical problems on analysis all these spectroscopic methods.</p> <p>CO-7. Interpret ESR spectra, super hyperfine splitting and g value in ESR, and parameters affecting it</p> <p>CO-8. Calculate theoretical parameters from ESR data and characterize compounds.</p> <p>CO-9. Solving problems based on atomic absorption, atomic emission, ICPAES, ICPAES-MS, fluorescence, ESR and electron spectroscopy.</p>

<p>CHA-491 Chemical Methods of Pharmaceuticals Analysis</p>	<p>CO-1. Define / understand various terms in pharmaceutical raw material and finished product analysis.</p> <p>CO-2. Explain various pharmaceutical dosage forms and types of raw materials used.</p> <p>CO-3. To describe basic principles of methods of pharmaceutical analysis according to IP.</p> <p>CO-4. Explain importance particular test in pharmaceutical raw material and finished product analysis.</p> <p>CO-5. Perform and explain importance of limit tests, identification tests and microbiological limit tests of raw materials and finished products.</p> <p>CO-6. Solving numerical problems by analysis of pharmaceutical raw material and finished product analysis.</p> <p>CO-7. Interpret IR spectra, HPLC chromatogram, UV-Visible spectra of pharmaceutical materials.</p> <p>CO-8. To perform total analysis of pharmaceutical raw material and finished product analysis according to IP / BP / USP.</p> <p>CO-9. Standardize analytical instruments according to IP /BP/ USP.</p>
<p>CHA-492: Analytical Chemistry of agriculture, Polymer and Detergents</p>	<p>CO-1. Define / understand various terms in soil analysis, pesticide residue analysis, detergent analysis and polymer analysis.</p> <p>CO-2. Explain / describe techniques / methods of soil analysis, pesticide residue analysis, detergent analysis and polymer analysis.</p> <p>CO-3. To describe basic principles techniques / method soil analysis, pesticide residue analysis, detergent analysis and polymer analysis.</p> <p>CO-4. Explain importance of soil analysis, pesticide residue analysis, detergent analysis and polymer analysis.</p> <p>CO-5. Choose suitable methods to characterize quality of soli polymer and detergent.</p> <p>CO-6. Describe / explain results of analysis soil, pesticide residue, detergent and polymer.</p> <p>CO-7. Solve numerical problems on analysis soil, pesticide residue, detergent and polymer.</p> <p>CO-8. Draw conclusion regarding soil, detergent and polymer quality from analytical results.</p>

<p>CHA-493 A Practical III Optional Analytical Chemistry Practical</p>	<p>CO-1. Maintain proper record of analytical data in notebook. Observe personal safety in laboratory and able to handle all chemicals, instruments, etc. safely in laboratory.</p> <p>CO-2. Define / understand various terms involved in practical methods of quantitative analysis.</p> <p>CO-3. To analyze organic and inorganic materials using appropriate chemical / instrumental methods</p> <p>CO-4. Explain / describe basic principles of chemical / instrumental methods used for analysis. Able to handle particular instrument according to SOP.</p> <p>CO-5. Perform analysis of sample with described procedure. Able to handle analytical instruments.</p> <p>CO-6. Apply / select particular method / instrumental parameters for analysis of given sample.</p> <p>CO-7. Maintain appropriate reaction conditions as described in procedures.</p> <p>CO-8. To perform i) selective analysis of particular component from sample. ii) Analysis at trace level from sample.</p> <p>CO-9. To conclude the results and take the decision regarding quality of sample.</p> <p>CO-10. To perform calculations and interpret the results.</p>
<p>CHA-493 B Project</p>	<p>CO-1. Maintain proper record of analytical data in notebook for research purposes.</p> <p>CO-2. Perform review of literature related to the topic of project work and design the problem for project work.</p> <p>CO-3. Decide and describe methodology for problem to solve proposed problem in the form of project. Decide and perform application of research work.</p> <p>CO-4. To design experiment for research work. Collect the resources, design small equipment, etc. for completion of research work.</p> <p>CO-5. Collect experimental data (raw data) and analyze the data in the perspective of problem. Present data in graphical forms for the conclusive results.</p> <p>CO-6. Use computer as a tool for result analysis, presentation and writing the project.</p> <p>CO-7. To obtain concrete conclusion from the results on the basis of reported theory / research work and analytical results.</p> <p>CO-8. To perform report writing, scientifically.</p>

	CO-9. To write research projects / paper in scientific manner.
CHA-494 Practical III Applied Analytical Chemistry	<p>CO-1. Maintain proper record of analytical data in notebook. Observe personal safety in laboratory and able to handle all chemicals, instruments, etc. safely in laboratory.</p> <p>CO-2. Define / understand various terms involved in practical methods of quantitative analysis.</p> <p>CO-3. To analyze organic and inorganic materials using appropriate chemical / instrumental methods</p> <p>CO-4. Explain / describe basic principles of chemical / instrumental methods used for analysis. Able to handle particular instrument according to SOP.</p> <p>CO-5. Perform analysis of sample with described procedure. Able to handle analytical instruments.</p> <p>CO-6. Apply / select particular method / instrumental parameters for analysis of given sample.</p> <p>CO-7. Maintain appropriate reaction conditions as described in procedures.</p> <p>CO-8. To perform i) selective analysis of particular component from sample. ii) Analysis at trace level from sample.</p> <p>CO-9. To conclude the results and take the decision regarding the quality of sample.</p> <p>CO-10. To perform calculations and interpret the results</p>

Course Outcomes: M. Sc. -II Organic Chemistry

Course Outcomes	After completion of these courses' students should be able to:
	Semester-III
CHO-350: Organic Reaction Mechanism and Biogenesis	<p>CO-1. To understand reaction mechanism</p> <p>CO-2. To study generation, stability, and reactivity of free radicals.</p> <p>CO-3. Understand free radical substitution, addition to multiple bonds, radical in synthesis.</p> <p>CO-4. To study linear free energy relationship.</p> <p>CO-5. To study Mono-, Sesqui-, Di-, Tri-terpenoids. Students must be able to derive ornithine, lysine, Nicotinic acid, tryptophan from alkaloids</p> <p>CO-6. Isolation of alkaloids from the roots of piper nigrum.</p>

<p style="text-align: center;">CHO-351 Spectroscopic methods in structure determination</p>	<p>CO-1. Study ¹H NMR Spectroscopy: Chemical Shift, DE shielding, correlation for protons bonded to carbon and other nuclei.</p> <p>CO-2. Study of ¹³C NMR spectroscopy: FT- NMR, type of ¹³C NMR spectra, proton decoupled, off resonance, APT, INEPT, DEPT, Chemical shift, nuclear and hetero nuclear coupling constant</p> <p>CO-3. 2D NMR techniques: COSY, homo and hetero nuclear 2D resorts spectroscopy, NOESY and the applications</p> <p>CO-4. Study of mass spectrometry: Instrumentation, various methods of ionization, SIMS, FAB, MALDI. Different detectors rules of fragmentations of different functional groups</p>
<p style="text-align: center;">CHO-352 Stereochemistry and Asymmetric Synthesis of Organic Compound</p>	<p>CO.1. To study conformations of polysubstituted cyclohexane six-member ring with SP² Carbon</p> <p>CO.2. To study stereochemical principles involved in reactions of six-member ring and other than six-member ring</p> <p>CO.3. Study stereochemistry of fused and bridge ring system</p> <p>CO.4 To understand asymmetric synthesis, chiral pool and chiral auxiliaries</p> <p>CO.5 to study transition metal catalyzed homogenous asymmetric hydrogenation</p>
<p style="text-align: center;">CHO-353 Protection –Deprotection, Chiron approach and Carbohydrate</p>	<p>CO-1. Study of protection and deprotection in ketone and aldehyde.</p> <p>CO-2. Study of Protection and Deprotection in amine.</p> <p>CO-3. To understand the concept of Chiral templates.</p> <p>CO-4. Study of concept of Glycosyl Donor and acceptor.</p> <p>CO-5. Study the synthesis of Glycosides.</p> <p>CO-6. To Understand intramolecular Glycosylation.</p>
<p style="text-align: center;">CHO –354 Practical-I Solvent Free Organic Synthesis</p>	<p>CO -1 Study of solvent free carbon bond formation in different reactions.</p> <p>CO.2. Study of Beckmann Rearrangement in Nitrogen bond formation</p> <p>CO-3. To understand oxidative coupling of Thiol by using MnO₂</p> <p>CO-4. Study of solvent free supra molecular assembly formation</p>
<p style="text-align: center;">CHO-450 Chemistry of Natural Products</p>	<p>CO-1. Learn different synthesis of heterocycles like.</p> <p>CO-2. Understand the stereochemistry of complex compound.</p> <p>CO-3. Knowledge of name reaction in synthesis.</p> <p>CO-4. Study of different applications of name reactions.</p> <p>CO-5. To understand the use of various synthesis strategies in drug synthesis.</p>

	<p>CO-6. Study of recent drug development.</p> <p>CO-7. Study of synthetic strategies involved in preparation.</p>
<p>CHO-451 Organometallic Reagents in Organic Synthesis</p>	<p>CO-1. To study ring formation reaction</p> <p>CO-2. To understand criteria for Click Reaction.</p> <p>CO-3. To study the use of Boron and Silicon in Organic Synthesis.</p> <p>CO-4. To study carbon-carbon double bond formation reaction in organic synthesis.</p> <p>CO-5. To study transition metal complex in organic synthesis.</p> <p>CO-6. To understand mechanism for multi component Reaction.</p> <p>CO-7. To Study Metathesis in organic synthesis.</p>
<p>CHO-452- Concepts and applications of Medicinal Chemistry</p>	<p>CO-1. Understand the chemistry of peptides and proteins to study the catalytic activity of proteins as enzymes.</p> <p>CO-2. To study the nucleic acid mechanism.</p> <p>CO-3. Understanding of chemistry of vitamins in biological system.</p> <p>CO-4. To understand the drug design chemistry of diseases and drug development.</p> <p>CO-5. To study the peptides sequencing in therapeutics.</p> <p>CO-6. To study the pharmacokinetics and pharmacodynamics of drugs.</p>
<p>CHO-453 Carbohydrate synthesis and Natural Product Extraction</p>	<p>CO-1. To separate ternary mixture by using either solvent.</p> <p>CO-2. To carry out individual qualitative analysis of compound.</p> <p>CO-3. To find functional group</p> <p>CO-4. To find out the physical constants.</p> <p>CO-5. To Identify colored pigments from plant material.</p>
<p>CHO-454 Convergent and Divergent Organic Synthesis</p>	<p>CO-1. To Study the Synthesis of 4-amino anisole from Anisole.</p> <p>CO-2. To Synthesize Pyrimidine from Acetyl acetone</p> <p>CO-3. To Synthesize dye from Beta-Naphthol</p>

DEPARTMENT OF COMPUTER SCIENCE

Programme Outcomes: B. Sc. Computer Science

Department of Computer Science	After successful completion of three-year degree program in Computer Science a student will be able to:
Programme Outcomes	<p>PO1: Develop creative skills, critical thinking, analytical skills and research to address the real-world problems using computational skills.</p> <p>PO2: Understand and apply mathematical foundation, computing and domain knowledge and develop computing models for defined problems.</p> <p>PO3: Understand software project management and computing principles with computing knowledge to manage projects in multidisciplinary environments.</p> <p>PO4: Illustrate the concepts of systems fundamentals, including architectures and organization, operating systems, networking and communication.</p> <p>PO5: Understand and apply the concepts of Digital Electronics, Computer Architecture, IoT etc.</p> <p>PO6: Recognize the need for and develop the ability to engage in continuous learning as a Computing professional.</p> <p>PO7: Apply modern computing tools, skills and techniques necessary for innovative software solutions.</p> <p>PO8: Communicate effectively with the computing community as well as society by being able to comprehend effective documentations and presentations.</p> <p>PO9: Gain Self Discipline and commit Professional Ethics in global economic environment.</p> <p>PO10: Individual & Team Work: Ability to work as a member or leader in diverse teams in multidisciplinary environment.</p> <p>PO11: Identify opportunities, entrepreneurship vision and use innovative ideas to create value and wealth for the betterment of the individual and society.</p>

Programme Specific Outcomes: B. Sc. Computer Science

Department of Computer Science	After successful completion of three-year degree program in Computer Science a student will be able to:
Programme Specific Outcomes	<p>PSO1: Apply fundamental principles and methods of Computer Science to a wide range of applications.</p> <p>PSO2: Design, correctly implement and document solutions to significant computational problems.</p> <p>PSO3: Impart an understanding of the basics of our discipline.</p> <p>PSO4: Prepare for continued professional development.</p> <p>PSO5: Understand the impact of the IT analyst solutions in societal and environmental contexts and demonstrate the knowledge and need for sustainable development.</p> <p>PSO6: Develop proficiency in the practice of computing.</p> <p>PSO7: Develop the capacity to study and research independently that will help to develop skills for transition to employment in hardware/software companies.</p>

Course Outcomes: B. Sc. Computer Science

Course	Outcomes
	After completion of these courses' students should be able to:
Semester-I	
BS-CS-111T Problem Solving using Computer and 'C' Programming	<p>CO-1: Explore algorithmic approaches to problem solving.</p> <p>CO-2: Control the sequence of the program and give logical outputs.</p> <p>CO-3: Understand and manage Input /Output operations in 'C' program</p> <p>CO-4: Develop modular programs using control structures and arrays in 'C'.</p>
BS-CS-112P Lab Course on Problem Solving using Computer and 'C' Programming	<p>CO-1: Devise pseudo codes and flowchart for computational problems.</p> <p>CO-2: Write, debug and execute simple programs in 'C'.</p> <p>CO-3: Create database tables in PostgreSQL.</p> <p>CO-4: Write and execute simple, nested queries.</p>

<p>CS-SEC-113T Relational Database Management Systems</p>	<p>CO-1: Design data models, schemas and instances CO-2: Design E-R Model for given Requirements and convert the same into database tables. CO3: Use database techniques such as SQL & PL/SQL. CO4: Explain transaction Management in relational database System CO5: Use advanced database Programming concepts</p>
<p>CS-IKS-114T History of Science and Technology in India</p>	<p>CO-1: Discuss the mathematical knowledge of Indian in the ancient period. CO-2: Discuss contributions of India to the world in the field of Mathematics and other Sciences. CO-3: Discuss impact of modern science in India upon Indian and their early response.</p>
<p>CS-OE-01T Basics Fundamentals of Computer</p>	<p>CO-1: Devise pseudo codes and flowchart for computational problems. CO-2: Write, debug and execute simple programs in ‘C’. CO-3: Create database tables in PostgreSQL CO-4: Write and execute simple, nested queries.</p>
<p>Semester-II</p>	
<p>BS-CS-121T Advanced ‘C’ Programming</p>	<p>CO-1: Develop modular programs using control structures, function, pointers, arrays, strings Structures CO-2: Design and develop solutions to real world problems using C. CO-3: Understand and repeat the sequence of instructions and points for a memory location. CO-4: Identification, analyzation, development, verify and document the requirements for a computing environment.</p>
<p>BS-CS-122P Lab course on Advanced “C” Programming</p>	<p>CO-1: Develop modular programs using function, pointers, arrays, strings and structures. CO-2: Design and develop solutions to real world problems using Advanced C programming</p>
<p>BS-CS-123P Lab Course on Relational Database Management System.</p>	<p>CO-1: To design and implement relational database systems, including creating tables, defining relationships, and implementing constraints CO-2: To understand Entity-Relationship (ER) diagrams to model</p>

	database structures and convert them into relational models.
CS-OE-02T Introduction to Google Tools	<p>CO-1: Students learn With the Google Apps Fundamentals course, you'll learn how to set up an account, work with the ins and outs of the Drive organizational tools and control your files.</p> <p>CO-2: Students learn all the way from signing in and creating new folders to securely collaborating with others and working when you don't have Wi Fi.</p> <p>CO-3: Students learn how to use and optimize Drive, Docs, Sheets, Slides, and Forms, and how to use these tools on the run via Google Mobile Apps</p>
Semester-III	
BS-CS-231T Data Structure and Algorithms-I	<p>CO-1: To use well-organized data structures in solving various problems.</p> <p>CO-2: To differentiate the usage of various structures in problem solution</p> <p>CO-3: Implementing algorithms to solve problems using appropriate data structures.</p>
BS-CS-232T Object Oriented Concepts and Programming in C++	<p>CO-1: Compare and contrast procedural and object oriented.</p> <p>CO-2: Apply principles of OOP.</p> <p>CO-3: Design and develop applications using object-oriented programming language C++</p>
BS-CS-233P Lab Course on Data Structure and Algorithms-I	<p>CO-1: Apply Linear and Binary Search techniques to efficiently</p> <p>CO-2: Analyze and implement sorting techniques</p> <p>CO-3: Develop Singly and Doubly Linked Lists with operations such as insertion, deletion, searching, reversal, and concatenation.</p> <p>CO-4: Evaluate the performance of Circular and Doubly Circular Linked Lists for dynamic memory-based data handling</p>
VSC-CS-234P Lab Course on Object Oriented Programming Using C++	<p>CO-1: Understand Object Oriented Concepts</p> <p>CO-2: Read input from different ways.</p> <p>CO-3: Define class with different access modifiers and create object.</p> <p>CO-4: Write implement real world problems using c++</p>
IKS-CS-235T Indian Knowledge System	<p>CO-1: Understand and implement working of operating system.</p> <p>CO-2: Understand the working of networking.</p>

<p>OE-CS-03T Advanced MS- Excel</p>	<p>CO-1: Demonstrate the basic mechanics and navigation of an Excel.</p> <p>CO-2: Basic techniques of MS-Excel.</p> <p>CO-3: Statistical analysis with simple tools.</p> <p>CO-4: Diagrammatic and graphical representation techniques.</p> <p>CO-5: Data transformation, data import/export, combination techniques.</p>
<p>Semester-IV</p>	
<p>BS-CS-241T Data Structure and Algorithms-II</p>	<p>CO-1: Implementation of different data structures efficiently</p> <p>CO-2: Usage of well-organized data structures to handle large amounts of data.</p> <p>CO-3: Usage of appropriate data structures for problem solving</p>
<p>BS-CS-242T Object Oriented Programming Using Java</p>	<p>CO-1: Understand the concept of classes, object, packages and Collections.</p> <p>CO-2: To develop GUI based application.</p>
<p>BS-CS-243P Lab Course on Data Structure and Algorithms-II</p>	<p>CO-1: Understand the basic concepts of data structures.</p> <p>CO-2: Choose the appropriate data structure for a given problem</p>
<p>VSC-CS-244P Lab Course on Object Oriented Programming Using Java</p>	<p>CO-1: Understand and implement basic Java programming concepts including data types, operators, control statements, and arrays.</p> <p>CO-2: Apply Object-Oriented Programming (OOP) principles such as classes, objects, inheritance, polymorphism, abstraction, and encapsulation in Java programs</p> <p>CO-3: Develop programs using exception handling, packages, and multithreading concepts.</p> <p>CO-4: Implement file handling operations and understand Java I/O streams.</p> <p>CO-5: Design and develop GUI-based applications using AWT, Swing</p>
<p>SEC-CS-245T Computer Network-I</p>	<p>CO-1: Have a good understanding of the OSI and TCP/IP Reference Models and in particular have a good knowledge of Layers.</p> <p>CO-2: appropriate networking architecture and technologies</p> <p>CO-3: Understand the working of various protocols.</p> <p>CO-4: Analyze the requirements for a given organizational structure and select the most</p>

<p>OE-CS-04P Lab Course on Advanced MS-Excel</p>	<p>CO-1: Apply advanced formulas and functions such as IF, VLOOKUP, HLOOKUP, XLOOKUP, INDEX, MATCH, COUNTIF, SUMIF, and nested functions for data analysis.</p> <p>CO-2: Analyse and summarize large datasets using Pivot Tables and Pivot Charts.</p> <p>CO-3: Perform data validation, conditional formatting, sorting, filtering, and advanced filtering techniques.</p> <p>CO-4: Create dynamic dashboards using charts, slicers, and interactive controls.</p>
<p>Semester-V</p>	
<p>Course CS 351: Operating System-I</p>	<p>CO1: Students will understand the design and implementation of System programs.</p> <p>CO2: Students will understand the role of System programs in program development.</p> <p>CO3: Students will be able to differentiate between System program and Application program.</p>
<p>Course CS 352: Computer Networks II</p>	<p>CO1: Students will get acquainted with fundamentals of Networking like PAN, LAN, MAN, WAN, topologies and Home & Business applications of Networks.</p> <p>CO2: Students will clear up their basic concepts about the standards, their needs & types of standards.</p> <p>CO3: Students will know the design issues for the layers; layered architecture of the Network Models & functions performed at each layer.</p> <p>CO4: Students will come to know the role played by different addresses at different layers of the network models.</p>
<p>Course CS 353: Web Technologies-I</p>	<p>CO1: Students will gain deep understanding of the use and implementation of HTML 5 and PHP language.</p> <p>CO2: Students will be able to write well-structured, easily maintained, standards-compliant, responsive HTML code.</p> <p>CO3: Students will get acquainted with Object Oriented Web applications.</p>
<p>Course Code: CS - 354</p>	<p>CO1: Perform Exploratory Data Analysis</p> <p>CO2: Obtain, clean/process, and transform data.</p> <p>CO3: Detect and diagnose common data issues, such as missing values, special values, outliers, inconsistencies, and localization.</p>

	CO4: Demonstrate proficiency with statistical analysis of data.
Course Code: CS - 355	CO1- Understand the concept of classes, objects, packages and Collections. CO2- To develop GUI based application.
Course CS 356: Theoretical Computer Science	CO1: Design a finite automaton to recognize a given regular language. CO2: Transform a language into regular expression or finite automaton or transition graph and define deterministic and nondeterministic finite automata. CO3: Prove properties of regular languages and classify them. CO4: Define relationship between regular languages and context-free grammars.
Course Code: CS - 357 Practical Course based on CS - 351	CO1- Process synchronization CO2. Processes and Thread Scheduling by operating system CO3. Memory management by operating systems with the help of various schemes.
Course Code: CS - 358 Practical Course based on CS - 353 and CS - 354	CO1- Understand how to develop dynamic and interactive Web Page CO2- Prepare data for use with a variety of statistical methods and recognize how the quality of the data may affect conclusions. CO3- Perform exploratory data analysis
Course Code: CS - 359 Practical Course based on CS - 355	CO1- Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs. CO2- Read and make elementary modifications to Java programs that solve real-world problems. CO3- Validate input in a Java program.
Course Code: CS- 3510 Course Title: Python Programming	CO1- Develop logic for problem solving. CO2- Determine the methods to create and develop Python programs by utilizing the data. CO3- structures like lists, dictionaries, tuples and sets.
Course Code: CS- 3511 Blockchain Technology	CO1. Learn the fundamentals of Blockchain Technology. CO2. Learn Blockchain programming CO3. Basic knowledge of Smart Contracts and how they function.
Semester-VI	
Course CS 361: Operating System-II	CO1. Management of deadlocks and File System by operating system CO2. Scheduling storage or disk for processes CO3. Distributed Operating System and its architecture and the extended features in mobile OS.
Course Code: CS -	CO1- To understand various software testing methods and strategies.

362 Software Testing	CO2- To understand a variety of software metrics, and identify defects and managing those defects for improvement in quality for given software.
Course Code: CS - 363 Course Title: Web Technologies - II	CO1- Build dynamic website. CO2- Using MVC based framework easy to design and handling errors in dynamic website.
Course Code: CS - 364 Data Analytics	CO1- Use appropriate models of analysis, assess the quality of input, and derive insight from results. CO2- Analyze data, choose relevant models and algorithms for respective applications
Course Code: CS - 365 Object Oriented Programming using Java – II	CO1- To access open databases through Java programs using Java Data Base Connectivity (JDBC) and develop the application. CO2- Understand and Create dynamic web pages, using Servlets and JSP.
Course Code: CS - 366 Compiler Construction	CO1- Understand the process of scanning and parsing of source code. CO2- Learn the conversion code written in source language to machine language. CO3- Understand tools like LEX and YACC.
Course Code: CS - 3610 Software Testing Tools	CO1- To understand various software testing methods and strategies. CO2- To understand a variety of software metrics and identify defects and managing those defects for improvement in quality for given software.

Programme Outcomes: M. Sc. Computer Science

Department of Computer Science	After successful completion of three-year degree program in Computer Science a student will be able to:
Programme Outcomes	<p>PO1-Become technology-oriented with the knowledge and will get the ability to develop creative solutions and will better understand the effects of future developments of computer systems and technology on people and society.</p> <p>PO2-Identify, formulate, and develop solutions to computational challenges. through project work.</p> <p>PO3- Get ability to apply knowledge of computer science and skills to succeed in their career/ professional development and/or postgraduate education to pursue flexible career paths amidst future technological changes to real-world issues.</p> <p>PO4-Understand and apply computer science principles to manage multi-disciplinary projects using knowledge of programming languages, cloud computing, web services, different database technologies, operating systems and different design patterns</p>

Programme Specific Outcomes: M. Sc. Computer Science

Department of Computer Science	After successful completion of three-year degree program in Computer Science a student will be able to:
Programme Specific Outcomes	<p>PSO1-Apply the fundamentals of mathematics, science knowledge to understand, analyze and develop computer programs in the areas related to algorithms, Advanced Operating System, Database Technology, mobile technologies, software project management, multimedia, big data analytics, machine learning, artificial intelligence and networking for efficient design of computer-based systems of varying complexity</p> <p>PSO2-Communicate computer science concepts, designs, and solutions effectively and professionally.</p> <p>PSO3- Apply appropriate techniques and modern hardware and software tools for the design and integration of computer systems and related technologies with the use of ICT.</p> <p>PSO4- Interact with IT experts & will gain knowledge by IT visits.</p>

Course Outcomes: M. Sc. Computer Science

Course	Outcomes
	After completion of these courses' students should be able to:
Semester-I	
CS-MJ-411T: Advanced Operating System	<p>CO1: Understand the Operating Systems Structure with example of Unix/Linux.</p> <p>CO2: Learn the structure of files and directory in UNIX/LINUX OS.</p> <p>CO3: Use various system calls related to file subsystem.</p> <p>CO4: Learn the process control subsystem structure in UNIX/LINUXOS</p> <p>CO5: Use various system calls related to process control subsystems.</p> <p>CO6: Learn the concept of signal handling with practical implementation</p> <p>CO7: Understand the memory management policies of UNIX/LINUXOS</p>
CS-MJ-412T: Artificial Intelligence	<p>CO1: Understand the fundamental concepts of Artificial Intelligence.</p> <p>CO2: Identify and apply appropriate search strategies for AI problem.</p> <p>CO3: Identify knowledge and represent AI algorithms using various techniques.</p> <p>CO4: Implement ideas to design and develop AI solutions for complex challenges.</p> <p>CO5: Analyze the performance of AI models and interpret their results.</p> <p>CO6: Implement ideas underlying modern logical inference systems.</p> <p>CO7: Understand recent trends and future scope of AI.</p>
CS-MJ-413T: Paradigm of Programming Languages	<p>CO1: Separate syntax from semantics</p> <p>CO2: Compare programming language designs</p> <p>CO3: Understand their strengths and weaknesses</p> <p>CO4: Learn new languages more quickly</p> <p>CO5: Understand basic language implementation techniques</p> <p>CO6: Learn small programs in different programming Languages</p>
CS-MJ-414P: Lab Course based on CS- MJ-411T	<p>CO1: To Learn the principles and paradigm of Cloud Computing</p> <p>CO2: To appreciate the role of Virtualization Technologies</p> <p>CO3: Ability to design and deploy Cloud Infrastructure</p> <p>CO4: Understand the Operating Systems Structure with example of Unix/Linux.</p> <p>CO5: Learn the structure of files and directory in UNIX/LINUX OS.</p> <p>CO6: Use various system calls related to file subsystem.</p> <p>CO7: Learn the process control subsystem structure in UNIX/LINUXOS</p> <p>CO8: Use various system calls related to process control subsystems.</p> <p>CO9: Learn the concept of signal handling with practical implementation</p>
CS-MJ-415P: Lab Course based on CS-	<p>CO1: Understand the fundamental concepts of Artificial Intelligence.</p> <p>CO2: Identify and apply appropriate search strategies for AI problem.</p> <p>CO3: Identify knowledge and represent AI algorithms using various techniques.</p>

MJ-412T	<p>CO4: Implement ideas to design and develop AI solutions for complex challenges.</p> <p>CO5: Analyze the performance of AI models and interpret their results.</p> <p>CO6: Implement ideas underlying modern logical inference systems.</p> <p>CO7: Understand recent trends and future scope of AI.</p>
CS-ME-416T: Database & Web technology	<p>CO1: Students will get knowledge of advanced database technology</p> <p>CO2: Students will be able to choose appropriate database technology as per application</p> <p>CO3: Students will learn to design responsive web applications</p> <p>CO4: Students could design and implement scalable web application</p>
CS-ME-417P: Lab Course based on CS-MJ-416T.	<p>CO1: Students will get knowledge of advanced database technology</p> <p>CO2: Students will be able to choose appropriate database technology as per application</p> <p>CO3: Students will learn to design responsive web applications</p> <p>CO4: Students could design and implement scalable web application</p>
CS-RM-401T: Research Methodology	<p>CO1. Understanding the fundamental concepts of research, including the research process, research questions, hypotheses, and variables.</p> <p>CO2. Conduct a comprehensive literature review to identify relevant studies, synthesize existing knowledge, and identify research gaps.</p> <p>CO3. Identify research problems, formulate research questions, and design appropriate methodologies to address these problems</p> <p>CO4. Identify and select appropriate research designs, such as experimental, observational, survey, qualitative, or mixed methods, based on the research objectives.</p> <p>CO5. Apply appropriate data analysis methods, including statistical techniques or qualitative analysis, to draw meaningful conclusions from research data</p> <p>CO6. Develop a well-structured research proposal, outlining research questions, methodology, expected outcomes, and a rationale for the study.</p> <p>CO7. Communicate research findings effectively through written reports, presentations, and academic papers.</p> <p>CO8. Gain an appreciation for the importance of research in contributing to the advancement of knowledge in their field of study and broader society.</p> <p>CO9. Understand the principles of research ethics and integrity and apply them in their research.</p>
Semester-II	
	<p>CO1: Analyze worst-case running times of algorithms using asymptotic analysis.</p> <p>CO2: Compare different data structures. Pick an appropriate data structure</p>

<p>CS-MJ-421T: Design and Analysis of Algorithm</p>	<p>for a design situation.</p> <p>CO3: Ability to design algorithms using standard paradigms like:Greedy,Divide and Conquer, Dynamic Programming and Backtracking.</p> <p>CO4: Able to Explain the major graph algorithms and Employ graphs to model engineering problems, when appropriate.</p> <p>CO5: Able to Compare between different data structures and pick an appropriate data structure for a design situation.</p>
<p>CS-MJ-422T: Mobile Technologies</p>	<p>CO1.To provide students with a solid understanding of the mobile app development, Android operating system, its architecture, components, and the software development kit (SDK).</p> <p>CO2.To teach students how to build Android applications from scratch, including UI design, handling user interactions, and integrating various features.</p> <p>CO3.To learn about Android's UI components, layouts, and design principles to create visually appealing and user-friendly interfaces.</p> <p>CO4.To know various methods of data storage in Android applications, such as using SQLite databases, shared preferences, and cloud-based solutions.</p> <p>CO5.To empower students to independently design,develop,and deploy their Android applications using advanced android tools.</p> <p>CO 6. To understand how to utilize built-in sensors and hardware components on Android devices, such as GPS,accelerometer,Bluetooth,WiFi,Media Player and Camera, in their applications.</p> <p>CO7.To Get knowledge of Phone Gap Programming</p>
<p>CS-MJ-423T: Software Project Management</p>	<p>CO1: Learn the skills that are required to ensure successful medium and large-scale software projects.</p> <p>CO2: Examine Requirements Elicitation, Project Management, Verification & Validation and Management of Large Software Engineering Projects.</p> <p>CO3: Get knowledge to select and apply project management techniques for process modeling, planning, estimation, process metrics and risk management.</p> <p>CO4: Understand the concepts,skills,tools,and techniques of software project management.</p>
<p>CS-MJ-424P: Lab Course based on CS-MJ- 421T</p>	<p>CO1: Analyze worst-case running times of algorithms using a symptotic analysis.</p> <p>CO2: Compare different data structures. Pick an appropriate data structure for a design situation.</p> <p>CO3: Ability to design algorithms using standard paradigms like: Greedy, Dividend Conquer, Dynamic Programming and Backtracking.</p> <p>CO4: Able to Explain the major graph algorithms and Employ graphs to model</p>

	<p>engineering problems, when appropriate.</p> <p>CO5: Able to Compare between different data structures and pick an appropriate data structure for a design situation.</p>
<p>CS-MJ-425P: Lab Course based on CS-MJ- 422T</p>	<p>CO1.To teach students how to build Android applications from scratch, including UI design, handling user interactions, and integrating various features.</p> <p>CO2.To learn about Android's UI components,layouts,and design principles to create visually appealing and user-friendly interfaces.</p> <p>CO3.To empower students to independently design,develop,and deploy their Android applications using advanced android tools.</p>
<p>CS-ME-426T: Full Stack Development-I</p>	<p>CO1: Learn about the benefits of using MEAN stack and how to install and configure it</p> <p>CO2: Learn advanced ES6 features in JavaScript and Typescript</p> <p>CO3: Learn about Angular architecture, components, directives, pipes, forms, routing, and services.</p> <p>CO4: Learn about the event loop, asynchronous programming, modules, packages, and streams.</p> <p>CO5: Learn about the MVC pattern, routing, HTTP requests and responses, middleware, and error handling.</p> <p>CO6: Create a full stack MEAN stack application and deploy it to a production/local server.</p>
<p>CS-ME-427P: Lab Course Based on CS-ME-426T</p>	<p>CO1: Describe appropriate uses for Java Script and PHP</p> <p>CO2: Discuss,create,and debug semantically correct basic examples of dynamic webpages</p> <p>CO3: Construct individual components and entire applications using ReactJS</p> <p>CO4: Build an interactive web page using React JS</p>
<p>CS-OJT-427: On Job Training/Field Projects</p>	<p>CO 1: Participate in projects in industries during his or her industrial training.</p> <p>CO 2: Describe use of advanced tools and techniques encountered during industrial training and visit.</p> <p>CO 3: Interact with industrial personnel and follow engineering practices and discipline prescribed in industry.</p> <p>CO 4: Develop awareness about general workplace behavior and build interpersonal and team skills'</p> <p>CO 5: Prepare professional work reports and presentations.</p>
	Semester-III
<p>CSUT231-Software Architecture</p>	<p>CO1-Recognize the characteristics of patterns that make it useful to solve real world problems.</p>

and Design Patterns	<p>CO2- Able to use specific frameworks as per applications need.</p> <p>CO3- Design java application using design pattern techniques.</p>
CSUT232 Machine Learning	<p>CO1-Recognize the characteristics of machine learning that make it useful to real-world problems.</p> <p>CO2- Process available data using python libraries and predict outcomes using Machine Learning algorithms to solve given problem</p> <p>CO3-Able to estimate Machine Learning models efficiency using suitable metrics.</p> <p>CO4- Design application using machine learning techniques</p>
CSUT233- Web Frameworks	<p>CO1-Students will be ready with the technology which is used widely in Industry as a part of full stack developer.</p> <p>CO2-Students will know the powerful way to develop the web application in Python.</p> <p>CO3-Students will understand what really the asynchronous programming.</p>
Semester-IV	
CSUIT241: Industrial Training /Institutional project	<p>CO1-Learn the basic concepts of Project & Project Management.</p> <p>CO2-Become capable of self-education and clearly understand the value of achieving Perfection in the respective Project work</p> <p>CO3- Plan, schedule and execute a project considering risk management and apply quality attributes in software development life cycle</p>

DEPARTMENT OF PHYSICS

Programme Outcomes: B. Sc. Physics

Department of Physics	After successful completion of three-year degree program in Physics students should be able to:
Programme Outcome	<p>PO-1. Understand of major concepts in all disciplines of Physics.</p> <p>PO-2. Solve the problem and think methodically, independently and draw a logical conclusion.</p> <p>PO-3. Employ critical thinking and scientific knowledge to design, carry out, record and analyze the results of Physics experiments.</p> <p>PO-4. Create an awareness of the impact of Physics on the society and development outside the scientific community.</p> <p>PO-5. Inculcate scientific temperament in the students.</p> <p>PO-6. Use modern techniques, equipment's and Software's</p> <p>PO-7. Students would perform basic experiments related to mechanics and also get familiar with various measuring instruments</p>

Programme Specific Outcomes: B. Sc. Physics

Department of Physics	After successful completion of three-year degree program in Physics students should be able to:
Programme Specific Outcomes	<p>PSO-1. Gain the knowledge of Physics through theory and practical</p> <p>PSO-2. Understand good laboratory practices and safety.</p> <p>PSO-3. Develop research-oriented skills.</p> <p>PSO-4. Make aware and handle sophisticated instruments.</p>

Course Outcomes: B. Sc. Physics

Course	Outcomes
	After completion of these courses' students should be able to:
Semester-I	
BS-PH-111T: Fundamentals of Physics-I	<p>CO-1: Articulate and apply the principle of conservation of mechanical energy to solve real-life problems and relate force and energy through potential-energy curves.</p> <p>CO-2: Understand and determine the centre of mass for systems of individual particles and continuous distributions of matter, applying the principle of momentum conservation to particle systems.</p> <p>CO-3: Calculate the rotational inertias of symmetrical objects and solve problems involving both linear and rotational motion, including rotational kinetic energy calculations.</p>

	<p>CO-4: Understand the relationship between pressure and force; calculate pressure as a function of depth in liquids and assess the buoyancy and apparent weight of submerged objects using relevant equations.</p>
<p>BS-PH-112P: General Physics Lab-I</p>	<p>CO-1: Demonstrate practical knowledge of mechanics through hands-on experiments, reinforcing theoretical concepts.</p> <p>CO-2: Conduct experiments related to optical phenomena, including interference, diffraction, and dispersion.</p> <p>CO-3: Utilize optical devices such as prisms, gratings, and spectrometers to observe and analyse light behaviour.</p> <p>CO-4: Develop skills in experimental design, data collection, and analysis, enhancing their understanding of physics principles.</p>
<p>BS-PH-121T: Fundamentals of Physics-II</p>	<p>CO-1: Understand the fundamental concepts of thermodynamics and the laws governing thermodynamic systems.</p> <p>CO-2: Identify various states of a system and their dependence on different thermodynamic variables.</p> <p>CO-3: Comprehend different thermodynamic processes and their practical applications in real-life situations.</p> <p>CO-4: Analyse the functioning principles of various heat engines and their applications in technology.</p>
<p>OE-PH-01T काळाचा संक्षिप्त इतिहास</p>	<p>CO1: विद्यार्थी कॉस्मॉलॉजी आणि बिग बॅंग या मूलभूत संकल्पना समजून घेतो.</p> <p>CO2: विद्यार्थी गुरुत्वाकर्षणाचे विविध सिद्धांत आणि ते विश्वाच्या रचनेशी कसे संबंधित आहेत हे स्पष्ट करण्यास सक्षम होतो.</p> <p>CO3: विद्यार्थी विश्वविज्ञानाबद्दलची त्यांची समज स्पष्ट आणि संक्षिप्त पद्धतीने माहित करून घेतो.</p> <p>CO4: ब्रह्मांडातील अद्वितीय प्रश्नांची उत्तरे शोधण्याची जिज्ञासा निर्माण होईल.</p>
<p>SEC-PH-113P: Experimental Skills in Physics – I</p>	<p>CO-1: Understand the working principles of various measuring instruments.</p> <p>CO-2: Acquire scientific knowledge of various physical and electrical instruments used in physics practical's.</p>
<p>Semester-II</p>	
<p>SEC-PH-123P: Experimental Skills in Physics – II</p>	<p>CO-1: Understand the basic concepts of Thermodynamics and laws of thermodynamics.</p> <p>CO-2: Identify the different states of system and their dependence on various thermodynamic variables.</p> <p>CO-3: Understand different thermodynamic processes and their applications.</p> <p>CO-4: Understand different heat engines and their working principles.</p> <p>CO-5: Learn the heat radiation mechanism and relate this course to the daily chores through some applications.</p>

	<p>CO-6: students will demonstrate the ability to design and implement experiments to test physical theories, make measurements, and collect data using appropriate experimental techniques.</p> <p>CO-7: students will be able to gather, process, and analyze experimental data with attention to accuracy and precision.</p> <p>CO-8: students will apply theoretical concepts from physics to interpret experimental results, validating or challenging models and predictions.</p> <p>CO-9: students will acquire proficiency in operating a wide range of experimental tools and instruments.</p> <p>CO-10: students will be able to effectively document experimental procedures, results, and conclusions, and communicate findings in written and oral formats.</p>
PH-OE-02P घरगुती उपकरणे आणि दुरुस्ती	<p>CO-1. विद्यार्थी विविध विद्युत उपकरणांचे विविध प्रकार आणि त्यांची कार्ये यांचे आकलन करतो.</p> <p>CO-2. विद्यार्थी विद्युत उपकरणांच्या कार्यामध्ये गुंतलेली वीज तसेच चुंबकत्वाची मूलभूत तत्त्वे जाणून घेतो.</p> <p>CO-3. विद्यार्थी विद्युत उपकरणांसह सामान्य समस्यांचे निवारण करतो.</p>
BS-PH-122P: General Physics Lab – II	<p>CO1: understanding the practical knowledge of thermodynamics</p> <p>CO2: understand the electricity and magnetism while doing experiments: Engine, electric vibrations.</p> <p>CO3: They would also learn electric phenomena such as diode, CRO and do experiments related to electric devices.</p>
Semester-III	
BS-PH-231T Mathematical Methods in Physics-I	<p>CO 1: Remember and understand the fundamental mathematical concepts of complex numbers, partial differentiation, vector algebra, and differential equations.</p> <p>CO 2: Apply mathematical techniques to solve physics-related problems involving complex numbers, vectors, and differential equations.</p> <p>CO 3: Analyze mathematical and physical situations, such as curved motion, scalar and vector fields, and systems governed by differential equations, using appropriate mathematical tools.</p> <p>CO 4: Evaluate physical problems by interpreting mathematical results and determining their physical significance in the context of mechanics, fields, and motion.</p> <p>CO 5: Create solutions to complex mathematical problems by integrating various techniques such as partial differentiation, vector operations, and</p>

	differential equations to model physical systems.
PH-MJ-232T Electronics	<p>CO-1: Understand the basic principles of electric circuits, including Ohm's law and Kirchhoff's laws.</p> <p>CO-2: Apply theorems (Thevenin's, Norton's, etc.) to simplify complex circuits.</p> <p>CO-3: Understand how BJTs function as switches.</p> <p>CO-4: Design and analyse single-stage transistor amplifiers.</p>
BS-PH-233P Applied Physics Laboratory	<p>CO 1: Apply MS-Excel to plot basic trigonometric functions.</p> <p>CO 2: Adjust graph parameters, including axis limits, labels, titles, and gridlines, etc.</p> <p>CO 3: Utilize scientific methods to conduct experiments based on the fundamental principles of Operational Amplifier and electronic circuits.</p> <p>CO 4: Analyse the experimental data through graph plotting and numerical calculations.</p> <p>CO 5: Understand the principle of circuit analysis and the importance of Thevenin's Theorem to simplifying complex electronic circuits.</p> <p>CO 6: Understand the fundamental Physics concepts through experiments and their applications in science and technology.</p>
MN-PH-234T Mechanics	<p>CO 1: Demonstrate knowledge of fundamental concepts in mechanics, including measurements, moments of inertia, elasticity, and fluid viscosity.</p> <p>CO 2: Perform experiments using precise measuring instruments such as Vernier Callipers, Micrometre Screw Gauges, and Travelling Microscopes to gather experimental data.</p> <p>CO 3: Investigate mechanical systems by analysing the dynamic and static properties of materials and objects, such as spring behaviour, pendulum motion, and bending properties.</p> <p>CO 4: Interpret experimental results and compare them with theoretical values for moment of inertia, gravitational acceleration, and elasticity.</p> <p>CO 5: Design experimental setups and optimize methods for accurately determining physical constants like the coefficient of viscosity and Young's modulus.</p>
MN-PH-235P Mechanics	<p>CO 1: Recall and comprehend the principles of precision measurement and fundamental mechanics.</p> <p>CO 2: Conduct and perform measurements using advanced tools for accurate data collection in mechanical experiments.</p> <p>CO 3: Analyse mechanical systems such as pendulums and rigid bodies to</p>

	<p>compute moments of inertia and investigate motion properties.</p> <p>CO 4: Evaluate experimental outcomes by comparing theoretical predictions and actual measurements, considering sources of error.</p> <p>CO 5: Develop and design accurate procedures for experiments such as determining fluid viscosity and material elasticity.</p>
VSC-PH-236T Data Analysis And Graphing Software	<p>CO1: Explain data types, their significance, and software tools in scientific analysis.</p> <p>CO2: Classify and create different types of 2D/3D graphs using Excel and Origin.</p> <p>CO3: Compute statistical measures and perform regression analysis for data interpretation.</p> <p>CO4: Evaluate errors and uncertainties in experimental data.</p> <p>CO5: Utilize spreadsheet functions and basic programming for data analysis.</p> <p>CO6: Manage data import, export, and automation for efficient processing.</p>
IKS-PH-237T Indian Astronomy and Metallurgy	<p>CO1: Understand and describe the key concepts and contributions of ancient Indian astronomers and metallurgists.</p> <p>CO2: Explain the significance of ancient Indian astronomical tools and techniques and their modern applications.</p> <p>CO3: Identify and evaluate the contributions of Indian metallurgists to the development of materials like Wootz steel and advanced metalworking practices.</p> <p>CO4: Analyse the interconnection between Indian astronomy and metallurgy and their influence on modern scientific research.</p> <p>CO5: Apply knowledge of Indian astronomy and metallurgy to recognize their influence on current technological advancements in physics.</p>
FP-PH-238P Field Project	<p>CO1: Apply theoretical concepts to real-world field investigations</p> <p>CO2: Analyse data collected from the field to derive meaningful conclusions</p> <p>CO3: Design and implement solutions based on field observations</p> <p>CO4: Evaluate the impact of the project on the environment and society</p> <p>CO5: Communicate findings effectively through reports and presentations.</p>
OE-PH-03T ऊर्जा संसाधने	<p>CO1: विद्यार्थी ऊर्जा संकल्पना, ऊर्जा स्रोतांचे वर्गीकरण, तसेच पारंपारिक आणि अपारंपारिक ऊर्जा स्रोतांचे महत्त्व व मर्यादा स्पष्ट करू शकतील.</p> <p>CO2 : विद्यार्थी नवीकरणीय ऊर्जा स्रोत, सौर ऊर्जा आणि त्याची तंत्रज्ञानाची मुलभूत वैशिष्ट्ये समजून घेऊन त्याचा वापर आणि परिणाम सांगू शकतील.</p>

Semester-IV	
PH-MJ-241T Oscillations, Waves and Sound	<p>CO 1: Define different types of equilibrium, simple harmonic motion (S.H.M.), and wave characteristics such as intensity, pitch, and timbre.</p> <p>CO 2: Solve differential equations for damped and forced harmonic oscillators and analyse their solutions in real-life scenarios.</p> <p>CO 3: Examine wave equations for longitudinal and transverse waves and explore energy density and wave properties.</p> <p>CO 4: Analyse forced oscillations, resonance, and quality factors to understand their applications in LCR circuits and other systems.</p> <p>CO 5: Develop an understanding of advanced wave phenomena like gravitational waves and applications of Doppler Effect in modern physics.</p>
PH-MJ-242T Optics	<p>CO1: Understand the formation of images by thin lenses.</p> <p>CO2: Derive the lens maker formula from the principle of geometric optics.</p> <p>CO3: Distinguished between different types of optical instruments based on their functions, design and applications.</p> <p>CO4: Analyse how optical instruments produce images of objects.</p> <p>CO5: Understand the principles of thin film interference and formation of interference pattern in thin films.</p> <p>CO6: Distinguished between different types of diffraction.</p>
PH-MJ-243T Laser	<p>CO1: Understand the basic principle of lasing action.</p> <p>CO2: Explain the processes of absorption, spontaneous emission and stimulated emission.</p> <p>CO3: Identify and describe various pumping processes.</p> <p>CO4: Understand the role of optical resonator including their function in providing feedback.</p> <p>CO5: Explain the different types of lasers.</p> <p>CO6: Describe the use of laser in different applications such as industry, medical, optical etc.</p>
PH-MJ-244P Physics Laboratory-II B	<p>CO1. Use various instruments and equipment.</p> <p>CO2. Investigate the theoretical background of an experiment.</p> <p>CO3. Setup experimental equipment to implement an experimental approach.</p> <p>CO4. Analyse the data, plot appropriate graphs and reach conclusions from data analysis.</p> <p>CO5. Compare the experimental results with theoretical predictions.</p> <p>CO6. Understand the fundamental Physics concepts through experiments and its</p>

	applications in science and technology.
PH-SEC-245P Programming with Python	<p>CO1: Understanding to programming and problem solving in Python</p> <p>CO2: Using some motivating examples, the course quickly builds up basic concepts such as loops, functions, lists, strings, etc.</p> <p>CO3: understand sorting algorithms, dynamic programming and exception handling and using files.</p>
PH-CEP-246	<p>CO1. Demonstrate proficiency in using common laboratory equipment and tools.</p> <p>CO2. Understand and apply principles of experimental design.</p> <p>CO3. Acquire data through experimentation and demonstrate skills in data collection and analysis.</p> <p>CO4. Apply proper safety procedures and protocols while working in the physics laboratory.</p>
PH-MJ-203T Waves and Optics	<p>CO1: Understand Simple harmonic oscillation and superposition principle.</p> <p>CO2: Understand the importance of classical wave equation in transverse and longitudinal waves.</p> <p>CO3: Understand concept of normal modes in transverse and longitudinal waves: their frequencies and configuration.</p> <p>CO4: Understand Interference as superposition of waves from coherent sources derived from same parent source.</p> <p>CO5: Demonstrate understanding of Interference experiments: Young's Double Slit, Llyod's Mirror, Newton's Rings.</p>
PH-MJ-204P Wave and Optics Laboratory	<p>CO1. Use various instruments and equipment.</p> <p>CO2. Investigate the theoretical background of an experiment.</p> <p>CO3. Setup experimental equipment to implement an experimental approach.</p> <p>CO4. Analyse the data, plot appropriate graphs and reach conclusions from data analysis</p> <p>CO5. Compare the experimental results with theoretical predictions.</p> <p>CO6. Understand the fundamental Physics concepts through experiments and its applications in science and technology.</p>
OE-PH-03T उर्जा संसाधने	<p>CO 1: सौर कुकर, सौर वॉटर हिटर, सौर ड्रायर, फोटोव्होल्टेइक प्रणाली, आणी सौर प्रकाश प्रणाली यासारख्या विविध सौर ऊर्जा प्रणालीविषयी ज्ञान मिळवणे आणि त्यांच्या कार्यपद्धती व उपयोगांचा अभ्यास करणे.</p> <p>CO 2: सौर आसवन प्रणाली आणी फोटोव्होल्टेइक फेन्सिंगसारख्या सौर आधारित प्रणालींचा उर्जा अभ्यास करणे.</p> <p>CO 3: एथनॉल आणण बायोडिझेल उत्पादन प्रक्रियेचा अभ्यास करणे आणी त्यांचा पर्यावरणीय व आर्थिक प्रभाव समजून घेणे.</p>

Semester-V	
PH331: Mathematical methods of Physics	<p>CO-1. Know the Cartesian, Spherical polar and cylindrical co-ordinate systems.</p> <p>CO-2. Solve of Legendre, Hermite and Bessel differential equations.</p> <p>CO-3. Understand the special theory of relativity.</p> <p>CO-4. Discuss the Michelson-Morley Experiment.</p>
PH332: Solid State Physics:	<p>CO-1. Understand the crystal structure and types of Bravais lattices.</p> <p>CO-2. Study of X-ray diffraction technique.</p> <p>CO-3. Introduced to band theory of metals.</p> <p>CO-4. Study of magnetic properties of solids.</p>
PH333: Classical Mechanics:	<p>CO-1. Understand of mechanics of system of particles and scattering particles.</p> <p>CO-2. Understand of Motion of object in central force field.</p> <p>CO-3. Set up Lagrangian and Hamiltonian formulation.</p>
PH334: Atomic and Molecular Physics	<p>CO-1. Understand of atomic structure and spectra.</p> <p>CO-2. Study of one and two electron systems.</p> <p>CO-3. Introduction to various spectroscopies.</p>
PH335: Computational Physics	<p>CO-1. Develop skills of C-language programming for solving physics problems.</p>
PH336: Elements of Material Science	<p>CO-1. Basic knowledge of Material Science.</p> <p>CO-2. Understand the properties of material science.</p> <p>CO-3. Discuss the type of Phase Diagram.</p>
Semester-VI	
PH341: Classical Electrodynamics:	<p>CO-1. Understand fundamentals of Electrostatics.</p> <p>CO-2. Understand fundamentals of Magnetostatics.</p> <p>CO-3. Understand fundamentals of Electrodynamics.</p> <p>CO-4. Know the different Potentials in EM field.</p>
PH342: Quantum Mechanics:	<p>CO-1. Introduction to modern physics and development of quantum mechanics.</p> <p>CO-2. Setting up Schrodinger's steady state equation.</p> <p>CO-3. Problems like potential well, potential barrier, step, hydrogen atom</p> <p>CO-4. Introduction to operators.</p>
PH343: Thermodynami cs and statistical	<p>CO-1. Introduction of Kinetic theory of gases.</p> <p>CO-2. Importance of Maxwell's relation</p> <p>CO-3. Knowledge of Random walkproblem.</p>

physics:	<p>CO-4. Types of ensembles.</p> <p>CO-5. Introduction to Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics.</p>
PH344: Nuclear Physics:	<p>CO-1. Understand properties of nucleus.</p> <p>CO-2. Study of Radioactivity.</p> <p>CO-3. Knowledge of types of nuclear forces and nuclear reactions.</p> <p>CO-4. Knowledge of types of particle accelerators.</p>
PH345: Electronics:	<p>CO-1. Know basic components like diode and its types, BJT, FET</p> <p>CO-2. Study of amplifiers and their types.</p> <p>CO-3. Introduction to power supplies.</p> <p>CO-4. Details of Digital electronics.</p>
PH346: Lasers	<p>CO-1. Know the about LASER.</p> <p>CO-2. Understand the properties of LASER.</p> <p>CO-3. Understand different types of LASERS.</p>
PH347: Laboratory course I	<p>CO-1. Handling of optical and measuring instruments</p> <p>CO-2. Learn to verify basic constants in physics</p> <p>CO-3. Verify laws of physics experimentally</p>
PH348: Lab. course II	<p>CO-1. C-programming Skills.</p> <p>CO-2. Knowledge of programming.</p>
PH349: Laboratory course III (Project)	<p>CO-1. Develop skills of independent working</p> <p>CO-2. Learn Literature survey</p> <p>CO-3. Designing of physics/electronics experiments</p> <p>CO-4. Develop writing and presentation skills</p>
PH350: Laboratory course IV	<p>CO-1. Introduction to process control.</p> <p>CO-2. Basics of discrete state process control.</p> <p>CO-3. Understand the controller principles and types.</p> <p>CO-4. Introduction to modeling, simulation and MATLAB programming.</p>

Programme Outcomes: M.Sc. Physics

Department of Physics	After successful completion of two-year degree program in Physics students should be able to:
Programme Outcome	<p>PO-1. Apply the skill and knowledge in the design and development of electronic circuits to fulfil the needs of small-scale electronic industry.</p> <p>PO-2. Become professionally trained in areas like material science, electronics, lasers and nonlinear circuits.</p> <p>PO-3. They will have a sense of academic and social ethics.</p> <p>PO-4. They will be able to recognize the need for continuous learning and develop throughout for the professional career.</p> <p>PO-5. They will be prepared to take up challenges as globally competitive physicists/researchers.</p> <p>PO-6. They will be technically and analytically skilled enough to pursue their further studies.</p>

Programme Specific Outcomes: M.Sc. Physics

Department of Physics	After successful completion of two-year degree program in Physics students should be able to:
Programme Specific Outcomes	<p>PSO-1. Introduce advanced techniques and ideas required in developing areas of Physics.</p> <p>PSO-2. Enhance students' ability to develop mathematical models for physical systems.</p> <p>PSO-3. Gain the knowledge of Physics through theory and practicals.</p> <p>PSO-4. Understand good laboratory practices and safety.</p> <p>PSO-5. Develop research-oriented skills.</p> <p>PSO-6. Make yourself aware and handle the sophisticated instruments.</p> <p>PSO-7. Understand and apply principles of Physics for understanding the scientific phenomenon in classical and quantum Physics.</p> <p>PSO-8. Understands and apply statistical methods for describing the classical and quantum particle phenomenon in various physical systems.</p>

Course Outcomes: M.Sc. Physics

Course	Outcomes
	After completion of these courses' students should be able to:
Semester – I	
PHCT-111: Mathematical	<p>CO1: get familiar with Matrix Algebra.</p> <p>CO2: introduction to operators.</p>

methods of physics:	CO3: uses of Special functions like Legendre, Bessel. CO4: uses of Fourier series, Fourier and Laplace transforms.
PHCT-112: Classical Mechanics	CO1: set up Lagrangian and Hamiltonian formulation. CO2: introduction to Canonical transformations and Poisson brackets. CO3: basics of non-inertial frame of reference. CO4: information of Central force field problems.
PHCT-113: Electronics	CO1: know basic of Semiconductor Devices and its Applications. CO2: know basic of Special Function ICs and their Applications. CO3: know basic of Digital Logic Circuits I: Combinational Logic. CO4: know basics of analog to digital and digital to analog converter types.
PHOT-114C4: Laser-Fundamentals and Applications	CO1: understand principles of Interaction of radiation with matter, Einstein's coefficients. CO2: know basics of two, three and four level laser systems. CO3: Study of various laser systems like He-Ne, N ₂ , CO ₂ , Nd:YAG, Ruby, Excimer, Dye lasers. CO4: know applications of lasers.
PHCP-115 Physics Lab I	CO1: design skills of electronic circuits. CO2: handling of electronic instruments. CO3: understanding of basic concepts of electronic devices.
Semester – II	
PHCT-121: Electrodynamic s:	CO1: understand fundamentals of Multipole expansions and time varying fields CO2: understand the Reflection and refraction of electromagnetic waves. CO3: understand Wave equations in terms of electromagnetic potentials. CO4: know Relativistic Mechanics and Covariance.
PHCT-122: Atoms and Molecules:	CO1: know basics of atomic structure and atomic spectra. CO2: understanding of molecular spectrum. CO3: get familiar with ESR, NMR and X-ray diffraction techniques.
PHCT-123: Quantum Mechanics I:	CO1: representation of state of system. CO2: using Dirac and Delta notations. CO3: concept of Angular Momentum. CO4: introduction to types of approximation methods
PHOT-124D4: Physics of Semiconductor devices:	CO1: understand Properties of semiconductors. CO2: working principles and construction of p-n junction diode. CO3: working principles and construction of junction transistor and field- effect devices.

	CO4: working principles and construction of Metal and MIS devices.
PHCP-125 Physics Laboratory-II (General Lab)	CO1: perform Experiments. CO2: develop skills of independent working. CO3: designing physics/electronics experiments.
Semester – III	
PH-MJ-631T Statistical Mechanics	CO-1: Understand the Statistical concepts in Physics CO-2: Solve and understand problems. CO-3: Apply the knowledge to solve problems in various branches of Physics.
PH-MJ-632T Experimental Techniques in Physics-I	CO-1: Understand Signal Generation and Acquisition. CO-2: Identify different types of sensors used in experimental physics and their principles of operation. CO-3: Explain the fundamentals of vacuum physics, including pressure regimes and gas behaviour in vacuum. CO-4: Understanding the sources of error in experiments, including systematic and random errors and how to minimize and quantify these errors.
PH-MJ-633T Solid State Physics	CO-1: Understand characteristic physical properties of different categories of solid materials, with an emphasis on the crystalline state. CO-2: Understand theoretical approaches to model the mechanical, thermal and electrical properties of solid materials. CO-3: Do quantitative calculations based on established theoretical models to describe the properties of materials.
PH-MJ-634P Physics Laboratory-V & VI	CO1: Apply basic knowledge of computational physics in solving the physics problems. CO2: Demonstrate concepts related to variables, I/O, arrays, procedures, modules, pointers in C language. CO3: Programme with the C language or any other high-level language. CO4: Use various numerical methods in solving physics problems. CO5: Analyse the outcome of the algorithm/program graphically.
PH-ME-635T Theory Elective- I	CO1: Study the basic concepts regarding to different types of growth mechanisms in the growth of thin films. CO2: Understand the principle in measuring the thickness of thin films and to find suitable method for measuring the thickness of thin films. CO3: Understand and analyze the characteristics and properties of thin films using different instrumentation techniques.
PH-ME-636P Practical Elective-I	CO1: Apply basic knowledge of computational physics in solving the physics problems. CO2: Use the knowledge in the applications of Radiation Physics in the fields like

	<p>medical diagnostic tools, Food Processing, and Research sectors.</p> <p>CO3: Work as advisers in the maintenance of radiation safety standards and following strict protocols at various places like Hospitals, Laboratories Industries, etc.</p>
<p>PH-RP-637 Research Project</p>	<p>CO1: Describe the necessity, relevance and importance of the project.</p> <p>CO2: Classify the work into small tasks as per the requirements of the aims and objectives of the project.</p> <p>CO3: Examine the experiments as per the appropriate procedure to achieve the goals.</p> <p>CO4: Standardize the procedure to obtain reliable, repeatable results with the published data to justify the observed results.</p> <p>CO5: Develop the skills related for the betterment in research, education, industry-academia collaborations.</p>
<p>Semester – IV</p>	
<p>PH-MJ-641T Nuclear Physics</p>	<p>CO-1: Introduce the structure and properties of atomic nuclei and elementary particles. Also, topics such as nuclear detectors, accelerators, nuclear decay, nuclear reactions, quarks, leptons, and the standard model of particle physics.</p> <p>CO-2: Focus on the principles, methodologies, and applications of various nuclear techniques used in scientific research, industry, and medical fields. These techniques utilize nuclear processes, radiation, and nuclear instrumentation to investigate and analyse various phenomena.</p>
<p>PH-MJ-642T Experimental Techniques in Physics-II</p>	<p>CO-1: Understand Radiation Sources.</p> <p>CO-2: Identify different types of detectors and their principles of operation.</p> <p>CO-3: Explain the structural, morphological characterization techniques.</p> <p>CO-4: Explain spectroscopic characterization.</p>
<p>PH-MJ-643P Physics Laboratory-VII</p>	<p>CO1: Apply basic knowledge of computational physics in solving the physics problems.</p> <p>CO2: Demonstrate concepts related to variables, I/O, arrays, procedures, modules, pointers in MATLAB.</p> <p>CO3: Programme with the MATLAB or any other high-level language.</p> <p>CO4: Use various numerical methods in solving physics problems.</p> <p>CO5: Analyse the outcome of the algorithm/program graphically.</p>
<p>PH-MJ-643P Physics Laboratory-VIII</p>	<p>CO1: Introduce the fundamental understanding of characterization techniques which are commonly used for material analysis.</p> <p>CO2: Develop and impart the systematic steps for interpretation of data</p>

	<p>obtained from the characterization.</p> <p>CO3: Obtain practical knowledge in Lasers physics and to identify types of Lasers.</p> <p>CO4: Study the basic concepts regarding properties and applications of lasers.</p>
<p>PH-ME-644T Theory Elective- IV</p>	<p>CO-1: Equip the students for pursuing higher studies and employment in Physics and related areas.</p> <p>CO-2: Imagine developing thorough and in-depth knowledge in Physics of nanomaterials.</p> <p>CO-3: Understand the influence of dimensionality of the object at nanoscale on their properties.</p> <p>CO-4: Size and shape-controlled synthesis of nanomaterials and their future applications in industry.</p> <p>CO-5: The program also acts as a bond between theoretical knowledge and implementation in experimental scenario.</p> <p>CO-6: The program also introduces the students to the scientific research approach in defining problems, execution through analytical methods, and systematic presentation of results keeping in mark with the research ethics through M. Sc. dissertation.</p>
<p>Elective Option B PH-ME-644(B)T Energy Storage Devices</p>	<p>CO-1: To study details of various energy storage systems along with applications.</p> <p>CO-2: Enabling to identify the optimal solutions to a particular energy storage application/utility.</p> <p>CO-3: Focus and develop future energy devices through research.</p>

DEPARTMENT OF MATHEMATICS

Programme Outcomes: B. Sc. Mathematics

Department of Mathematics	After successful completion of three-year degree program in Mathematics a student will be able to:
Programme Outcomes	<p>PO-1. Gain sound knowledge on fundamental principles and concepts of Mathematics and computing with their applications related to Industrial, Engineering, Biological and Ecological problems.</p> <p>PO-2. Exhibit in depth the analytical and critical thinking to identify, formulate and solve real world problems of science and engineering.</p> <p>PO-3. Get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning.</p> <p>PO-4. A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences.</p> <p>PO-5. Apply their skills and knowledge, that is, translate information presented verbally into mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion.</p> <p>PO-6. Be capable of undertaking suitable experiments/research methods while solving the real-life problem and arrive at valid conclusions based on appropriate interpretations of data and experimental results.</p> <p>PO-7. Develop written and oral communications skills in order to effectively communicate design, analysis and research results.</p> <p>PO-8. Demonstrate appropriate interpersonal skills to function effectively as an individual, as a member or as a leader of a team and in a multi-disciplinary setting.</p> <p>PO-9. Acquire competent positions in industry and academia as well.</p>

Programme Specific Outcomes: B. Sc. Mathematics

Department of Mathematics	After successful completion of three-year degree program in Mathematics a student will be able to:
Programme Specific Outcomes	<p>PSO-1. Give the students sufficient knowledge of fundamental principles, methods and a clear perception of innumerable power of mathematical ideas and tools and know how to use them by modeling, solving and interpreting.</p> <p>PSO-2. To equip the students sufficiently in both analytical and computational skills in Mathematical Sciences.</p> <p>PSO-3. To develop a competitive attitude for building a strong academic – industrial collaboration, with focus on continuous learning skills.</p> <p>PSO-4. Enhancing student's overall development and equipping them with Mathematical modeling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment.</p>

	<p>PSO-5. Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study.</p> <p>PSO-6. Enabling students to Gauge the hypothesis, theories, techniques and proofs provisionally.</p>
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Course Outcomes: B. Sc. Mathematics

Name of the Course	Course Outcomes
Semester-I	
MT-111 Algebra and Calculus -I	<p>CO-1. Solve problems on equivalence relations, functions, inverse functions, composition of functions.</p> <p>CO-2. Solve various problems on properties of integers and use the basic concepts of divisibility, congruence and their applications in basic algebra.</p> <p>CO-3. Solve problems on basic properties of complex numbers, different forms of complex numbers, algebraic equations and regions in the complex plane.</p>
BS-MT-112P: Practical on Algebra and Calculus	<p>CO-1: Use computational tools/software to visualize functions and graphs.</p> <p>CO-2: Perform practical problems related to limits, continuity, and differentiation.</p> <p>CO-3: Interpret mathematical results using numerical and graphical methods.</p>
SEC-MT-113P: Programming in Python-I	<p>CO-1: Explain basic principles of Python programming language.</p> <p>CO-2: Understand the importance of Python tools for Mathematics and Science</p> <p>CO-3: Learn how to use lists, tuples and dictionaries in Python programmes.</p> <p>CO-4: Learn Conditional Statements Looping statement in python.</p>
Semester-II	
BS-MT-121T: Algebra and Calculus- II	<p>CO-1: Understand the various types of matrices, their properties, and how to convert matrices to echelon form using elementary row operations.</p> <p>CO-2: Learn methods to solve systems of linear equations.</p> <p>CO-3: Find the characteristic polynomial, eigen values and eigenvectors of a matrix.</p> <p>CO-4: Apply the concept of matrices to the problems in chemistry, electronics, cryptography, etc.</p> <p>CO-5: Understand differentiation and fundamental theorem in differentiation.</p> <p>CO-6: Apply Mean Value Theorems and its applications</p> <p>CO-7: Explore the combined application of algebra and calculus to various mathematical problems. S</p>

BS-MT-122P: Practical on Algebra and Calculus-II	<p>CO-1: Improve the ability of students to solve the problems.</p> <p>CO-2: Solve the most difficulties possible strengthens theoretical notions.</p> <p>CO-3: Clarify their doubts because of one-to-one interaction with the teacher.</p> <p>CO-4: Gain the ability to use mathematical ideas to solve practical and everyday issues.</p> <p>CO-5: Develop an interdisciplinary approach.</p>
SEC-MT-123P: Programming in Python-II	<p>CO-1: Gain knowledge about basic concepts of Machine Learning.</p> <p>CO-2: Identify machine learning techniques suitable for a given problem.</p> <p>CO-3: Solve problems using various machine learning techniques.</p>
Semester-III	
MT-MJ-231T: Multivariable Calculus	<p>CO-1: Learn the concepts of multivariable functions, their limits and continuity.</p> <p>CO-2: Apply the concepts of partial derivatives and differentiability.</p> <p>CO-3: Find the extreme values of a function of several variables.</p> <p>CO-4: Evaluate multiple integrals and apply to find area and volumes.</p>
MT-MJ-232T: Ordinary Differential Equations (ODE)	<p>CO-1: Understand the genesis of ordinary differential equations.</p> <p>CO-2: Learn various techniques of getting exact solutions of solvable first order differential equations and linear differential equations of higher order.</p> <p>CO-3: Grasp the concept of a general solution of a linear differential equation of order two and also learn a few methods to obtain the general solution of such equations.</p> <p>CO-4: Find the complete solution of a differential equation with constant coefficients by variation of parameters.</p> <p>CO-5: Find complete solution of a nonhomogeneous differential equation with constant coefficients by the method of undetermined coefficients.</p>
MT-MJ-233T: Numerical Methods and Its Applications	<p>CO-1: Find the solution of Algebraic and Transcendental equations.</p> <p>CO-2: Find the polynomials for equal and unequal intervals by using interpolation.</p> <p>CO-3: Find the values of first and second order derivatives and evaluate definite integrals using different techniques numerically.</p> <p>CO-4: Find the numerical solution of first order ordinary differential equations.</p>
MT-MJ-234P: Practical on Multivariable Calculus and ODE	<p>CO-1: Improve the ability of students to solve the problems on multivariable functions and differential equations.</p> <p>CO-2: Solve the most difficulties possible strengthens theoretical notions.</p> <p>CO-3: Clarify their doubts because of one-to-one interaction with the teacher.</p> <p>CO-4: Gain the ability to use mathematical ideas to solve practical and everyday</p>

	<p>issues.</p> <p>CO-5: Develop an interdisciplinary approach.</p>
MT-MN-237T: Elementary Differential Equations	<p>CO-1: Identify the type of differential equations and use the appropriate method to solve them.</p> <p>CO-2: Solve first order differential equations utilizing the standard techniques for separable, exact, linear, homogeneous or Bernoulli cases.</p> <p>CO-3: Student will be able to find the complete solution of a nonhomogeneous differential equation as a linear combination of the complementary function and a particular solution.</p> <p>CO-4: Student will be able to find the complete solution of a differential equation with constant coefficients by variation of parameters.</p> <p>CO-5: Student will be introduced to the complete solution of a nonhomogeneous differential equation with constant coefficients by the method of undetermined coefficients.</p> <p>CO-6: Apply the concept of differential equations to solve problems such as orthogonal trajectories.</p>
MT-MN-238P: Practical on Elementary Differential Equations	<p>CO-1: Improve the ability of students to solve problems on differential equations.</p> <p>CO-2: Solve the most difficulties possible strengthens theoretical notions.</p> <p>CO-3: Clarify their doubts that occur to find solutions of differential equations, because of one-to-one interaction with the teacher.</p> <p>CO-4: Develop the ability to use mathematical ideas to solve everyday issues.</p> <p>CO-5: Develop an interdisciplinary approach.</p>
MT-VSC-235T: Discrete Mathematics	<p>CO-1: Determine properties of relations, identify equivalence and partial order relations, sketch relations.</p> <p>CO-2: Understand the concept of partially ordered set and properties of partial ordered sets.</p> <p>CO-3: Understand the concept of Boolean algebra and properties of Boolean algebra, logic gates.</p> <p>CO-4: Solve the problems on Linear Recurrence Relation and its types.</p>
Semester-IV	
MT-MJ-241T: Linear Algebra	<p>CO-1. Determine the linear dependence and linear independence of a vectors.</p> <p>CO-2. Use the concept of basis and dimension of vector space to solve problems.</p> <p>CO-3. Apply the properties of linear transformations to determine linearity, kernel and rank of linear transformations, inverse transformations to solve the problems of</p>

	<p>matrix transformations, change of basis.</p> <p>CO-4. Apply the concept of inner product space, Gram Schmidt process of orthogonalization.</p>
MT-MJ-242T: Vector Calculus	<p>CO-1: Familiarize the students with the notion of vectors as representing quantities that have directions as well as magnitude in advance level of learning.</p> <p>CO-2: Extend the basic vector concepts to learn about Gradient fields and path independent fields, calculating directional derivatives, gradient and curls.</p> <p>CO-3: Evaluate line integral as work over a closed curve including parameterized curves.</p> <p>CO-4: Evaluating integral using applications of Green's theorem and stokes theorem.</p> <p>CO-5: Compute surface and volume integrals through surfaces such as Cylinders, Cuboids, Spheres, etc., evaluating surface integral using Gauss Divergence in a plane.</p>
MT-MJ-243T: Laplace Transform	<p>CO-1: Find the Laplace Transform of derivatives, integral and periodic functions.</p> <p>CO-2: Find the inverse Laplace Transform of derivatives, integral and periodic functions.</p> <p>CO-3: Find the Laplace Transform of some special functions like Gamma function, Beta function.</p> <p>CO-4: Solve an initial value problem for the nth order ordinary differential equation using the Laplace Transform.</p>
MT-MJ-244P: Practical on Linear Algebra and Vector Calculus	<p>CO-1: Improve the ability of students to solve the problems on linear transformation and vector functions.</p> <p>CO-2: Solve the most difficulties possible strengthens theoretical notions.</p> <p>CO-3: Clarify their doubts because of one-to-one interaction with the teacher.</p> <p>CO-4: Gain the ability to use mathematical ideas to solve everyday issues.</p> <p>CO-5: Develop an interdisciplinary approach.</p>
MT-MN-247T: Applied Calculus of Several Variables	<p>CO-1: Learn the concepts of one variable function and multivariable functions, their limits and continuity.</p> <p>CO-2: Apply the concepts of partial derivatives and differentiability of functions of several variables.</p> <p>CO-3: Find the extreme values of a function of several variables.</p> <p>CO-4: Evaluate multiple integrals and apply to find area and volumes.</p>

MT-MN-248P: Practical on Applied Calculus of Several Variables	<p>CO-1: Improve the ability of students to solve the problems on limit, continuity and differentiability of multivariable functions.</p> <p>CO-2: Find the extreme values of functions of two variable and three variables.</p> <p>CO-3: Evaluate double and triple integrals, solve the problems to find area and volumes.</p> <p>CO-4: Clarify their doubts because of one-to-one interaction with the teacher.</p> <p>CO-5: Develop the ability to use mathematical ideas to solve everyday issues.</p>
MT-SEC-245P: Introduction to Scilab	<p>CO-1: Understand the basic operations on matrices also understand the basic concept of programming.</p> <p>CO-2: Implement simple mathematical functions /equations in numeric computations Environment.</p> <p>CO-3: find the root of equation, solution of a differential equation, solution of linear system of equations.</p> <p>CO-4: Interpret and visualize simple mathematical functions and operations by using Plot.</p>
Semester-V	
MT-351 Metric Spaces	<p>CO-1. understand the introductory concepts of metric spaces.</p> <p>CO-2. correlate these concepts to their counter parts in modern analysis by studying examples.</p> <p>CO-3. learn to analyse mappings between spaces.</p> <p>CO-4. attain background for advanced courses in real analysis, functional analysis, and topology.</p> <p>CO-5. appreciate the abstractness of the concepts such as open balls, closed balls, compactness, connectedness etc. beyond their geometrical imaginations.</p>
MT -352 Real Analysis-I	<p>CO-1. understand the introductory concepts of metric spaces.</p> <p>CO-2. correlate these concepts to their counter parts in modern analysis by studying examples.</p> <p>CO-3. learn to analyse mappings between spaces.</p> <p>CO-4. attain background for advanced courses in real analysis, functional analysis, and topology.</p> <p>CO-5. appreciate the abstractness of the concepts such as open balls, closed balls, compactness, connectedness etc. beyond their geometrical imaginations.</p>
MT -353 Group Theory	<p>CO-1. understand the introductory concepts of metric spaces.</p> <p>CO-2. correlate these concepts to their counter parts in modern analysis by</p>

	<p>studying examples.</p> <p>CO-3. learn to analyse mappings between spaces.</p> <p>CO-4. attain background for advanced courses in real analysis, functional analysis, and topology.</p> <p>CO-5. appreciate the abstractness of the concepts such as open balls, closed balls, compactness, connectedness etc. beyond their geometrical imaginations.</p>
MT -354 Ordinary Differential Equations	<p>CO-1. understand the genesis of ordinary differential equations.</p> <p>CO-2. learn various techniques of getting exact solutions of solvable first order differential equations and linear differential equations of higher order.</p> <p>CO-3. grasp the concept of a general solution of a linear differential equation of an arbitrary order and also learn a few methods to obtain the general solution of such equations.</p>
MT -355-A Operations Research	<p>CO-1. Analyse and solve linear programming models of real-life situations.</p> <p>CO-2. The graphical solution of LPP with only two variables and illustrate the concept of convex set and extreme points. The theory of the simplex method is developed.</p> <p>CO-3. The relationships between the primal and dual problems and their solutions with applications to transportation, assignment and two-person zero-sum game problem.</p>
MT -355-B	<p>CO-1. Gain an understanding to solve problems with the use of differential geometry to diverse situations in mathematical contexts.</p> <p>CO-2. Develop different properties associated with curves and surfaces.</p> <p>CO-3 Demonstrate a depth of understanding in advanced mathematical topics in relation to geometry of curves and surfaces Learn to analyze mappings between spaces.</p> <p>CO-4. Apply the theory of differential geometry to specific research problems in mathematics or other fields.</p>
MT -355-C	<p>CO-1. After the completion of this course, the students will be able to develop applications.</p> <p>CO-2. Develop different properties associated with curves and surfaces.</p>
MT -356(B) Number Theory	<p>CO-1. some of the open problems related to prime numbers.</p> <p>CO-2. about number theoretic functions and modular arithmetic.</p>

	CO-3. the Law of Quadratic Reciprocity and other methods to classify numbers as primitive roots, quadratic residues, and quadratic non-residues.
MT -356-C Laplace Transform	CO-1. Students will be able to know the use of Laplace transform in system modelling, digital signal processing, process control. CO-2. Solve an initial value problem for an nth order ordinary differential equation using the Laplace transform. CO-3. Find the Fourier series representation of a function of one variable
MT -3510: Programming in Python –I	CO-1. The student will be able to explain basic principles of Python programming language. CO-2. The student will implement object-oriented concepts.
MT-3511: LaTeX for Scientific Writing	CO-1. Write a simple LaTeX input document based on the article class. CO-2. Turn the input document into pdf with the pdflatex program. CO-3. Format Words, Lines, and Paragraphs. CO-4. Understand how to present data using tables.
Semester-VI	
MT 361 Complex Analysis	CO-1. Understand the significance of differentiability of complex functions leading to the understanding of Cauchy-Riemann equations. CO-2. Evaluate the contour integrals and understand the role of Cauchy-Goursat theorem and the Cauchy integral formula. CO-3. Expand some simple functions as their Taylor and Laurent series, classify the nature of singularities, find residues and apply Cauchy Residue theorem to evaluate integrals. CO-4. Represent functions as Taylor, power and Laurent series, classify singularities and poles, find residues and evaluate complex integrals using the residue theorem.
MT 362 Real Analysis-II	CO-1. Some of the families and properties of Riemann integrable functions, and the applications of the fundamental theorems of integration. CO-2. Beta and gamma functions and their properties. CO-3. Recognize the difference between pointwise and uniform convergence of a sequence of functions. CO-4. Illustrate the effect of uniform convergence on the limit function with respect to continuity, differentiability, and integrability.
MT 363 Ring Theory	CO-1. The fundamental concept of Rings, Fields, subrings, integral domains and

	<p>the corresponding morphisms.</p> <p>CO-2. Learn in detail about polynomial rings, fundamental properties of finite field extensions, and classification of finite fields.</p> <p>CO-3. Appreciate the significance of unique factorization in rings and integral domains.</p>
MT 364 Partial Differential Equations	<p>CO-1. Formulate, classify and transform partial differential equations into canonical form.</p> <p>CO-2. Solve linear partial differential equations using various methods and apply these methods in solving some physical problems.</p> <p>CO-3. Solve Laplace equations using various analytical methods demonstrate uniqueness of solutions of certain kinds of these equations.</p>
MT 365(A) Optimization Techniques.	<p>CO-1. Understand fundamentals of Network Analysis using CPM and PERT.</p> <p>CO-2. Solve a sequencing Problem for various jobs and machines.</p>
MT 365(B): Calculus of Variation and Classical Mechanics	<p>CO-1. Understand problems, methods and techniques of calculus of variations.</p> <p>CO-2. Understand necessary conditions for the equilibrium of particles acted upon by various forces and learn the principle of virtual work for a system of coplanar forces acting on a rigid body.</p> <p>CO-3. Deal with the kinematics and kinetics of the rectilinear and planar motions of a particle including the constrained oscillatory motions of particles.</p> <p>CO-4. Determine the center of gravity of some materialistic systems and discuss the equilibrium of a uniform cable hanging freely under its own weight.</p>
MT 365 (C): Financial Mathematics	<p>CO-1. describes and explain the fundamental features of a financial instrument.</p> <p>CO-2. demonstrates a clear understanding of financial research planning, methodology and implementation.</p> <p>CO-3. demonstrates understanding of basic concepts in linear algebra, relating to linear equations, matrices, and optimization.</p> <p>CO-4. demonstrates understanding of concepts relating to functions and annuities</p>
MT-366(A): Machine Learning-II	<p>CO-1. The students learning outcomes are designed to specify what the students will be able to perform after completion of the course:</p> <p>CO-2. Ability to select and implement machine learning techniques and computing environment that are suitable for the applications under consideration.</p>
MT-3610: Programming in Python – II	<p>CO-1. Demonstrate the use of Python in Mathematics such as operations research and computational Geometry etc.</p>

	<p>CO-2. Study graphics and design and implement a program to solve a real world problem.</p> <p>CO-3. The students will implement the concepts of data with python and database connectivity.</p>
<p>MT-3611: Mathematics into LaTeX</p>	<p>CO-1. typeset mathematical formulas, use nested list, tabular and array environments.</p> <p>CO-2. import figures and pictures that are stored in external files.</p>

Programme Outcomes: M. Sc. Mathematics

Department of Mathematics	After successful completion of three-year degree program in Mathematics a student will be able to:
Programme Outcomes	<p>PO-1. Employ critical thinking and scientific knowledge to design, carry out, record and analyze the results implemented in the theorem.</p> <p>PO-2. Solve the problem and also think methodically, independently and draw a logical conclusion.</p> <p>PO-3. Understand and Make application of major concepts in all disciplines of Mathematics.</p> <p>PO-4. Relate correlation between various courses of Mathematics with standard mathematical proofs.</p> <p>PO-5. To inculcate the scientific temperament in the students and outside the scientific community.</p> <p>PO-6. Create an awareness of the impact of Mathematics according to various geometrical shapes and patterns on the environment and development outside the scientific community.</p>

Programme Specific Outcomes: M. Sc. Mathematics

Department of Mathematics	After successful completion of three-year degree program in Mathematics a student will be able to:
Programme Specific Outcomes	<p>PSO-1. Understand the proof techniques in Mathematics and importance of theorems for sorting out typical examples.</p> <p>PSO-2. Gain the knowledge of Mathematics through applied and pure theories.</p> <p>PSO-3. Develop research-oriented skills.</p> <p>PSO-4. To explain nomenclature of Mathematical proof techniques and structures.</p> <p>PSO-5. Identify Mathematical formulae and solve numerical problems.</p>

Course Outcomes: M. Sc. Mathematics

Name of the Course	Course Outcomes
Semester-I	
MT-MJ-511T Advanced Calculus	CO-1: Perform the vector calculus operations by applying addition,

	<p>subtraction, scalar multiplication, dot product, cross product.</p> <p>CO-2: Perform vector calculus operations by partial derivatives.</p> <p>CO-3: Use Green's, Divergence and Stoke's theorem by combining vector differential calculus and vector integral calculus.</p> <p>CO-4: Apply the integral calculus to find arc length of a curve, arc length of a parametric curves, area under a curve and surface area.</p> <p>CO-5: To understand concept of integrals of function and vector fields over parameterized surfaces and computing them.</p>
<p>MT-MJ-512T Advanced Ordinary Differential Equations</p>	<p>CO-1: Find solution of linear differential equations of first order.</p> <p>CO-2: To find solution of homogeneous and non-homogeneous</p> <p>CO-3: equations of second order.</p> <p>CO-4: Explain Euler's equation, Legendre equation and Bessel's</p> <p>CO-5: Equation.</p> <p>CO-6: Understand Existence and Uniqueness of solution.</p> <p>CO-7: Find asymptotic at regular singular points.</p>
<p>MT-MJ-513T Abstract Algebra-I</p>	<p>CO-1: Generalize the groups on the basis of their orders, elements, order of elements and group relations.</p> <p>CO-2: Identify the various algebraic structures with their corresponding binary operations.</p> <p>CO-3: Use various canonical types of groups including cyclic groups and groups of permutations.</p> <p>CO-4: Compute the possible subgroups of given group of specific orders and will recognize them.</p> <p>CO-5: Apply Sylow theorems for groups of finite orders.</p>
<p>MT-MJ-513P Practical on Abstract Algebra-I</p>	<p>CO-1: Improve the ability of students to solve the problems on Abstract Algebra-I.</p> <p>CO-2: Solve the most difficulties possible strengthens theoretical notions.</p> <p>CO-3: Clarify their doubts because of one-to-one interaction with the teacher.</p> <p>CO-4: Gain the ability to use mathematical ideas to solve practical and everyday issues.</p> <p>CO-5: Develop an interdisciplinary approach.</p>

<p>MT-MJ-514P Programming with Python</p>	<p>CO-1: Study python on different operating systems, variables, strings and comments.</p> <p>CO-2: Working with lists and understanding difference between lists and dictionaries.</p> <p>CO-3: Use loops and conditional Statements in Python.</p> <p>CO-4: Learn functions, classes, and files in Python.</p>
<p>MT-ME-515T Number Theory and Coding Theory</p>	<p>CO-1: Understand the definitions of congruences, residue classes and least residues.</p> <p>CO-2: Add and subtract integers, multiply integers and calculate powers.</p> <p>CO-3: Determine multiplicative inverses modulo n and use it to solve linear congruences.</p> <p>CO-4: Describe some important result including Prime number theorem, Chinese Remainder Theorem and their consequences.</p> <p>CO-5: Describe arithmetic functions like Euler's φ function, τ-function, σ-function, and their application.</p> <p>CO-6: Use algebraic Techniques to construct efficient codes, identify the parameters of the given code and the quality of given code.</p>
<p>MT-ME-515P Practical on Number Theory and Coding Theory</p>	<p>CO-1: Improve the ability of students to solve the problems on Number Theory and Coding Theory.</p> <p>CO-2: Solve the most difficulties possible strengthens theoretical notions.</p> <p>CO-3: Clarify their doubts because of one-to-one interaction with the teacher.</p> <p>CO-4: Gain the ability to use mathematical ideas to solve practical and everyday issues.</p> <p>CO-5: Develop an interdisciplinary approach.</p>
<p>MT-ME-516T Lattice Theory</p>	<p>CO-1: Understand Lattices and their algebraic structures, homomorphism between Lattices and Boolean algebra.</p> <p>CO-2: Learn the existence of maximal elements and the celebrated Zorn's Lemma.</p> <p>CO-3: Deal with lattices as algebraic structures; to form sublattices; products; homomorphism and congruences.</p>

	<p>CO-4: Determine whether the given lattice is modular or distributive; and how to apply the $M3 - N5$ Theorem.</p>
<p>MT-ME-516P Practical on Lattice Theory</p>	<p>CO-1: Improve the ability of students to solve the problems on Lattice Theory.</p> <p>CO-2: Solve the most difficulties possible strengthens theoretical notions.</p> <p>CO-3: Clarify their doubts because of one-to-one interaction with the teacher.</p> <p>CO-4: Gain the ability to use mathematical ideas to solve research problems.</p>
<p>MT-ME-517T Advanced Operations Research</p>	<p>CO-1: Analyze and solve linear programming models of real-life situations.</p> <p>CO-2: Find the graphical solution of LPP with only two variables and illustrate the concept of convex set and extreme points.</p> <p>CO-3: Identify the relationships between the primal and dual problems and their solutions, assignment and transportation problems.</p> <p>CO-4: Understand fundamentals of Network Analysis using CPM and PERT.</p> <p>CO-5: Solve sequencing problem for various jobs and machines.</p>
<p>MT-ME-517P Practical on Advanced Operations Research</p>	<p>CO-1: Improve the ability of students to solve problems on Operations Research.</p> <p>CO-2: Solve the most difficulties possible strengthens theoretical notions.</p> <p>CO-3: Clarify their doubts because of one-to-one interaction with the teacher.</p> <p>CO-4: Gain the ability to use mathematical ideas to solve practical and everyday issues.</p> <p>CO-5: Develop an interdisciplinary approach.</p>
<p>MT-RM-518T Research Methodology</p>	<p>CO-1: Understand the concept, need for and importance of Research.</p> <p>CO-2: Make them aware of the various methods of types of research.</p> <p>CO-3: To make them aware of the various research tools.</p> <p>CO-4: Help the learner to realize the research problem and try to find solutions through Research.</p>

<p>MT-RM-518P Practical on Research Methodology</p>	<p>CO-1: Improve the ability of students to solve research problems.</p> <p>CO-2: Solve the most difficulties possible strengthens theoretical notions.</p> <p>CO-3: Clarify their doubts about the research because of one-to-one interaction with the teacher.</p> <p>CO-4: Gain the ability to use mathematical ideas to solve practical research problems.</p> <p>CO-5: Develop an interdisciplinary approach in research.</p>
<p>Semester-II</p>	
<p>MT-MJ-521T Advanced Complex Analysis</p>	<p>CO-1: Justify the need for complex number systems and explain how is related to other existing number systems.</p> <p>CO-2: Apply Cauchy Riemann equations and use it to show that a function is analytic.</p> <p>CO-3: Apply the techniques of complex variables and functions together with their derivatives, Contour integration and transformations.</p> <p>CO-4: Understand the boundedness of a function in the set of complex numbers.</p> <p>CO-5: Define singularities of a function, know the different types of singularities and determine points of singularities of a function.</p>
<p>MT-MJ-522T General Topology</p>	<p>CO-1. Understand the concept of Metric Spaces, Topological Spaces and their role in Mathematics.</p> <p>CO-2. Prove basic results about Completeness, Connectedness, Compactness, Convergence within this structure.</p> <p>CO-3. Apply the theory in the course to solve a variety of problems at an approximate level of difficulties.</p>
<p>MT-MJ-523T Advanced Linear Algebra</p>	<p>CO-1: Explain Vector spaces, Basis and Dimensions, the concept of Linear Transformation and its applications.</p> <p>CO-2: Find Eigen values and eigen vectors, minimal polynomials.</p> <p>CO-3: Identify the Inner product spaces, self-adjoint, normal and unitary operators.</p> <p>CO-4: Understand the notion of Bilinear form and its matrix, Quadratic form, diagonalizable Matrix.</p>

<p>MT-MJ-523P</p> <p>Practical on Advanced Linear Algebra</p>	<p>CO-1: Improve the ability of students to solve the problems on Linear Algebra.</p> <p>CO-2: Solve the most difficulties possible strengthens theoretical notions.</p> <p>CO-3: Clarify their doubts because of one-to-one interaction with the teacher.</p> <p>CO-4: Gain the ability to use mathematical ideas to solve practical problems in linear algebra.</p> <p>CO-5: Develop an interdisciplinary approach of linear algebra.</p>
<p>MT-MJ-524P</p> <p>Machine Learning</p>	<p>CO-1: Recognize the characteristics of machine learning that make it useful to real-world problems.</p> <p>CO-2: Process available data using python libraries and predict outcomes using Machine Learning algorithms to solve given problem.</p> <p>CO-3: Able to estimate Machine Learning models efficiency using suitable metrics.</p> <p>CO-4: Design application using machine learning techniques.</p>
<p>MT-ME-525T</p> <p>C and C++ Programming Language</p>	<p>CO-1: Understand the Programming basics and the fundamentals of C and C++.</p> <p>CO-2: Work with textual information, characters and strings.</p> <p>CO-3: Work with arrays of complex objects.</p> <p>CO-4: Understand the concept of object thinking within the framework of functional Model, functional hierarchical code organization.</p>
<p>MT-ME-525P</p> <p>Practical on C and C++ Programming Language</p>	<p>CO-1: Improve the ability of students to solve the problems on C and C++ programming.</p> <p>CO-2: Solve the most difficulties possible strengthens theoretical notions.</p> <p>CO-3: Clarify their doubts because of one-to-one interaction with the teacher.</p> <p>CO-4: Gain the ability to use mathematical ideas to solve practical problems in programming language.</p> <p>CO-5: Develop an interdisciplinary approach in programming language.</p>

<p>MT-ME-526T</p> <p>Classical Mechanics</p>	<p>CO-1: Define and understand basic mechanical concepts related to advanced problems involving the dynamic motion of classical mechanical systems.</p> <p>CO-2: Describe and understand the differential equations and other advanced mathematics in the solution of the problems of mechanical systems.</p> <p>CO-3: Describe and understand the motion of a mechanical system using Lagrange Hamilton formalism.</p> <p>CO-4: Learn that a particle moving under a central force describes a plane curve and knows the Kepler's laws of the planetary motions.</p>
<p>MT-ME-526P</p> <p>Practical on Classical Mechanics</p>	<p>CO-1: Solve the most difficulties possible strengthens theoretical notions.</p> <p>CO-2: Clarify their doubts because of one-to-one interaction with the teacher.</p> <p>CO-3: Gain the ability to use mathematical ideas to solve practical problems in Classical Mechanics.</p> <p>CO-4: Develop an interdisciplinary approach in Classical Mechanics.</p>
<p>MT-ME-527T</p> <p>Advanced Discrete Mathematics</p>	<p>CO-1: Understand and explore the basics of graph theory.</p> <p>CO-2: Achieve command of the fundamental definitions and concepts of graph theory.</p> <p>CO-3: Find the shortest path through a graph using Dijkstra's Algorithm.</p> <p>CO-4: Engage with mathematical literature.</p> <p>CO-5: Analyze combinatorial Problem extract and interpret descriptive statistics from social networks and apply resolution techniques for finding the answer for first order query.</p> <p>CO-6: Use combinatorial statements interpreted in generating function of regular sets.</p>
<p>MT-ME-527P</p> <p>Practical on Advanced Discrete Mathematics</p>	<p>CO-1: Improve the ability of students to solve problems on Discrete Mathematics.</p> <p>CO-2: Solve the most difficulties possible strengthens theoretical notions.</p> <p>CO-3: Clarify their doubts because of one-to-one interaction with the teacher.</p> <p>CO-4: Gain the ability to use mathematical ideas to solve practical problems in Discrete Mathematics.</p>
<p>Semester-III</p>	
<p>MT-MJ-631T:</p> <p>Measure Theory</p>	<p>CO-1: Find the cardinality of given set and determine whether the given set is countable or uncountable.</p>

	<p>CO-2: Understand the concept of Lebesgue Outer Measure, Measurable sets and functions, Boral and Lebesgue Integral etc.</p> <p>CO-3: Differ between Riemann and Lebesgue integral of functions.</p> <p>CO-4: Understand the L_p spaces, Holder and Minkowski's Inequalities, Convergence in measure theory.</p>
<p>MT-MJ-632T: Advanced Partial Differential Equations</p>	<p>CO-1: Classify partial differential equations and transform into canonical form.</p> <p>CO-2: Solve linear partial differential equations of both first and second order.</p> <p>CO-3: Apply partial derivative equation techniques to predict the behavior of certain phenomena.</p> <p>CO-4: Apply specific methodologies, techniques and resources to conduct research and produce innovative results in the area of specialization.</p> <p>CO-5: Extract information from partial derivative models in order to interpret reality.</p> <p>CO-6: Identify real phenomena as models of partial derivative equations.</p>
<p>MT-MJ-633T: Abstract Algebra-II</p> <p>MT-MJ-633P: Practical on Abstract Algebra-II</p>	<p>CO-1: Demonstrate accurate and efficient use of field extensions and Galois Theory.</p> <p>CO-2: Explain the fundamental concept of field extensions and Galois Theory and their role in modern mathematics.</p> <p>CO-3: Construct finite fields from a field of polynomial over a finite field and an irreducible polynomial.</p> <p>CO-4: Determine irreducibility in an integral domain both by applying appropriate tests and by applying techniques and methods.</p> <p>CO-5: Construct proofs and manipulate and apply algebraic concepts with an emphasis on the clear explanation of such concepts to others.</p>
<p>MT-ME-635T: Differential Geometry</p> <p>MT-ME-635P: Practical on Differential Geometry</p>	<p>CO-1: Define and understand fundamental concepts such as curves, surfaces, tangent vectors, normal vectors, and curvature.</p> <p>CO-2: Learn how to express curves and surfaces using different coordinate systems.</p> <p>CO-3: Define and study geodesics as curves that represent the shortest paths between points on surfaces.</p> <p>CO-4: Study vector fields and their role in describing the motion of objects on surfaces.</p> <p>CO-5: Find arc lengths and line integrals.</p>

<p>MT-ME-636T: Design and Analysis of Algorithm MT-ME-636P: Practical on Design and Analysis of Algorithm</p>	<p>CO-1: Study various sorting algorithms such as heap sort, quick sort, merge sort, and sorting in linear time.</p> <p>CO-2: Learn the concepts of P and NP classes, NP-completeness, and reducibility in computational complexity theory.</p> <p>CO-3: Study geometric algorithms for problems like finding convex hull, closest pair of points, and linear programming.</p> <p>CO-4: Explore greedy algorithms and their use in solving optimization problems.</p>
<p>MT-ME-637T: Probability and Statistics MT-ME-637P: Practical on Probability and Statistics</p>	<p>CO-1: Using the idea of a probability experiment, explains the concept of the probability of an Understand the concept of discrete and continuous random variables, measures of central tendency.</p> <p>CO-2: Get an idea of bivariate random variable; learn how to calculate joint, marginal and conditional, independence of random variables.</p> <p>CO-3: Perform probability calculations relating to probability density functions for continuous random variables.</p> <p>CO-4: . Describe how correlation is used to identify relationships between variables.</p> <p>CO-5: Describe how regression analysis is used to predict outcomes.</p>
<p>Semester-IV</p>	
<p>MT-MJ-641T: Functional Analysis</p>	<p>CO-1: Treat the vector spaces which have the additional property of being Normed linear spaces, Banach Spaces and Hilbert Spaces.</p> <p>CO-2: Understand the Schwarz inequality, Parallelogram and Polarization identities in Hilbert Space.</p> <p>CO-3: Differ the concept of Projection in Vector space, Banach Space and Hilbert Space. Also, the Conjugation and Adjoint of given operators.</p>
<p>MT-MJ-642T: Fourier Series and BVP MT-MJ-642P :Practical on Fourier Series and BVP</p>	<p>CO-1. Calculate the infinite Fourier transform, Fourier sine and cosine transform of elementary functions from definition.</p> <p>CO-1. Calculate the finite Fourier cosine and sine transform and apply it in solving boundary value problem.</p> <p>CO-1. Approach more advanced aspects of transformation methods.</p>
<p>MT-MJ-643T: Advanced Numerical Analysis MT-MJ-643P: Practical on Advanced Numerical Analysis</p>	<p>CO-1: Apply numerical methods to obtain approximate solutions to mathematical problems.</p> <p>CO-2: Analyze and evaluate the accuracy of common numerical methods.</p> <p>CO-3: Derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations.</p>

<p>MT-ME-644T: Integral Equations MT-ME-644P: Practical on Integral Equations</p>	<p>CO-1: Explain the Fundamental concepts of the Theory of Integral Equation.</p> <p>CO-2: Distinguish the difference between Differential Equations and Integral Equations, Convert the differential equation into an integral equation and vice versa.</p> <p>CO-3: Solve the problems on Fredholm integral equations by Adomian decomposition method, direct computation method and Volterra integral equations by Adomian decomposition method, series solution method, successive approximation method.</p> <p>CO-4: Find the solution of the problems on Fredholm Integro differential equation, Volterra Integro differential equation by using given techniques.</p> <p>CO-5: Learn the methods to solve singular integral equation.</p>
<p>MT-ME-645T: Fuzzy Mathematics MT-ME-645P: Practical on Fuzzy Mathematics</p>	<p>CO-1: Understand basic knowledge of the fuzzy sets, operations and their properties.</p> <p>CO-2: Understand the fundamental concepts of Fuzzy functions and Fuzzy logic.</p> <p>CO-3: Apply the concepts of Fuzzy sets in image processing, pattern reorganization and</p> <p>CO-4: decision making.</p> <p>CO-5: Apply the concepts of Fuzzy logic in image processing.</p> <p>CO-6: Identify the applications of fuzzy sets.</p>
<p>MT-ME-646T: Representation Theory of Finite Groups MT-ME-646P: Practical on Representation Theory of Finite Groups</p>	<p>CO-1: Analyze and solve the problems on group action.</p> <p>CO-2: Learn the concept of group representation.</p> <p>CO-3: Understand the character theory and orthogonality relations.</p> <p>CO-4: Understand Periodic functions, Fourier transform, Fourier Inversion and solve the problems using Convolutions.</p>

DEPARTMENT OF STATISTICS

Programme Outcomes: B. Sc. Statistics

Department of Statistics	After successful completion of three-year degree program in Statistics a student will be able to;
Programme Outcomes	<p>PO-1. Gain sound knowledge on fundamental principles, concepts and application of Statistics and handling data related to Industrial, Engineering, Biological and Ecological problems.</p> <p>PO-2. Exhibit in depth the analytical and critical thinking to identify, formulate and solve real world problems in various fields</p> <p>PO-3. Gain adequate knowledge of statistical software.</p> <p>PO-4. A student should be able to collect, present and analyze the big data.</p> <p>PO-5. Apply their skills and knowledge to interpret results in statistical as well as simple language of analyzed data</p> <p>PO-6. Be capable of undertaking suitable experiments/research methods while solving the real-life problem and arrive at valid conclusions based on appropriate interpretations of data and experimental results.</p> <p>PO-7. Develop written and oral communications skills in order to effectively communicate design, analysis and research results.</p> <p>PO-8. Demonstrate appropriate interpersonal skills to function effectively as an individual, as a member or as a leader of a team and in a multi-disciplinary setting.</p> <p>PO-9. Acquire competent positions in IT sector, Government sector and Academia as well.</p>
Programme Specific Outcomes	<p>PSOs-1. Give the students a sufficient knowledge of fundamental principles, methods and a clear perception of Statistical tools and know how to use them by modelling, solving and interpreting.</p> <p>PSOs-2. To equip the students sufficiently in both analytical and computational skills in Statistics</p> <p>PSOs-3. To develop a competitive attitude for building a strong academic – industrial collaboration, with focus on continuous learning skills.</p> <p>PSOs-4. Enhancing students’ overall development and to equip them with Statistical modelling abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment.</p> <p>PSOs-5. Enabling students to develop a positive attitude towards Statistics</p>

	<p>as an interesting and valuable subject of study.</p> <p>PSOs-6. Enabling students to Gauge the hypothesis, theories, and techniques provisionally.</p>
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Course	Outcomes After completion of these courses' students should be able to;
Semester-I	
BS-ST-111T: Descriptive Statistics-I	<p>CO-1: Understand meaning and importance of statistics.</p> <p>CO-2: Understand the concept of primary data, secondary data, data collection methods, statistical population and sampling methods.</p> <p>CO-3: Compute various measures of central tendency and measures of dispersion.</p> <p>CO-4: Compute raw and central moments and various measures of skewness and kurtosis.</p>
BS-ST-112P: Statistical Practical-I	<p>CO-1: Use various graphical and diagrammatic techniques and interpretation.</p> <p>CO-2: Analyze data pertaining to discrete and continuous variables and to interpret the results.</p> <p>CO-3: Compute various measures of central tendency, measures of dispersion.</p> <p>CO-4: Compute raw and central moments and various measures of skewness and kurtosis</p> <p>CO-5: Interpret summary statistics.</p>
SEC-ST-113P: Foundation of R- Software	<p>CO-1: Install R, writing commands in R console and R editor.</p> <p>CO-2: Do matrix operations, data handling and strings.</p> <p>CO-3: Know commonly used functions in R and manipulating data.</p> <p>CO-4: know loops used in R programming.</p>
OE-ST-01T: Elementary Descriptive Statistics	<p>CO-1: understand concept of primary data, secondary data and time series data.</p> <p>CO-2: draw diagrams of statistical data.</p> <p>CO-3: draw graphs of statistical data.</p> <p>CO-4: understand statistical population and some primary methods of random and non-random sampling.</p> <p>CO-5: understand raw data and its classification, frequency distributions and methods of classification.</p> <p>CO-6: compute various types of measures of central tendencies.</p>
Semester-II	
BS-ST-121T: Descriptive Statistics -II	<p>CO-1: compute the correlation coefficient for bivariate data and interpret it.</p> <p>CO-2: fit linear, quadratic and exponential curves to the bivariate data to investigate relation between two variables.</p> <p>CO-3: Compute and interpret various index numbers.</p>

	<p>CO-4: understand theory of attributes.</p> <p>CO-5: Compute index numbers using various formulae</p>
BS-ST-122P: Statistical Practical-II	<p>CO-1: compute correlation coefficient, regression coefficients.</p> <p>CO-2: compute probabilities of bivariate distributions.</p>
SEC-ST-123P: Statistical Computing R- Software	<p>CO-1: Draw diagrams in R.</p> <p>CO-2: Draw graphs in R.</p> <p>CO-3: Prepare frequency table and frequency distribution in R.</p> <p>CO-4: Compute averages and measures of dispersion in R.</p> <p>CO-5: Compute coefficient of skewness and coefficient of kurtosis.</p>
OE-ST-01T: Elementary Descriptive Statistics	<p>CO-1: perform visual analysis of data by means of simple diagrams and graphs.</p> <p>CO-2: get basic knowledge of descriptive statistics for data analysis.</p> <p>CO-3: get the basic knowledge of concepts of spread of data and exhibit variation in data by computing measures of dispersion.</p> <p>CO-4: get the knowledge of type and shape of frequency distribution using skewness and kurtosis measures.</p>
Semester-III	
Course Outcomes	After completion of these courses' students should be able to;
ST-MJ-231T Discrete probability and and Discrete probability distributions	<p>CO-1. Understand some standard discrete probability distributions</p> <p>CO-2. Write pmf of Negative Binomial Distribution, Multinomial distribution Truncated Distributions</p> <p>CO- 3. Understand meaning and utility of time series and its uses</p> <p>CO-4. Know R-Software, write commands in R</p> <p>CO-5. Do programs using various commands in R.</p> <p>CO-6: Understand the concept, applications and mathematical theory of the truncated probability distributions.</p> <p>CO-7: Understand the concept, applications and mathematical theory of multinomial distribution.</p>
ST-MJ-232T: Continuous Probability Distributions-I	<p>CO1: Understand continuous univariate distributions.</p> <p>CO2: Understand continuous bivariate distributions.</p> <p>CO3: Understand continuous uniform distribution and apply it in real life problem.</p> <p>CO4: Understand the concept and applications of the normal distribution.</p> <p>CO5: Understand the concept and applications of the exponential distribution.</p>
ST-MJ-233T: Applied Statistics	<p>CO1: Analyze the time series data by using various methods of the time series.</p> <p>CO2: Compute various types of index numbers.</p>

	<p>CO3: Compute birth rates, death rates and population growth rates.</p> <p>CO4: Compute various terms of life tables.</p> <p>CO5: Understand the queuing models.</p>
<p>ST-MJ-234P: Statistical Practical-I</p>	<p>CO1: Obtain marginal and conditional probability distributions and check independence of random variables.</p> <p>CO2: fit negative binomial and normal distributions to given data.</p> <p>CO3: compute probability of random variable of negative binomial, uniform, exponential and normal distributions.</p> <p>CO4: generate random samples from normal and exponential distributions.</p> <p>CO5: estimate and forecast trend by using exponential smoothing and moving averages.</p> <p>CO6: Compute seasonal indices using ratio to trend method.</p> <p>CO7: compute various index numbers, death rates, birth rates, population growth rates and construct life tables.</p>
<p>ST-VSC-235T: Statistical Techniques Using R Software</p>	<p>CO1: Compute correlation coefficients using R software.</p> <p>CO2: Fit regression lines using R software.</p> <p>CO3: Compute probabilities, quantiles and simulate random observations for various discrete probability distributions using R software.</p> <p>CO4: Compute probabilities, quantiles and simulate random observations for various continuous probability distributions using R software.</p> <p>CO5: Create time series, identifying stationarity, decompose time series and estimating trend using R software.</p>
<p>ST-MN-237T: Exploratory Data Analysis with Descriptive Statistics</p>	<p>CO1: Understand Likert scale, classification, frequency, order of a class, fundamental set of class frequencies and consistency of data.</p> <p>CO2: Understand independence and association of attributes, Yule's coefficient of association and numerical examples on it.</p> <p>CO3: Understand concept of bivariate data, correlation, types of correlation and methods of correlation such as scatter diagram, Karl Pearson's coefficient of correlation and Spearman's rank correlation coefficient.</p> <p>CO4: Understand concept of linear regression, fitting of regression lines and properties of regression coefficients.</p> <p>CO5: Understand non-linear regression models such as second-degree parabola, Pareto curve and exponential curve.</p> <p>CO6: Understand time series, component of time series, models of time series and exploration data analysis.</p> <p>CO7: Understand and compute method of trend estimation and smoothing.</p>

<p>ST-MN-238P Statistical Practical-I</p>	<p>CO1: Draw diagrams and graphs of statistical data.</p> <p>CO2: Prepare discrete and continuous frequency distributions.</p> <p>CO3: Draw random samples from various sampling methods.</p> <p>CO4: Compute and interpret measures of central tendency and dispersion for ungrouped and grouped data.</p> <p>CO5: Compute and interpret moments, skewness and kurtosis for ungrouped and grouped data.</p> <p>CO6: Visualize statistical data using MS-EXCEL.</p> <p>CO7: Compute measures of location and measures of dispersion using MS-EXCEL.</p>
<p>ST-MN-239T: Statistical Methods and Theory of Probability</p>	<p>CO-1: Compute the correlation coefficient for bivariate data and interpret it.</p> <p>CO-2: Fit linear, quadratic and exponential curves to the bivariate data to investigate relation between two variables.</p> <p>CO-3: Distinguish between random and non-random experiments.</p> <p>CO-4: Understand the basic concept of probability and obtain a probability distribution, mathematical expectation of discrete random variable (one or two dimensional) in the given situation.</p>
<p>ST-MN-239P Statistical Practical Course-I</p>	<p>CO-1: Use various graphical and diagrammatic techniques and interpretation.</p> <p>CO-2: Analyse data pertaining to discrete and continuous variables and to interpret the results,</p> <p>CO-3: Compute various measures of central tendency, dispersion, skewness and kurtosis.</p> <p>CO-4: Interpret summary statistics of computer output.</p> <p>CO-5: Summarize and analyse the data using computer.</p>
<p>ST-OE-201T: Statistical Methods and Basics of Probability</p>	<p>CO1: Compute various types of index numbers.</p> <p>CO2: Compute birth rates, death rates and population growth rates.</p> <p>CO3: understand experiments, sample space, events, definitions of probability based on finite infinite sample space.</p> <p>CO4: conditional probability and independence of an event.</p>
<p>Semester IV</p>	
<p>ST-MJ-241T: Continuous Probability Distributions-II</p>	<p>CO1: Understand concept of gamma random variable and how to apply it to solve real life problems.</p> <p>CO2: Understand concepts of the beta distribution of first kind and second kind and its applications</p> <p>CO3: Compute probabilities of the Cauchy distribution and know how to apply it</p>

	<p>to solve problems.</p> <p>CO4: Know concept and applications of the Weibull distribution.</p> <p>CO5: Compute probabilities of the Pareto distribution.</p>
<p>ST-MJ-242T: Tests of Hypotheses-I</p>	<p>CO1: Know and understand the basic terms of the test of hypothesis.</p> <p>CO2: Understand the tests for population means and population proportions.</p> <p>CO3: Understand the tests based on the chi-square distribution.</p> <p>CO4: Understand the tests based on the t-distribution.</p> <p>CO5: Understand the tests based on the F-distribution.</p>
<p>ST-MJ-243T: Sampling Distributions and Statistical methods</p>	<p>CO1: Understand concept of the chi-square distribution, compute probability and apply it to solve real life problems.</p> <p>CO2: Understand concept of the t-distribution and solve real life problems.</p> <p>CO3: Compute probabilities of the F-distribution</p> <p>CO4: Fit multiple linear regression models.</p>
<p>ST-MJ-244P: Statistical Practical-II</p>	<p>CO1: Understand concept of gamma random variable and how to apply it to solve real life problems.</p> <p>CO2: Understand concepts of the beta distribution of first kind and second kind and its applications</p> <p>CO3: Compute probabilities of the Cauchy distribution and know how to apply it to solve problems.</p> <p>CO4: Know concept and applications of the Weibull distribution.</p> <p>CO5: Compute probabilities of the Pareto distribution.</p>
<p>ST-SEC-245P: Basics of Python</p>	<p>CO-1: Install Python on laptop and computer.</p> <p>CO-2: Write Python codes using various operators.</p> <p>CO-3: Understand data types in Python.</p> <p>CO-4: Write Python programs using various loops.</p> <p>CO-5: Write programs using strings, tuples, lists and dictionary.</p> <p>CO-6: Understand numeric Python and Pandas.</p>
<p>ST-MN-247T: Elementary Probability Theory and Discrete Probability Distributions</p>	<p>CO-1: Distinguish between random and non-random experiments. Understand the basic concept of probability.</p> <p>CO2: Compute probability of an event using classical and axiomatic definitions of probability.</p> <p>CO-3: Compute conditional probability and check independence of random variables</p> <p>CO-4: Obtain a univariate probability Distribution,</p> <p>CO-5: Compute mathematical expectation of discrete random variable in the given situation.</p>

ST-MN-248P Statistical Practical-II	<p>CO1: Compute correlation coefficient, plotting scatter diagram and fitting regression lines.</p> <p>CO2: fit second-degree parabola and exponential type curves.</p> <p>CO3: estimate trend using exponential smoothing and moving averages methods.</p> <p>CO4: estimate trend by using linear, parabolic, exponential and Pareto curves.</p> <p>CO5: apply Bayes theorem in real life situations and compute probability of an event using additional and multiplication theorems.</p> <p>CO6: fit of binomial distribution and generate samples from binomial distribution.</p> <p>CO7: Compute correlation coefficient, plotting scatter diagram and fitting regression lines using MS-Excel.</p>
ST-MN-249T Discrete Probability Distributions	<p>CO-1: Understand concepts the uniform and Bernoulli's probability distributions and its application in real life.</p> <p>CO2: Know concepts of the binomial and hypergeometric distributions.</p> <p>CO3: Understand concepts of the Poisson, geometric and negative binomial distributions and how to apply these distributions in real life situations.</p> <p>CO4: Know concept of a random variable, joint probability mass function and joint distribution function.</p> <p>CO5: Check independence of random variables.</p> <p>CO6: apply various discrete probability distributions in real life situation.</p>
ST-MN-249P Statistical Practical Course II	<p>CO-1: Compute correlation coefficient, regression coefficients.</p> <p>CO-2: Compute probabilities of bivariate distributions.</p> <p>CO-3: Fit binomial and Poisson distributions.</p> <p>CO-4: Compute probabilities of bivariate distributions.</p> <p>CO-5: Draw random samples from Poisson and binomial distributions.</p>
ST-OE-202P Statistical Practical Course	<p>CO1: Compute various types of index numbers.</p> <p>CO2: Compute birth rates, death rates and population growth rates.</p> <p>CO3: understand experiments, sample space, events, definitions of probability based on finite infinite sample space.</p> <p>CO4: conditional probability and independence of an event.</p>
SEM.V	
ST - 351 Distribution Theory -I	<p>CO-1. Learn beta distribution of first and second kind.</p> <p>CO-2. Understand concept of order statistics.</p> <p>CO- 3. Learn of Cauchy distribution</p> <p>CO-4. Solve examples based on Chebychev's inequality.</p> <p>CO-5 Understand applications of Central limit theorem and WLLN</p>
ST-352 Theory of	<p>CO-1. Understand types of estimation</p>

Estimation	<p>CO-2. Learn methods of estimation based on likelihood function.</p> <p>CO- 3. Learn properties of estimator like unbiasedness, Sufficiency and efficiency</p> <p>CO-4. Understand asymptotic behavior of estimators and concept of consistency.</p>
ST-353 Design and analysis of experiments	<p>CO-1. Understand concept and technique of ANOVA with CRD, RBD and LSD</p> <p>CO-2 learns basic principles of design of experiments.</p> <p>CO-3. Compare efficiency of CRD, RBD and LSD.</p> <p>CO-4. Learn 2^2 ,2^3 factorial experiments and confounding technique.</p>
ST-354 Statistical Process and Product Control	<p>CO-1. Concept of SQC and Seven Process control tools</p> <p>CO-2 Understand Control charts with 3 sigma limits and lack of control situations.</p> <p>CO-3. Draw control charts for variable and attribute.</p> <p>CO-4. Learn process capability analysis with capability ratio and indices.</p> <p>CO-5 Understand Acceptance sampling plans for attributes, Single and double sampling plans.</p>
ST-355 Operation research-I	<p>CO-1. Know history of Operation research</p> <p>CO-2 Solve linear programming Problem and concept of Duality theory</p> <p>CO-3. Solve transportation and assignment problems.</p> <p>CO-4. Learn CPM and PERT techniques</p>
ST-356 Regression Analysis	<p>CO-1. Write Simple Linear Regression Model with assumptions</p> <p>CO-2 Learn estimators and residual analysis</p> <p>CO-3. Write Multiple Linear Regression Model with assumptions</p> <p>CO-4. Learn regression parameters and residual diagnostics</p> <p>CO-5. Write Logistic Regression Model and model parameters</p> <p>CO-6. Understand AIC and BIC criteria for model selection</p>
ST-3510 Turbo C(practical course)	<p>CO-1. Learn C fundamentals</p> <p>CO-2 Run programm in C based on some arithmetic calculations</p> <p>CO-3. Learn control structures and run programmes in C on it</p> <p>CO-4. Learn concept of arrays and run programmes in C on it</p> <p>CO-5. Learn functions and runs some programmes in C on it</p> <p>CO-6. Use pointers to print address of stored variables</p>
ST-3511 Statistical Computing Using R Software(practical course)	<p>CO-1. Learn fundamentals of R</p> <p>CO-2 Run programmes based on diagrammatic representation in R software</p> <p>CO-3 Run programmes based on graphical representation in R software</p> <p>CO-4 Run programmes based on some arithmetic calculations in R software</p> <p>CO-5 Write programmes based on probability distribution in R software</p> <p>CO-6 Write programmes on Testing of hypotheses, ANOVA, Non-Parametric test in R software</p>

	CO-7 Learn commands; if, and, if...else, for loop etc.
ST-357-Practical Paper I	<p>CO-1 Solve examples on Chebychev's inequality, order statistics, CLT, WLLN</p> <p>CO-2. Draw model sample from Cauchy distributions</p> <p>CO-3. Learn construction of CI for population mean, population variance, population median and quartiles</p> <p>CO-4 Estimate moment estimator of truncated binomial and truncate poison distribution</p> <p>CO-5 Estimate parameter, test for significance of parameter, interval estimation, residual analysis for simple, multiple regression</p> <p>CO-5 Estimate parameter, test for significance of parameter, interval estimation Logistic regression</p> <p>CO-6 Learn simulation techniques for non-standard distributions</p> <p>CO-7 Learn Monte Carlo technique</p>
ST-358-Practical Paper II	<p>CO-1 Analyze and prepare ANOVA for CRD, RBD, LSD</p> <p>CO-2. Learn Tuckey's and Scheffe's procedure</p> <p>CO-3. Compare CRD, RBD, LSD using efficiency</p> <p>CO-4 Analyze and prepare ANOVA for CRD, RBD, LSD using Kruskal Walli's test</p> <p>CO-5 Learn ANOCOVA in CRD, RBD</p> <p>CO-6 Analyze 2^2 and 2^3 factorial experiments in RBD</p> <p>CO-7 Analyze 2^2 and 2^3 factorial experiments in RBD using Partial and Total confounding</p>
ST-359-Practical Paper III	<p>CO-1 Construct R and Xbar Chart, calculate probability of catching shift</p> <p>CO-2. Construct p-chart for fixed and variable sample size based on individual control limits</p> <p>CO-3. Draw OC curve, AOQ, AOQL, ATI Curve for single sampling plan</p> <p>CO-4. Draw OC curve, AOQ, AOQL, ATI, ASN Curve for Double sampling plan</p> <p>CO-5 Solve LPP using Simplex and Dual simplex method</p> <p>CO-6 Solve Transportation and Assignment problems</p> <p>CO-7 Solve problems on CPM and PERT</p> <p>CO-8 Learn cost benefit analysis</p>
SEMESTER - VI	
ST - 361 Distribution Theory -II	<p>CO-1. Learn Weibull distribution, Draw probability curve</p> <p>CO-2. Learn IFR and DFR for Weibull distribution.</p> <p>CO- 3. Learn Laplace distribution, MGF, CGF, Estimation of parameters.</p> <p>CO-4. Learn Log-Normal distribution, Moments, Applications in real life.</p>

	<p>CO-5. Learn Truncated Normal distribution, truncated at left below and right above b and both</p> <p>CO-6. Learn Pareto Distribution, Application in field of economics.</p> <p>CO-7. Learn Bivariate Normal distribution, Marginal and conditional distribution and application of distribution in real life</p>
<p>ST - 362 Testing Of hypothesis</p>	<p>CO-1. Understand Parametric tests M.P. Test, U.M.P.test and N-P lemma.</p> <p>CO-2. Construct likelihood ratio test for normal, Binomial and exponential distribution.</p> <p>CO- 3. Learn Nonparametric tests sign test, Wilcoxon Signed rank, Mann-Whitney test, Run test</p> <p>CO-4. Learn Kolmogorov-Smirnov test.</p>
<p>ST - 363 Sampling Theory</p>	<p>CO-1. Understand role of sampling surveys in research methodology.</p> <p>CO-2. Learn simple random Sampling techniques SRSWOR, SRSWR</p> <p>CO- 3. Learn SRSWOR, SRSWR for proportion.</p> <p>CO-4. estimate population mean and population total for SRSWOR and SRSWR</p> <p>CO-5. Learn Stratified random sampling, estimate population mean and population total.</p> <p>CO-6. Learn allocation methods such as Proportion, Neyman and optimum allocation</p> <p>CO-7. Learn Systematic saming and estimator of Population mean and population total.</p> <p>CO-8. Determine sample size for given margin of error and confidence coefficient.</p> <p>CO-9. learns ratio and regression methods of estimation for SRSWOR.</p>
<p>ST - 364 Introduction to Survival analysis</p>	<p>CO-1. learn concept of Ageing, No ageing, positive and negative ageing.</p> <p>CO-2. Learn life distributions for parametric distributions such as Weibull, Gamma, Lognormal, linear failure rate etc.</p> <p>CO- 3. write properties of exponential distribution.</p> <p>CO-4. learn concepts of censoring, types of censoring.</p> <p>CO-5 learns nonparametric estimation of survival function</p>
<p>ST - 365(A) Actuarial Statistics</p>	<p>CO-1. Understand role of insurance business in economy, understand role of statistics in insurance business</p> <p>CO-2. Learn survival function in actuarial notation and construction of life tables</p> <p>CO- 3. Calculate actuarial present value for n-year term ,endowment and whole life insurance payable at end of year of death</p> <p>CO-4. Learn concept of annuities and calculate actuarial present value for discrete life annuities due</p>

	<p>CO-5. Learn to compute fully discrete premium for n-year term, endowment and whole life insurance</p>
<p>ST - 366(B) Reliability Theory and applications</p>	<p>CO-1. Learn binary system of independent component-out of-n system, coherent structure function, Draw Reliability Block Diagram</p> <p>CO-2. Obtain path sets, cut sets, minimal path and cut sets</p> <p>CO-3. Learn reliability of coherent system , calculate it using minimal path and cut set</p> <p>CO-4. define hazard rate, survival function, IFR/DFR</p> <p>CO-5. Learn reliability concepts and reliability data</p> <p>CO-6. Construct CI for exponential distribution</p>
<p>ST - 3610 Introduction to Python(practical course)</p>	<p>CO-1. install python, understand python variables and basic operators</p> <p>CO-2. Understand input and output statements to run some basic programmes in python</p> <p>CO-3. Write programm using control structures and functions</p> <p>CO-4. Read config files in python.</p> <p>CO-5. Learn manipulating data: NumPy and pandas</p> <p>CO-6. Visualize data using matplotlib</p> <p>CO-7. Run programmes using Python</p>
<p>ST - 3611 Introduction to Data Analytics(practical course)</p>	<p>CO-1. Know data understanding and data mining process</p> <p>CO-2. Learn classification techniques</p> <p>CO-3. Learn concept of training and testing data with validation of model</p> <p>CO-4. Learn ANN, SVM, Clustering</p> <p>CO-5. Write and run programmes on data mining techniques using Python</p>
<p>ST-367- Practical Paper IV</p>	<p>CO-1 Draw model sample from Lapace distribution.</p> <p>CO-2. Fit long-distribution.</p> <p>CO-3. Solve problems on bivariate normal and Pareto distribution.</p> <p>CO-4. learns SPRT for binomial, Poisson, Normal and exponential distribution.</p> <p>CO-5. Solve problems on M.P.Test, U.M.P. Test and plot of power functions.</p> <p>CO-6. Solve problems on Nonparametric tests</p>
<p>ST-368-Practical Paper V</p>	<p>CO-1. Determine sample size for variable and attributes</p> <p>CO-2. Estimation of population mean and total for SRSWOR and SRSWR and C.I.</p> <p>CO-3. Estimation of population proportion and total for SRSWOR and SRSWR and C.I. For proportion.</p> <p>CO-4. Solve problems with cost and variance analysis.</p>

	<p>CO-5. Estimation of population mean and total for Stratified sampling.</p> <p>CO-6. Solve problems on ratio and regression methods</p> <p>CO-7. Estimate MLE for Gamma and Weibull distributions</p> <p>CO-8. estimates parameters of exponential distribution for type-I and type-II censored data.</p> <p>CO-9. solve problems on Kaplan-Meier estimator, Actuarial estimator.</p>
ST -369 Project	<p>CO-1. Identify the problem and objectives for project and finalization of title of project</p> <p>CO-2. Prepare questionnaire and collect data.</p> <p>CO-3. Visualize and represent data</p> <p>CO-4. Analyze data using Statistical Software's.</p> <p>CO-5. Interpret and conclude the results.</p>

DEPARTMENT OF ZOOLOGY

Programme Outcomes: B. Sc. Zoology

Programme outcomes: B.Sc. Zoology	
Department of Zoology	After successful completion of three-year program in Zoology a student is able to-
Programme outcomes	<p>PO1: Acquire comprehensive knowledge of core areas of Zoology including Genetics, Cell Biology, Human Physiology, Medical Zoology, Sericulture, Vermiculture and Applied Biological Sciences.</p> <p>PO2: Explain fundamental biological principles related to heredity, cell structure, physiology, disease mechanisms and applied zoological sciences.</p> <p>PO3: Apply logical reasoning and analytical skills to solve genetic problems, interpret experimental data and analyse biological processes.</p> <p>PO4: Demonstrate proficiency in laboratory techniques such as microscopy, blood analysis, karyotyping, staining techniques, haemocytometer usage, spectrophotometry, PCR and other biomedical tools.</p> <p>PO5: Use scientific methods, probability laws and experimental approaches to solve problems in genetics, physiology and applied biology.</p> <p>PO6: Apply zoological knowledge in medical diagnostics, livestock management, dairy processing, sericulture, vermicomposting and environmental management.</p> <p>PO7: Develop research aptitude through experimental work, data interpretation and understanding of biomedical and biotechnological applications.</p> <p>PO8: Acquire entrepreneurial skills in sericulture, vermiculture, dairy technology and other small-scale biological enterprises.</p> <p>PO9: Understand ecological balance, waste management, organic farming and sustainable practices through vermiculture and related applied sciences.</p> <p>PO10: Demonstrate ethical awareness in handling genetic information, biomedical data and environmental resources.</p> <p>PO11: Communicate scientific ideas effectively through reports, practical records, presentations and discussions.</p>

	<p>PO12: Prepare for higher education, competitive examinations, research careers, laboratory technician roles, healthcare services and applied biological industries.</p> <p>PO13: Develop technical competence in modern biological instruments and diagnostic procedures.</p>
<p>Program specific outcome</p>	
<p>Program specific outcome</p>	<p>PSO-1: Demonstrate comprehensive knowledge of core Zoology subjects including Genetics, Cell Biology, Human Physiology, Medical Zoology, Sericulture and Vermiculture.</p> <p>PSO-2: Apply principles of Mendelian and non-Mendelian genetics to analyse inheritance patterns, genetic disorders and chromosomal abnormalities.</p> <p>PSO-3: Perform and interpret laboratory experiments such as blood grouping, karyotyping, haemoglobin estimation, RBC/WBC counting, microscopy, staining techniques and urine analysis.</p> <p>PSO-4: Understand human anatomical systems, homeostatic mechanisms, nervous coordination and physiological processes.</p> <p>PSO-5: Develop skills in handling modern biomedical instruments such as microscope, spectrophotometer, PCR, ECG and haemocytometer.</p> <p>PSO-6: Apply knowledge of cell biology to understand cellular structure, organelles, chromatin organization and biomedical diagnostic techniques.</p> <p>PSO-7: Demonstrate applied knowledge in sericulture including mulberry cultivation, silkworm rearing, disease management and silk production.</p> <p>PSO-8: Develop practical expertise in vermiculture including earthworm biology, vermicompost production, waste management and organic farming applications.</p> <p>PSO-9: Understand dairy science fundamentals including milk processing, quality control, livestock management and small-scale dairy entrepreneurship.</p> <p>PSO-10: Analyse biological data using scientific reasoning, probability methods and experimental interpretation.</p> <p>PSO-11: Develop research aptitude and problem-solving skills in genetics, biomedical sciences and applied zoological fields.</p> <p>PSO-12: Apply zoological knowledge for entrepreneurship</p>

	<p>opportunities in sericulture, vermiculture, dairy technology and allied biological industries.</p> <p>PSO-13: Demonstrate awareness of environmental sustainability, organic farming practices and eco-friendly waste recycling methods.</p> <p>PSO-14: Exhibit ethical responsibility in handling genetic, medical and environmental information.</p> <p>PSO-15: Prepare for higher education, competitive examinations, research careers, laboratory technician roles, healthcare services and agricultural biotechnology sectors.</p> <p>PSO-16: Prepare for higher education, competitive examinations, research careers, laboratory technician roles, healthcare services and applied biological industries.</p>
Course Outcome	
SEM-I	
BS-ZO-111T: Genetics and Medical Zoology	<p>CO1: Apply Mendelian genetic principles to predict outcomes of genetic crosses, interpret pedigrees and understand the basics of genetic inheritance.</p> <p>CO2: Recognize and explain the inheritance patterns and molecular basis of common genetic disorders, including both Mendelian and complex traits.</p> <p>CO3: Understand the concept of non - Mendelian genetics.</p> <p>CO4: Concept and characteristics of multiple alleles, ABO blood group system, Inheritance of Rh antigen, Erythroblastosis fetalis and their medico legal importance.</p> <p>CO5: Understand the structure of chromosomes, chromatin and its types, giant chromosomes and chromosomal aberrations.</p> <p>CO6: Successfully solve genetic problems using Punnett squares, probability calculations and pedigree analysis.</p>
BS-ZO-112P: Practicals in Genetics and Medical Zoology (P)	<p>CO1: Calculate and interpret monohybrid, dihybrid, test and back cross ratios based on hypothetical data.</p> <p>CO2: Use collected data to understand the inheritance patterns of Mendelian traits.</p> <p>CO3: Identify and describe the chromosomal composition of a normal human karyotype.</p> <p>CO4: Perform blood typing and interpret blood group results.</p> <p>CO5: Perform to understand the study of facultative heterochromatin</p>

	<p>from humans.</p> <p>CO6: Learn an experiment to know the structure of polytene chromosomes.</p>
<p>OE-ZO-01: मानवी शरीर आणि अभ्यास</p> <p>OE-ZO-01P: मानवी शरीर आणि अभ्यास</p>	<p>CO1- विद्यार्थी मानवी शरीराच्या विविध अवयवांचे स्थूल आकारशास्त्र, रचना आणि कार्य स्पष्ट करू शकतात.</p> <p>CO2- विविध होमिओस्टॅटिक यंत्रणा आणि त्यांचे असंतुलन परिचय करून घेता येईल.</p> <p>CO3- मानवी शरीराच्या विविध प्रणालीचे विविध ऊतक आणि अवयव ओळख करून घेतील.</p> <p>CO4- विशेष संवेदना आणि मज्जासंस्थेशी संबंधित विविध प्रयोग करतील.</p> <p>CO5- प्रत्येक प्रणालीच्या वेगवेगळ्या अवयवांच्या समन्वित कार्य पद्धतीची माहिती करून देतील</p>
<p>SEC-ZO-113T: Vermiculture Management (T)</p>	<p>CO1: Acquire a critical knowledge on the role of earthworms in making organic matter from biodegradable wastes.</p> <p>CO2: Understand the biology of some important species of earthworms used in vermiculture.</p> <p>CO3: Acquire skills in production of vermicompost.</p> <p>CO4: Explain benefits and problems with vermiculture and vermicompost.</p> <p>CO5: Become an entrepreneur by culturing earthworms.</p> <p>CO6: Acquire a knowledge about life cycle of earthworm.</p> <p>CO7: Understand economics importance of earthworm.</p> <p>CO8: Identify enemies and diseases of earthworm.</p>
SEM-II	
<p>BS-ZO-121T Cell Biology and Biomedical Techniques (T)</p>	<p>CO1: Farming aspects in livestock so as to prepare themselves for future prospectus.</p> <p>CO2: Study of various diseases & disorders in livestock.</p> <p>CO3: Processing market milk in dairy plants.</p> <p>CO4: Understand methods of manufacture and uses of standardized special milk.</p> <p>CO5: Learn methods of manufacture and uses of special milk of plants/vegetable origin.</p> <p>CO6: Understand chemical composition, properties and applications of dairy products.</p> <p>CO7: Aware about purity of dairy products.</p> <p>CO8: Explore a small-scale dairy business.</p>

<p>BS-ZO-112P - Practicals in Cell Biology & Biomedical Techniques (P)</p>	<p>CO1: Learn to visualize animal and plant cell under microscope.</p> <p>CO2: Understand principles and workings of simple, compound microscopes.</p> <p>CO3: Acquire the skills to accurately measure microscopic objects using micrometry.</p> <p>CO4: Staining and visualization of mitochondria by Janus green stain.</p> <p>CO5: Estimate Hemoglobin using Sahli's haemometer.</p> <p>CO6: Perform RBC counting blood by using hemocytometer.</p> <p>CO7: Perform WBC counting blood by using hemocytometer.</p> <p>CO8: Study of human blood smear to observe different types of blood cells.</p> <p>CO9: Study of principle & working of Spectrophotometer, PCR and ECG.</p> <p>CO10: Work as a laboratory technician to do urine analysis - normal and abnormal.</p>
<p>OE-ZO-02 Sericulture रेशीम शेती / रेशीम उद्योग (P)</p>	<p>CO1: रेशीम उद्योगाची (Sericulture) संकल्पना परिचित करून देणे.</p> <p>CO2: रेशीम कीटकांच्या संगोपन पद्धती व संबंधित साधनांची माहिती समजावून सांगणे.</p> <p>CO3: रेशीम कीटकांच्या रोगांची माहिती करून घेणे व त्यावरील नियंत्रण उपाय शिकणे.</p> <p>CO4: तुती (Mulberry) बाग स्थापन करणे व तुती प्रक्रियेची माहिती देणे.</p> <p>CO5: रेशीम कीटकांच्या जी वनचक्र व लैंगिक द्विरूपता (Sexual dimorphism) स्पष्ट करणे.</p> <p>CO6: जैव वैद्यकीय व जैवतांत्रिक क्षेत्रातील संशोधनाबाबत ज्ञान संपादन करणे.</p> <p>CO7: रेशीम उद्योगातील विविध अनुप्रयोगांविषयी माहिती मिळवणे.</p> <p>CO8: स्वतःचा रेशीम उद्योग व्यवसाय सुरू करण्यासाठी आवश्यक ज्ञान व कोशल्ये विकसित करणे.</p>
<p>SEC-ZO-113P- Vermiculture Management</p>	<p>CO1: Acquire a knowledge on role of earthworms in making vermicompost.</p> <p>CO2: Understand the internal structure of earthworms used in vermiculture.</p> <p>CO3: Acquires skills on production of vermin compost.</p> <p>CO4: Able to prepare small scale and large-scale vermin composting units.</p> <p>CO5: Become an entrepreneur by culturing earthworms.</p> <p>CO6: Able to produce allied products.</p>

SEM. III	
BS-ZO-231T - Animal Systematic I	<p>CO1: Know about classification and identification of the diversity of animals.</p> <p>CO2: Understands the importance of classification of animals and classifies them effectively using the Six levels of classification.</p> <p>CO3: Knows his role in nature as a protector, preserver and promoter of life which he has achieved by learning, observing and understanding life.</p> <p>CO4: Understands the economic importance of different, Protozoans, Poriferans, Platyhelminthes.</p>
BS-ZO-232T-Techniques in Applied Zoology	<p>CO1: Understands the basics of beekeeping tools, equipment and managing beehives.</p> <p>CO2: Knows about the basic information about fishery, cultural and harvesting methods of fish and fish preservation techniques.</p> <p>CO3: Learn biology, varieties of silkworms and the basic techniques of silk production.</p> <p>CO4: Understands the types of agricultural pests, Major insect pests of agricultural importance and Pest</p>
BS-ZO-233P- Zoology Practical Paper- I	<p>CO1: Understand the basic invertebrate classification system</p> <p>CO2: Getting the knowledge of salient features and general characteristic of invertebrate.</p> <p>CO3: Know about different tools and techniques used in dairy science and poultry science.</p> <p>CO4: Acquire the knowledge of basic handling and use of tools used in sericulture and vermiculture.</p>
MN-ZO-234T- Food Nutrition and Health	<p>CO1-Describe the nutritive value and composition of milk. Identify the various breeds of cattle.</p> <p>CO2-Understand the challenges in management and setting of dairies, Distinguish the cattle breed.</p> <p>CO3-Apply the knowledge of management of dairy to improve the business profit. Implement the dairy business.</p> <p>CO4-Explain history and future of dairy industry, Distribution map of dairy farming areas/ major milk producing regions in India.</p>
MN-ZO-235P- Practicals in Food Nutrition and Health	<p>CO1. Demonstrate Knowledge of Food Classification: Classify foods based on the food pyramid and food groups, recognizing their significance in daily nutrition.</p>

	<p>CO2. Explain the Role of Micronutrients in Health and Disease: Assess the impact of vitamins and minerals on metabolism, immune function and disease prevention.</p> <p>CO3. Apply Analytical Methods for Nutrient Estimation: Conduct laboratory experiments to determine micronutrient levels in food samples using standard techniques.</p> <p>CO4. Develop Diet Plans Based on Nutritional Requirements: Design balanced diets considering micronutrient needs for different age groups and physiological conditions.</p>
<p>OE-ZO-03T- Biodiversity and Wildlife Conservation जैवविविधता आणि वन्यजीव संवर्धन</p>	<p>CO1: विद्यार्थी जैवविविधतेची संकल्पना, प्रकार (जनुकीय, प्रजाती व परिसंस्था विविधता) आणि तिचे पर्यावरणीय व आर्थिक महत्त्व स्पष्ट करू शकतील.</p> <p>CO2: विद्यार्थी जैवविविधतेला असलेले धोके (जंगलतोड, प्रदूषण, हवामान बदल, नाक्रमक प्रजाती इ.) ओळखून त्यांचे विश्लेषण करू शकतील.</p> <p>CO3: विद्यार्थी वन्यजीव संवर्धनाच्या पद्धती, संरक्षित क्षेत्रांची भूमिका तसेच वन्यजीव रक्षण अधिनियम १९७२ या सारख्या कायदांचे महत्त्व समजावून सांगू शकतील.</p> <p>CO4: विद्यार्थी जैवविविधता संवर्धनासाठी शाश्वत विकास, लोकसहभाग, जनजागृती आणि समुदाय आधारित संरक्षण उपक्रमांची अंमलबजावणी करण्याबाबत जागरूक व सक्षम होतील.</p>
<p>ZO-VSC 235T- Ethology and Epidemiology</p>	<p>CO1. Able to understand the basic invertebrate classification system.</p> <p>CO2. Getting the knowledge of salient features and general characteristic of invertebrate.</p> <p>CO3. Learning about the processes of Paramecium culture.</p> <p>CO4. Able to know about different tools and techniques used in dairy science and poultry science.</p>
<p>IKS-ZO-236T</p>	<p>CO1. Define and explain the principles of ethno-veterinary science, highlighting its historical development, cultural significance and distinctions from conventional veterinary practices.</p> <p>CO2. Demonstrate an understanding of traditional veterinary practices worldwide, with specific knowledge about regional variations and articulate how indigenous knowledge is passed down through generations.</p> <p>CO3. Analyze and apply traditional diagnostic methods and treatment approaches in veterinary care, including the use of plant-based, mineral-based and ritualistic remedies.</p> <p>CO4. Design and conduct research in ethno-veterinary science, focusing on the evaluation and standardization of traditional remedies and their</p>

	integration with contemporary veterinary science.
SEMESTER IV	
BS-ZO-241T- Animal Systematic II	<p>CO 1- Understand the animal kingdom in detail.</p> <p>CO 2 - Describe the taxonomic position of Protochordate to Mammalia.</p> <p>CO 3 - Classify invertebrates and to be able to understand the possible group of the invertebrate observed in nature.</p> <p>CO 4 - Explain our role as a caretaker and promoter of life.</p>
BS-ZO-242T- Animal Physiology	<p>CO1- Getting knowledge of physiological organ-systems and their importance to the integrative functions of the human body.</p> <p>CO2- Understand Concept of energy requirements, various aspects of Digestive physiology.</p> <p>CO3- Understand Respiratory mechanism and gases transport, circulatory system with medical conditions</p> <p>CO4- Eliminations of waste materials from the body develop understanding in Structure and functions of muscles.</p>
BS-ZO-243P- Zoology Practical-I	<p>CO1. Understanding of the mechanisms behind various physiological processes in animals, including homeostasis, metabolism and neurophysiology.</p> <p>CO2. Enable students to apply theoretical concepts in physiology to experimental setups and real- life biological systems.</p> <p>CO3. Development of critical thinking and problem-solving skills related to physiological challenges in animals.</p> <p>CO4. Acquire the knowledge of Economically important insects and some pests.</p>
MN-ZO-244T- Fresh Water Management Techniques	<p>CO1. Understand the characteristics and types of freshwater bodies.</p> <p>CO2. Assess the Water Quality, Methods for sampling and analyzing water quality.</p> <p>CO3. Knows fish biology and physiology, fishery resource assessment and management.</p> <p>CO4. Use statistical tools for data analysis for freshwater studies, Emerging Issues in Freshwater Management.</p>
ZO-MN-245P- Fresh Water Biology	<p>CO1. Understand the water quality analysis for its physical, chemical and biological indicators, freshwater zooplanktons, macro-vertebrates and fish.</p> <p>CO2. Describe the water temperature of different ecosystems.</p> <p>CO3. Evaluate per capita domestic water consumption pattern.</p>

	CO4. Determine water quality on basis of odor and color of fresh water.
OE-ZO-04P- Pest and Disease Vector Management	<p>CO1: विद्यार्थी कीड व रोगवाहकांची (उदा. डास, माशा, उंदीर इ.) ओळख, वर्गीकरण, जीवनचक्र आणि त्यांची पर्यावरणीय व आरोग्यविषयक भूमिका स्पष्ट करू शकतील.</p> <p>CO2: विद्यार्थी कीड व रोगवाहकांमुळे पसरणारे रोग (उदा. मलेरिया, डेंग्यू, चिकुनगुनिया इ.) यांची कारणे, प्रसार पद्धती व परिणामांचे विश्लेषण करू शकतील.</p> <p>CO3: विद्यार्थी एकात्मिक कीड व्यवस्थापन (IPM) आणि एकात्मिक वाहक व्यवस्थापन (IVM) यांची तत्वे समजावून सांगून त्यांचा प्रत्यक्ष उपयोग स्पष्ट करू शकतील; तसेच जागतिक आरोग्य संघटना यांच्या मार्गदर्शक तत्वांचे महत्त्व सांगू शकतील.</p> <p>CO4: विद्यार्थी रासायनिक, जैविक, यांत्रिक व सांस्कृतिक नियंत्रण पद्धतींची तुलना करून योग्य व्यवस्थापन धोरण निवडण्यास व समुदाय स्तरावर जनजागृती करण्यास सक्षम होतील.</p>
VSC-ZO-246T- Bioinformatics	<p>CO1. Define basic bioinformatics concepts such as sequence alignment, databases and tools used for data analysis.</p> <p>CO2. Understand the patenting process and the types of intellectual property relevant to bioinformatics.</p> <p>CO3. Identify and understand the key ethical challenges in bioinformatics, such as data privacy and research integrity.</p> <p>CO4. Utilize bioinformatics tools for analyzing biological data and interpreting results in real-world applications.</p>
SEC-ZO-247P- Practical's in Biochemistry and Serology	<p>CO1. Develop proficiency in standard biochemical laboratory techniques.</p> <p>CO2. Students will be able to perform and interpret common biochemical tests for carbohydrates, proteins and lipids.</p> <p>CO3. Students will be able to determine blood groups using standard serological techniques.</p> <p>CO4. To foster critical thinking and problem-solving skills in a biochemical context.</p>
SEM-V	
ZO-351: Pest Management	<p>CO-1. Define pest management, Describe the economic, ecological, and sociological benefits of IPM.</p> <p>CO-2. Distinguish positive and negative impacts of pesticide use, understand problems resulting from misuse, overuse, and abuse of chemical pesticides.</p> <p>CO-3. Define and describe pesticide resistance and how it develops and identify ecological and biological characteristics important in</p>

	<p>development of pest populations.</p> <p>CO-4. Identify 10 tactics commonly used in IPM and be able to distinguish them.</p> <p>CO-5. Understand society's role in IPM decisions and different groups of pests and compare them to weeds and plant pathogens.</p>
ZO-352: Histology	<p>CO-1. The students will be able to understand, classify and identify the different types of tissue.</p> <p>CO-2. The students will understand the complexity of various tissues in an organ.</p> <p>CO-3. The students will be able to learn structure & functions of various tissues.</p> <p>CO-4. The students will understand the various diseases related to organs.</p> <p>CO-5. The student will be able to know the role of glands in mammals.</p>
ZO-353: Biological Chemistry	<p>CO-1. Learners shall be able to understand basic concepts and significance of biochemistry</p> <p>CO-2. The students will learn about the pH and Buffers.</p> <p>CO-3. The students will learn about the chemical structures of carbohydrates, and their biological and clinical significance.</p> <p>CO-4. The students will be able to understand, interpret structure and importance of proteins, carbohydrates and lipids</p> <p>CO-5. Learners will be able to comprehend variations in enzyme activity and kinetics</p>
ZO-356: Parasitology	<p>CO-1. The students will be able to learn about basics and scope of parasitology.</p> <p>CO-2. The students will be able to learn the types of host and parasite with examples.</p> <p>CO-3. The students will be able to learn about the morphology, life cycle, pathogenicity and treatment of common parasites (Protists and Platyhelminthes).</p> <p>CO- 4. The students will be able to learn about host-parasite relationships and their effects on host body.</p> <p>CO-5. The students will be able to learn about the arthropod parasites and their role as vector.</p>
SEM-VI	

<p>ZO-3511: Poultry Management</p>	<p>CO-1. The students will be able to understand the Poultry farming practices.</p> <p>CO-2. The students will be able to understand the poultry breeding techniques.</p> <p>CO- 3. The students will be able to understand poultry rearing techniques.</p> <p>CO-4. The students will be able to understand feeding requirements and food ingredients.</p> <p>CO- 5. The students will be able to understand the poultry disease and their pathogens.</p> <p>CO-6. The students will be able to understand market value of poultry products.</p>
<p>ZO-361: Medical & Forensic Zoology</p>	<p>CO-1. The students will be able to understand the basics principles of Medical and Forensic Zoology.</p> <p>CO-2. The students will be able to understand scientific methods in crime detection.</p> <p>CO-3. The students will be able to understand the advancements in the field of Medical and Forensic Zoology.</p> <p>CO-4. The students will be able to understand modern tools, techniques and skills in forensic investigations.</p> <p>CO-5. The students will be able to describe the fundamental principles and functions of forensic science and its significance to human society.</p>
<p>ZO-362: Animal Physiology</p>	<p>CO-1. The various physiological organ-systems and their importance to the integrative functions of the human body.</p> <p>CO-2. Understand Concept of energy requirements</p> <p>CO-3. Various aspects of Digestive physiology.</p> <p>CO-4. Circulatory system with medical conditions</p> <p>CO-5. Understand Respiratory mechanism and gases transport.</p> <p>CO-6. Elimination of waste materials from the body.</p> <p>CO-7. Develop understanding in Structure and functions of muscles</p> <p>CO-8. Understand formation of gametes and function of endocrine glands.</p>
<p>ZO-363: Molecular Biology</p>	<p>CO-1. Learners shall get an insight into molecular mechanisms of various biological processes in cells and organisms</p> <p>CO-2. Learners shall get an insight into the Structure of DNA and RNA, DNA and RNA as genetic material</p>

	<p>CO-3. The course shall prepare learners to get insight into the Central Dogma of Molecular Biology</p> <p>CO-4. Learners should also understand the concept of gene regulation</p> <p>CO-5. Learner shall get an insight into DNA Damage and Repair</p>
ZO-364: Entomology	<p>CO-1. Understand basic concepts in Entomology and its scope.</p> <p>CO-2. Learn morphology and anatomy of Insects.</p> <p>CO-3. Understand the concept of social organization in Insects.</p> <p>CO-4. Understand the development process of Insects.</p> <p>CO-5. Identify disease causing insect vectors.</p> <p>CO-6. Will be able to design and implement pest controlling methods against pests.</p>
ZO-366: Evolutionary Biology	<p>CO-1. Students will be able to learn most of the essential aspects of Evolutionary Biology in detail which will help them in acquiring better understanding regarding the subject.</p> <p>CO-2. Explain important processes, principles and concepts and critically evaluate theories and empirical research within evolutionary biology</p> <p>CO-3. Apply evolutionary theory and concepts to address empirical and theoretical questions in evolutionary biology.</p> <p>CO-4. Independently investigate evolutionary questions using literature and analyses of empirical data.</p> <p>CO-5. Communicate the principles, theories, problems and research results associated with questions that lie within the evolutionary framework to students.</p>

Programme Outcomes: M. Sc. Zoology

Department of Zoology	After successful completion of two-year degree program in Zoology a student is able to:
Programme Outcomes	<p>A Postgraduate of this program are expected to:</p> <p>PO1: Acquire comprehensive knowledge in entomology, physiology, immunology, ecology, evolution, environmental biology, animal behaviour, and applied zoology.</p> <p>PO2: Explain structural, functional, developmental, evolutionary, and ecological principles governing animal life.</p> <p>PO3: Demonstrate proficiency in dissection, histology, hematology, immunological techniques, ecological estimation methods, and insect rearing.</p> <p>PO4: Design, conduct, analyze, and interpret biological research using appropriate experimental and statistical tools.</p> <p>PO5: Conduct field surveys, biodiversity assessments, ecological studies, and environmental impact analysis.</p> <p>PO6: Apply zoological knowledge in pest management, apiculture, sericulture, reproductive biology, veterinary practices, and environmental management.</p> <p>PO7: Understand ecosystem functioning, conservation biology, pollution control, and sustainable resource management.</p> <p>PO8: Follow professional ethics, laboratory safety, bioethics, wildlife protection laws, and social responsibility in scientific practices.</p> <p>PO9: Analyze biological problems, interpret scientific data, and develop logical solutions to ecological, medical, and agricultural issues.</p> <p>PO10: Prepare for higher education, research careers, entrepreneurship, and employment in life sciences, environmental agencies, veterinary services, and applied biological sciences.</p>

Programme Specific Outcomes: M. Sc. Zoology

Department of Zoology	After successful completion of two-year degree program in Zoology a student is able to:
Programme Specific Outcomes	<p>PSO1: Classify insects, understand their morphology, physiology, development, and apply knowledge in pest management and economic entomology.</p> <p>PSO2: Explain reproductive physiology, hormonal regulation, embryology, and</p>

	<p>apply assisted reproductive techniques.</p> <p>PSO3: Apply immunological principles and laboratory techniques such as antigen-antibody reactions, electrophoresis, blood grouping, and immune response analysis.</p> <p>PSO4: Interpret ecological interactions, evolutionary theories, human evolution, and adaptation mechanisms.</p> <p>PSO5: Perform water quality analysis, bioindicator studies, pollutant impact assessment, and environmental remediation planning.</p> <p>PSO6: Analyse animal and human behaviour patterns, stress responses, and ecological aspects of behaviour.</p> <p>PSO7: Plan and execute research projects, collect and analyse data, and prepare scientific reports and dissertations.</p> <p>PSO8: Develop practical skills in dairy science, animal husbandry, artificial insemination, and veterinary basics.</p> <p>PSO9: Perform enzyme assays, haematological tests, biochemical estimations, and physiological experiments.</p> <p>PSO10: Apply zoological knowledge in apiculture, sericulture, pest control industries, environmental consultancy, and allied biological enterprises.</p>
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Course Outcomes: M. Sc. Zoology

Course	Outcomes
	After completion of these courses' students should be able to;
Semester – I	
ZOUT-111: Biochemistry and Biochemical Techniques	<p>CO-1. Define basic terms in biochemistry and biochemical techniques.</p> <p>CO-2. Explain the applications of the various biochemical techniques.</p> <p>CO-3. Explain the structure and functions of various biomolecules.</p> <p>CO-4. Explain the importance of tools and techniques in biology.</p> <p>CO-5. Illustrate the importance of pH, buffer and water in living systems.</p> <p>CO-6. Illustrate the principle, working and applications of basic techniques used in biology</p>
ZOUT-111: Biochemical techniques	<p>CO-1. Explain the importance and applications of techniques in biochemistry.</p> <p>CO-2. Explain the principles and applications of various chromatographic techniques with examples.</p> <p>CO-3. Explain the principle, working, materials used and applications of electrophoresis.</p> <p>CO-4. Describe the concept of light, electromagnetic spectrum and its application in absorption spectroscopy.</p>

	CO-5. Justify the applications of radioactivity compounds in biology.
ZOUT-112: Cell Biology and Developmental Biology	<p>CO-1. Label the various cell parts</p> <p>CO-2. Sketch and label various types of cells and cell organelles.</p> <p>CO-3. Explain carbon as backbone of biomolecules.</p> <p>CO-4. Explain the ultrastructure and functions of various cell organelles.</p> <p>CO-5. Explain the concepts of cell signaling.</p> <p>CO-6. Illustrate the chemistry and organization of cytoskeleton.</p> <p>CO-7. Illustrate the types, development and causes of tumor.</p> <p>CO-8. Diagrammatically represent the cell cycle phases and its regulation.</p> <p>CO-9. Define the terms in developmental biology</p> <p>CO-10. Explain the significance of model organism for developmental Studies.</p>
ZOUT-113: Genetics and English in Scientific Communication	<p>CO-1. Define the basic terminologies in genetics.</p> <p>CO-2. Identify genetic disorders based on Karyotypes and traits.</p> <p>CO-3. Explain the concept of Mendelian genetics, gene, gene regulation and multiple alleles.</p> <p>CO-4. Discuss Linkage and crossing with their types and significance.</p> <p>CO-5. Explain the principles of Population genetics.</p> <p>CO-6. Illustrate the modified Mendelian laws of inheritance.</p> <p>CO-7. Justify the inheritance of qualitative and quantitative traits.</p>
ZODT-114: Freshwater Zoology	<p>CO-1. Enlist the diagnostic features of shrimps.</p> <p>CO-2. Explain the types of aquatic habitats.</p> <p>CO-3. Discuss the aquatic adaptations of common freshwater forms.</p> <p>CO-4. Explain the adaptations in freshwater Turtles and Crocodiles.</p> <p>CO-5. Illustrate the physicochemical properties of water.</p> <p>CO-6. Demonstrate the effect of pollutants on freshwater bodies</p> <p>CO-7. Justify the presence of zooplanktons and aquatics forms in freshwater bodies.</p>
	<p>CO-1. Identify the developmental stages of chick embryo, cell structures and phases of cell division</p> <p>CO-2. Identify the grammatical mistakes from the given paragraph and common errors in written and spoken presentations.</p> <p>CO-3. Write a scientific project and research article along with its</p>

<p>ZOUP-115: Basic Zoology Lab-1. (Practical)</p>	<p>proof reading.</p> <p>CO-4. Demonstrate the working of different microscopes, colorimetric and spectrophotometric methods, cell fractionation and ligature in Drosophila larvae</p> <p>CO-5. Determine the gene distance and order, genotype and phenotype ratios and allelic frequencies from the given data.</p> <p>CO-6. Estimate sugar and protein by suitable biochemical method, and isolate protein from biological sources.</p> <p>CO-7. Prepare acid and base solutions of desired strength, buffers, bacterial Culture, chick embryo culture and Drosophila culture.</p> <p>CO-8. Prepare temporary slide of various cells to demonstrate the cell morphology and cell division, giant chromosome and pedigree analysis chart.</p> <p>CO-9. Calculate % retention and % illusion of amino acids on given ion exchanger.</p>
<p>ZODP-114: Practical Freshwater Zoology</p>	<p>CO-1. Identify commercially important freshwater fish.</p> <p>CO-2. Identify the aquatic adaptations in common freshwater forms.</p> <p>CO-3. Prepare the culture of Paramecium and Daphnia.</p> <p>CO-4. Estimate the hardness and chloride content in water samples.</p> <p>CO-5. Analyze the Zooplanktons from local freshwater bodies.</p>
<p>Semester – II</p>	
<p>ZOUT-121- Molecular Biology and Bioinformatics</p>	<p>CO-1. Explain the DNA structure & types, topology, Physical properties, chromatin structure and organization.</p> <p>CO-2. Discuss genome organization, DNA and Protein sequencing with their application in evolutionary studies.</p> <p>CO-3. Explain the mobile DNA elements.</p> <p>CO-4. Explain mechanism of DNA damage and repair.</p> <p>CO-5. Illustrate the process of DNA replication, transcription, translation and regulations.</p> <p>CO-6. Illustrate the database tools with their significance.</p> <p>CO-7. Schematically represent the processes of central dogma.</p> <p>CO-8. Justify the post translational and post transcriptional modifications.</p>
	<p>CO-1. Discuss the roles of Pituitary gland and pineal body.</p>

<p>ZOUT-122: Endocrinology and Parasitology</p>	<p>CO-2. Explain hormonal regulation of biomolecules and mineral metabolism.</p> <p>CO-3. Describe the role of osmoregulatory and gastrointestinal hormones.</p> <p>CO-4. Explain the role of hormones in moulting, change in body color of crustaceans; yolk synthesis in amphibians; insect development.</p> <p>CO-5. Explain the hormonal regulation of metabolism.</p> <p>CO-6. Illustrate the mechanism of hormone action and role of hormone receptors.</p> <p>CO-7. Justify hormones as coordination molecules.</p> <p>CO-8. Justify the significance of biological clocks and rhythms.</p>
<p>ZOUT-123: Comparative Animal Physiology & Environmental Biology</p>	<p>CO-1. Explain the physiology of processes like digestion, respiration, muscle contraction and excretion.</p> <p>CO-2. Describe the mechanism of thermoregulation in both poikilotherms and homeotherms.</p> <p>CO-3. Explain the mechanism of chemical communication in vertebrates.</p> <p>CO-4. Comment on the structure and functions of various sense organs.</p> <p>CO-5. Illustrate the concept of osmotic regulation in various animals with suitable examples.</p> <p>CO-6. Compare the physiology of regulatory mechanisms in various groups of animals.</p> <p>CO-7. Justify the survival strategies of organisms in varied climatic conditions</p> <p>CO-8. Justify the evolution of various life processes in living forms.</p>
<p>ZODT-124: Metabolic Pathways</p>	<p>CO-1. Define basic terminologies of metabolic pathways.</p> <p>CO-2. Explain the laws of thermodynamics, concept of free energy and ATP as currency molecule.</p> <p>CO-3. Describe the Concepts and regulation of metabolism.</p> <p>CO-4. Discuss the oxidation of fatty acids and its significance.</p> <p>CO-5. Illustrate the electron transport chain and oxidative phosphorylation.</p> <p>CO-6. Illustrate the reactions, energetics and regulation of glycolysis, glycogen biosynthesis, TCA cycle, Purine and Pyrimidine metabolism</p>

	<p>CO-7. Write the general reactions of various metabolic pathways.</p> <p>CO-8. Justify the role of enzymes in metabolism</p>
<p>ZOUP-125: Basic Zoology Lab-2 (Practical)</p>	<p>CO-1. Identify the various parasites and parasitic stages of common parasites, nitrogenous waste products of animals, freshwater planktons and slides of endocrine glands.</p> <p>CO-2. Explain the principle and significance of gonadectomy, Thyroidectomy and pancreatectomy.</p> <p>CO-3. Demonstrate the role of eye stalk and insulin in sugar level in crab.</p> <p>CO-4. Demonstrate the retro cerebral complex in cockroach.</p> <p>CO-5. Demonstrate the RBCs of common vertebrates and effect of various osmolarities.</p> <p>CO-6. Demonstrate the effect of body size, oxygen consumption and Insulin on aquatic animals.</p> <p>CO-7. Determine the bleeding and clotting time, heartbeat of crab, species richness in selected areas, physico-chemical properties of soil and water.</p> <p>CO-8. Perform Sterilization of lab equipment, prepare microbial culture, Isolate Bacterial, liver DNA and RNA from given sample, quantify and resolve them using electrophoretic procedures, analyze protein sample by PAGE and SDS PAGE and construct phylogenetic trees using tools in bioinformatics.</p>
	<p>Semester – III</p>
<p>ZO-MJ-631T- Entomology - I</p>	<p>CO1: Understand origin and evolution of insects and their relation to other arthropods.</p> <p>CO2: Classify insects up to family with distinguishing characters and examples of each order and family.</p> <p>CO3: Explain the structure, chemical composition and functions of Integument and Derivatives of Integument.</p> <p>CO4: Explain the structure of insect body regions and their appendages.</p> <p>CO5: Identify different modifications in Antennae, Wings, and Legs of insect.</p> <p>CO6: Understand the Comparative anatomical and histological structure of various body systems.</p>

<p>ZO-MJ-632T- Physiology of Reproduction</p>	<p>CO1: Explain the male and female reproductive systems in human being. CO2: Understand the Oestrus cycle, sexual cycles with examples. CO3: Illustrate the process of fertilization in Human being. CO4: Explain the hormonal regulation and control in pregnancy.</p>
<p>ZO-MJ-633T- Insect Physiology and Biochemistry</p>	<p>CO1: Get knowledge about the structure, chemistry and functions of various systems of insects. CO2: Explain the process of excretion, detoxification and water balance. CO3: Elaborate on the role of insect hormones and their control in physiological processes. CO4: Describe the structure, physiology and biochemistry of flight muscle in insects.</p>
<p>ZO-MJ-634T- Immunology</p>	<p>CO1: List the primary and secondary immune organs. CO2: Explain the concepts of immunity, self-no self-immune response, autoimmune disease. CO3: Illustrate the principle and application of the common techniques used in Immunology, the events and dynamics of inflammation. CO4: Differentiate between active and passive immunization.</p>
<p>ZO-MJ-635P- Lab. Exercise in Entomology-I</p>	<p>CO1: Dissect insects to observe its body systems and can mount mouthparts, leg, wings. CO2: Identify mouth parts, antenna, legs and wings of Insects. CO3: Learn about head orientations, articulations, and appendages with respect to their functions. CO4: Know about insect abdominal appendages and their significance. CO5: Learn about head orientations, articulations, and appendages with respect to their functions.</p>
<p>ZO-MJ-636P- Lab. Exercise in Physiology of Reproduction and Immunology</p>	<p>CO1: Students will describe and identify the anatomy and histology of male and female reproductive systems in rat/mouse, including associated glands and placental types. CO2: Students will perform and interpret reproductive physiology techniques such as vaginal smear preparation, study of uterine smooth muscle activity, and understand the working principles of contraceptive devices and artificial insemination practices. CO3: Students will apply basic immunological techniques including</p>

	<p>Ouchterlony double diffusion, immunoelectrophoresis, rocket electrophoresis, cell viability testing, and differential WBC count.</p> <p>CO4: Students will analyze immunological concepts related to blood transfusion, blood group systems (including universal donor, universal recipient, Bombay blood group), erythroblastosis fetalis, and cross-matching procedures.</p>
ZO-ME-638(B)T-Animal Behavior	<p>CO1: The students will learn the process of isolation of genes.</p> <p>CO2: Explain the different genome projects with their significance.</p> <p>CO3: Able to solve the pedigree analysis.</p> <p>CO4: Explain DNA fingerprinting, Gene and stem therapy technique.</p>
ZO-ME-638(B)P-Exercise in Animal Behavior	<p>CO1: Define animal behavior as the actions living things carry out to survive and reproduce.</p> <p>CO2: Use concepts of animal behavior to understand human behavior.</p> <p>CO3: Understand the ecological aspects of animal behavior.</p> <p>CO4: Know about the strategies of organization in animals and their interactions.</p>
ZO-MN-358P-Practicals in Zoology-III	<p>CO1: Learn how phototaxis and chemotaxis bring about changes in Drosophila behavior.</p> <p>CO2: Record the behavior of humans in the absence of visual cues.</p> <p>CO3: Assess the stress developed during social situations.</p> <p>CO4: Perform different tests to record human social behavior.</p>
ZO-RP-639T-Research Project	<p>CO1. Provide practical skills in handling and managing livestock.</p> <p>CO2. Familiarize students with common dairy processing techniques.</p> <p>CO3. Develop basic veterinary skills in animal examination and care.</p> <p>CO4. Enable students to collect and analyze data related to animal production and health.</p>
Semester – IV	
ZO-MJ-641T Entomology-II	<p>CO1: Understand early embryonic developmental stages of insect which will help him/her in future studies.</p> <p>CO2: Explain post-embryonic developmental stages including types of Larva, Nymph and Pupa.</p> <p>CO3: Understand the different types of metamorphosis in insects.</p> <p>CO4: Explain Occurrence, Initiation, Preparations for diapauses and its</p>

	Controls and Apply this knowledge in the field of research and applied zoology.
ZO-MJ-642T Ecology and Evolution	<p>CO1: Explain the interactions of animals.</p> <p>CO2: Provide comprehensive overview of Concept of Evolution.</p> <p>CO3: Explain Origin of Life especially Prokaryotes as well as Eukaryotes.</p> <p>CO4: Explore salient features of various theories of evolution comprising Lamarckism.</p>
ZO-MJ-643T Environmental Biology	<p>CO1: Explain the interactions of animals.</p> <p>CO2: Provide comprehensive overview of Concept of Evolution.</p> <p>CO3: Explain Origin of Life especially Prokaryotes as well as Eukaryotes.</p> <p>CO4: Explore salient features of various theories of evolution comprising of Lamarckism, Darwinism.</p>
ZO-MJ-645P Lab. Exercise in Entomology-II	<p>CO1: Understand detailed structure of parts of male and female reproductive system of Insect.</p> <p>CO2: Will be able to identify different types of insect egg.</p> <p>CO3: Understand the embryonic development of insect.</p> <p>CO4: Learn various post embryonic changes in insect development.</p>
ZO-MJ-646P Lab. Exercise in Ecology, Evolution and Environmental Biology	<p>CO1: Students will perform ecological analyses including estimation of dissolved oxygen, water alkalinity, free and dissolved carbon dioxide, and identify bio-indicators of water pollution.</p> <p>CO2: Students will evaluate evolutionary evidences (paleontological and embryological), study stages of human evolution, and analyse structural and functional adaptations in animals such as bat, sea turtle, Draco, and Exocoetus.</p> <p>CO3: Students will conduct field-based studies of ecosystems (pond, river, grassland, forest), prepare survey reports of local fauna, assess eutrophication, and analyse human impacts on natural environments.</p> <p>CO4: Students will investigate environmental problems including solid waste management, industrial effluent analysis, isolation of water/air microflora, and evaluate the effects of toxic pollutants on aquatic fauna with suitable remedial measures.</p>
ZO-ME-647(A)T Applied Entomology	<p>CO.1- Recall the classification system of chordate animals. Identify the animals belonging to different phylum of animals. Retrieve the data of animals from field visit.</p> <p>CO.2- Identify and classify the animals in Animal Kingdom according to Phylum and appropriate distinguishing characteristics of all phyla.</p>

	<p>CO.3- Understand the economic importance of lower chordates.</p> <p>CO.4- Know the class Mammalia: Rat, Shrew & Bat and study the external characters & digestive system of Rat.</p>
<p>ZO-ME- 647(A)P Lab. Exercise in Applied Entomology</p>	<p>CO1: Students understand the branches of entomology.</p> <p>CO2: Students will gain skill of rearing honeybees.</p> <p>CO3: Aware about economic importance of honeybees.</p> <p>CO4: To introduce the concept of sericulture.</p>
<p>ZO-RP-649 Research Project</p>	<p>CO 1: Identify and discuss the role and importance of research in life sciences.</p> <p>CO 2: Identify and discuss the complex issues inherent in selecting a research problem, selecting an appropriate research design, and implementing a research project.</p> <p>CO 3: Write a dissertation in a scientific way.</p> <p>CO 4: Work in important research projects at renowned institutes and he / she can make a career in the research field.</p>

Faculty of Humanities

DEPARTMENT OF ECONOMICS

PROGRAM OUTCOMES: B. A. ECONOMICS

DEPARTMENT OF ECONOMICS	After successful completion of three-year degree program in Economics students should be able to
Programme Outcomes	<p>PO-1. To be able to understand basic concepts of economics.</p> <p>PO-2. To be able to analyze economic behavior in practice.</p> <p>PO-3. Understand the economic way of thinking.</p> <p>PO-4. The ability to analyze historical and current events from an economic perspective.</p> <p>PO-5. The ability to write clearly expresses an economic point of view.</p> <p>PO-6. Be exposed to alternative approaches to economic problems through exposure to coursework in allied fields.</p> <p>PO-7. To create student's ability to suggest of the various economic problems.</p>

PROGRAM SPECIFIC OUTCOMES: B. A. ECONOMICS

DEPARTMENT OF ECONOMICS	After successful completion of three-year degree program in Economics students should be able to
Program Specific Outcomes	<p>PSO-1. To be able to understand basic concepts of economics.</p> <p>PSO-2. Use the basic models of consumer and firm theory to derive consumer demand and firm input functions; and demonstrate key results in economic theory (such as the laws of demand and supply).</p> <p>PSO-3. Explain what is meant by economic efficiency and the mechanism by which competitive markets lead to an efficient allocation of resources.</p> <p>PSO-4. The ability to analyze historical and current events from an economic perspective.</p> <p>PSO-5. The ability to write clearly expresses an economic point of view.</p> <p>PSO-6. Analyze economic information and develop solutions to economic problems.</p> <p>PSO-7. To create student's ability to suggest various economic problems.</p> <p>PSO-8. Recognize that although economists address economic problems</p>

	<p>with a common approach, science is ever changing, and one's approach must be regularly evaluated and updated.</p> <p>PSO-9. Explain the distinction between real and nominal values, and why these matters for understanding consumer and firm behaviour as well as the national economy.</p> <p>PSO-10. Predict the impact of fiscal and monetary policy – use of deficits, changes in the money supply, etc. – on overall economic performance.</p>
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COURSE OUTCOMES: B. A. ECONOMICS

Course	Outcomes
	After completion of these courses' students should be able to: -
Semester-I	
<p>DISCIPLINE SPECIFIC CORE COURSE</p> <p>Indian Economy –I (BA-EC-111T)</p>	<p>CO-1. To Understand the characteristics and the current problems of Indian Economy.</p> <p>CO-2. To Identify the factors contributing to the recent growth of the Indian economy.</p> <p>CO-3. To Evaluate impact of LPG policies on economic growth in India.</p> <p>CO-4. To Analyze the sector specific policies adopted for achieving the inspirational goals.</p> <p>CO-5. To Review various adopted economic policies.</p>
<p>Open Elective (OE)</p> <p>Indian Banking System-I (OE- EC- 01T)</p>	<p>CO-1. To develop an understanding of the Indian Banking System.</p> <p>CO-2. To understand the various important aspects of the Indian Banking System.</p> <p>CO-3. To understand the exposures of the banking system and its management.</p> <p>CO-4. To know about banking technology and the upgradation of banking technology.</p> <p>CO-5. To understand about the various aspects and working of Indian Banking System like Retail Banking, Wholesale Banking, Risk Management, Banking Technology, Micro finance and Micro credit</p>

<p>Skill Enhancement Course (SEC): Financial Market in India-I(SEC-EC-112T)</p>	<p>CO-1. To Learn the Introduction of Indian Financial Market. CO-2. To Know the Introduction of Financial Market. CO-3. To Aware about the Money Market. CO-4. To Understand the Capital Market. CO-5. To Learn the Investors Protection.</p>
<p>Semester-II</p>	
<p>DISCIPLINE SPECIFIC CORE COURSE Indian Economy –II (BA-EC-121T)</p>	<p>CO-1. To enable the students to learn about characteristics of developing Economy. CO-2. To aware the student about agriculture in Indian Economy. CO-3. To highlight the important economic sectors and challenges faced in recent years. CO-4. To identify the important Industrial sectors and challenges faced in the</p>
<p>Open Elective (OE) Indian Banking System- II (OE- EC- 02T)</p>	<p>CO-1. To Understand of evolution Economic Ideas and Thought of Kautilya’s, Dadabhai Naoroji, M.G. Ranade, Gopal Krushna Gokhale, Mahatma Gandhi CO-2. To Understand of Economic Ideas and Thought J. K. Mehta, D. R. Gadgil, Dr. B. R. Ambedkar and Dr. Amartya Sen. CO-3. To Ability to take a critical account of the reactions against Indian Economic Thought</p>
<p>Skill Enhancement Course (SEC): Financial Market in India-II (SEC-EC-122T)</p>	<p>CO-1. To Understand the meaning, nature, structure and characteristics of the Indian Money Market. CO-2. To Explain the segments, institutions, drawbacks of the Indian Money Market and analyze the role of the Reserve Bank of India (RBI) in regulating it. CO-3. To Describe the meaning, nature, need, structure and characteristics of the Indian Capital Market. CO-4. To Analyse the segments, major players and trends in the Indian Capital Market and understand the working of National Stock Exchange (NSE), Bombay Stock Exchange (BSE) CO-5. To Understand the meaning, nature, structure and characteristics of the Indian Money Market.</p>
<p>Semester-III</p>	

<p style="text-align: center;">DSC-1 Micro Economics-I (EC-MJ-231T)</p>	<p>CO-1. To Understanding Basic Concepts - Explain the meaning, nature, scope and importance of Micro economics and identify the basic economic problems of scarcity and choice.</p> <p>CO-2. To Apply basic tools of economic analysis such as functional relationships, schedules, graphs, equations, and distinguish between dependent & independent variables and endogenous & exogenous variables.</p> <p>CO-3. To Analyse consumer behaviour using: Cardinal Approach (Law of Diminishing Marginal Utility and Law of Equi-Marginal Utility), Ordinal Approach (Indifference Curve Analysis and Consumer Equilibrium)</p> <p>CO-4. To Examine the theory of demand including Determinants of demand, Law of demand and its exceptions, Market demand, Elasticity of demand (Price, Income and Cross elasticity)</p> <p>CO-5. To Interpret economic models graphically and solve numerical problems related to utility, demand, elasticity, supply, and production.</p>
<p style="text-align: center;">DSC-2 Macro Economics-I (EC-MJ-232T)</p>	<p>CO-1. To Student Understanding Basic Macro Concepts -Explain the meaning, nature, scope, importance and limitations of Macro Economics and differentiate clearly between Micro Economics and Macro Economics.</p> <p>CO-2. To Describe the meaning and importance of National Income and explain various concepts such as: GDP (Gross Domestic Product), GNP (Gross National Product), NNP (Net National Product), PCI (Per Capita Income), Personal Income, Disposable Income and apply different methods of national income measurement while identifying practical difficulties in estimation.</p> <p>CO-3. To Compare and critically examine: Classical Theory of Employment and Say's Law of Market, Keynes' criticism of the Classical Theory, Keynesian Theory of Employment including Aggregate Demand, Aggregate Supply and Employment Determination</p> <p>CO-4.To Analyze the Consumption Function including: APC (Average Propensity to Consume), MPC (Marginal Propensity to Consume), Psychological Law of Consumption, Factors influencing consumption and explain Saving (APS, MPS), Investment, Marginal Efficiency of Capital, Multiplier and Acceleration principles.</p> <p>CO-5. Interpret macroeconomic models using graphs and equations and apply</p>

	<p>theoretical concepts to real-world economic situations.</p> <p>CO-6. To Explain and critically examine different theories of distribution including Marginal Productivity Theory, Ricardian and Modern Theories of Rent, Modern Theory of Wages, Keynesian Liquidity Preference Theory of Interest, Loanable Funds Theory, Theories of Profit (Risk & Uncertainty, Innovation Theory)</p> <p>CO-7. To Understand the meaning and scope of Welfare Economics and analyse: Pigouvian Welfare Economics, Welfare ideas of Amartya Sen</p> <p>CO-8. To Apply economic theories to real-world market situations and interpret diagrams related to cost, revenue, market equilibrium, and factor pricing.</p>
<p>DSC 3: Financial System-I (Minor) (EC-MN-233T)</p>	<p>CO-1. To understand the Indian Financial System -Explain the meaning, nature, structure, characteristics, functions, role and importance of the Indian Financial System in economic development.</p> <p>CO-2. To Describe the structure, management, organization and functions of: Commercial Banks (Public, Private and Foreign Banks), Regional Rural Banks (RRBs), Co-operative Banks and evaluate their problems and suggest remedial measures.</p> <p>CO-3. To Analyse the classification and functioning of financial markets including Indian Money Market, Indian Capital Market, Foreign Exchange Market and explain their features, instruments and importance.</p> <p>CO-4. To Understand the meaning and importance of financial institutions and evaluate the functions of: National Stock Exchange (NSE),Bombay Stock Exchange (BSE)</p> <p>CO-5. To Explain the role and functions of Non-Banking Financial Intermediaries and major financial institutions in India with reference to: Unit Trust of India (UTI), Life Insurance Corporation of India (LIC), General Insurance Corporation of India (GIC)</p> <p>CO-6. To Apply theoretical knowledge of financial systems and institutions to understand real-world financial operations and policy developments.</p>
<p>Vocational Skill Course (VSC): Basic Concept of Research Methodology-I (EC -VSC-234T)</p>	<p>CO-1. To Understanding Data Analysis -Explain the meaning, definition and importance of data analysis and understand the objectives and significance of tabulation and graphical presentation of data.</p>

	<p>CO-2. To Compute and interpret measures of central tendency such as: Mean, Median, Mode.</p> <p>CO-3. To Organize and present data using: Frequency Distribution, Cumulative Frequency, Class Boundaries, Midpoint, Class Width, Percentage calculations</p> <p>CO-4. To Understand the meaning, objectives and types of research reports and identify the essential characteristics of good research report writing.</p> <p>CO-5. Analyze statistical data and prepare structured research reports with proper interpretation and presentation.</p> <p>CO-6. To demonstrate that the theories discussed in class will usually be applied to real-life situations.</p> <p>CO-7. To help the students to prepare for varied competitive examinations</p>
<p>FIELD PROJECT CORE COURSE -1: Field Project (EC -FP-235P)</p>	<p>CO-1. To Identify real-world economic, social, financial, or developmental problems suitable for field-based research.</p> <p>CO-2. Apply appropriate research methodologies including survey methods, interviews, observation, and data collection techniques in field studies.</p> <p>CO-3. To Organize, tabulate, analyze, and interpret field data using statistical and analytical tools</p> <p>CO-4. To Prepare a structured field project report including introduction, objectives, methodology, data analysis, findings, conclusions, and recommendations.</p> <p>CO-5. To Develop practical knowledge and understanding of real-life economic and social conditions through field exposure.</p> <p>CO-6. To Present research findings effectively through written reports and oral presentations.</p> <p>CO-7. Work collaboratively in teams and follow ethical practices in data collection and reporting.</p>
<p>Open Elective (OE): Financial Literacy-I (EC-OE-201T)</p>	<p>CO-1. To Understanding Financial Literacy - Explain the meaning, scope and importance of financial literacy and evaluate its merits and demerits in personal and social life.</p> <p>CO-2. To Knowledge of Financial Institutions, Identify and describe the role</p>

	<p>and functions of various financial institutions</p> <p>CO-3. To envelop essential financial skills including numerical ability, communication ability and decision-making required for effective financial management.</p> <p>CO-4. To Understand the concept, importance and need for financial planning and analyze the relationship between economic wants and limited resources.</p> <p>CO-5. Prepare and evaluate different types of budgets</p> <p>CO-6. To Analyze various sources available for meeting deficit budgets and develop rational financial decision-making skills.</p>
Semester-IV	
<p>DSC-3 Micro Economics-II (EC-MJ-241T)</p>	<p>CO-1. Explain various cost concepts such as Fixed Cost, Variable Cost, Total Cost, Average Cost, Marginal Cost, Economic Cost, Accounting Cost, and Opportunity Cost.</p> <p>CO-2. To Analyze short-run and long-run cost curves and examine revenue concepts including Total Revenue, Average Revenue, and Marginal Revenue.</p> <p>CO-3. To Differentiate between various market structures and analyze price and output determination.</p> <p>CO-4. To Evaluate short-run and long-run equilibrium of firms and industries under different market conditions using graphical and theoretical analysis.</p> <p>CO-5. To Apply economic theories to real-world market situations and interpret diagrams related to cost, revenue, market equilibrium, and factor pricing.</p>
<p>DSC-4 Macro Economics-II (EC-MJ-242T)</p>	<p>CO-1. To Understanding Money and Its Theories</p> <p>CO-2. To Examine the meaning, types, causes and effects of inflation and evaluate measures to control inflation. Understand the concepts of deflation, Phillips Curve and stagflation.</p> <p>CO-3. Describe the features and phases of business cycles and analyze their causes and effects. Critically evaluate Keynes' theory of business cycle and measures for controlling business fluctuations through monetary and fiscal policies.</p> <p>CO-4. To Explain the objectives, instruments, advantages and limitations of: Monetary Policy, Fiscal Policy and assess their role in stabilizing the economy.</p>

	<p>CO-5. To Apply macroeconomic theories and policy tools to interpret real-world economic problems such as inflation, unemployment and economic instability.</p>
<p>DSC 3: Financial System-II (Minor) (EC-MN-243T)</p>	<p>CO-1. To Understanding the Role of RBI - Explain the structure, role and major functions of the Reserve Bank of India in the Indian economy and evaluate the tools and limitations of monetary policy.</p> <p>CO-2. To Describe the role and functions of major financial regulators in India, including Securities and Exchange Board of India (SEBI), Insurance Regulatory and Development Authority of India (IRDAI)</p> <p>CO-3. To Analyse the role, structure, objectives and functions of major international financial institutions such as: International Monetary Fund (IMF), World Bank, Asian Development Bank (ADB), New Development Bank (BRICS Bank)</p> <p>CO-4. To Examine recent developments in the Indian financial sector, including Banking sector reforms, Insolvency and Bankruptcy Code (IBC), Alternate sources of finance, Risk management practices in banking</p> <p>CO-5. To Assess the impact of financial regulations and reforms on economic stability, financial inclusion, and sustainable development.</p>
<p>Skill Enhancement Course (SEC): Basic Concept of Research Methodology-II (EC -SEC-244T)</p>	<p>CO-1. To Understanding Research Fundamentals - Explain the meaning and definition of research and distinguish between different types of research and understand the importance of research in economics.</p> <p>CO-2. To Describe the meaning and need for research design and differentiate between various types of research designs.</p> <p>CO-3. To Understand the concept, importance and formulation of hypotheses in economic research.</p> <p>CO-4. To Explain the meaning and methods of data collection and distinguish between: Primary Data, Secondary Data and identify appropriate sources for economic research.</p> <p>CO-5. To Develop the ability to design simple research studies, formulate hypotheses, and collect relevant data for economic analysis.</p>

<p>COMMUNITY PROJECT CORE COURSE -2: CEP Enhancing Community Awareness about Development Scheme of Government (EC-CEP-245P)</p>	<p>CO-1. To Understanding Government Development Schemes - Identify and explain various central and state government development schemes related to education, health, employment, agriculture, women empowerment, and rural development.</p> <p>CO-2. Design and conduct awareness programs to inform community members about the objectives, benefits, and eligibility criteria of government schemes.</p> <p>CO-3. To Interact effectively with local communities, collect feedback, and assess the level of awareness and utilization of development schemes.</p> <p>CO-4. Use effective communication strategies (oral, written, and digital) to enhance community participation in government welfare programs.</p> <p>CO-5. To Demonstrate social responsibility, teamwork, and leadership while working for community development.</p> <p>CO-6. To Prepare a structured community project report including objectives, methodology, findings, challenges, and recommendations.</p> <p>CO-7. To Evaluate the impact of selected government schemes on socio-economic development at the local level.</p>
<p>Open Elective (OE): Financial Literacy-II (EC-OE-202T)</p>	<p>CO-1. To Understanding Banking Services - Explain various banking services including different types of deposit accounts and bank loans, and understand the concept of cashless banking.</p> <p>CO-2. To Describe and use modern e-banking services.</p> <p>CO-3. To Understand different types of taxes, tax rates, and analyze how taxes impact income. Differentiate clearly between tax planning and tax evasion.</p> <p>CO-4. Explain retirement benefit schemes and assess their importance in long-term financial planning.</p> <p>CO-5. To Develop the ability to make informed financial and investment decisions based on risk, return, tax benefits, and personal financial goals.</p>
<p>Semester-V</p>	
<p>G-3: Economic Development and Planning - I (3157)</p>	<p>CO-1. To understand the differences between Economic growth and Development, Indicators of Economic Development.</p> <p>CO-2. To able to understand Characteristics of Developing Countries.</p> <p>CO-3. To be able to understand Constraints on Development Process.</p> <p>CO-4. To able to understand theories and Approaches of economic</p>

	<p>development.</p> <p>CO-5. To able to understand some growth models.</p> <p>CO-6. To understand macroeconomic policies, roll of foreign capital and economic planning etc. in developing countries.</p>
<p>S-3: International Economics - I (3158)</p>	<p>CO-1. To be able to understand Nature, Scope and Importance of International Economics.</p> <p>CO-2. To able to understand theories international trade.</p> <p>CO-3. To able to understand gains from international trade & the measurements.</p> <p>CO-4. To able to understand theory of intervention in trade.</p> <p>CO-5. To able to understand the theory of regional blocks.</p> <p>CO-6. To able to understand trade policies in India.</p> <p>CO-7. To able to understand international financial institutions.</p> <p>CO-8. To able to understand foreign direct investments.</p> <p>CO-9. To able to understand foreign exchange market.</p>
<p>S-4: Public Finance - I (3159)</p>	<p>CO-1. To able to understand Functions and Role of Government in Economy and Meaning, Nature, Scope & Importance's of public finance</p> <p>CO-2. To understand various Approaches about Role of Government and Principle of Maximum Social Advantage- Dr. Dalton.</p> <p>CO-3. To able to understand concept of public expenditure and understand concept of public revenue.</p> <p>CO-4. To able to understand incidence & approaches of taxation.</p> <p>CO-5. To able to understand concept of public debt.</p> <p>CO-6. To able to understand concept of budget & deficit finance.</p> <p>CO-7. To able to understand taxation & public debt of India.</p> <p>CO-8. To able to understand fiscal federalism in India.</p>
<p>Semester-VI</p>	
<p>G-3: Economic Development and Planning - II (3167)</p>	<p>CO-1. To understand the differences between Economic growth and Development, Indicators of Economic Development.</p> <p>CO-2. To able to understand Characteristics of Developing Countries.</p> <p>CO-3. To able to understand Constraints on Development Process.</p> <p>CO-4. To able to understand theories and Approaches of economic development.</p> <p>CO-5. To able to understand some growth models.</p> <p>CO-6. To understand macroeconomic policies, roll of foreign capital and economic planning etc. in developing countries.</p>

<p style="text-align: center;">S-3: International Economics - II (3168)</p>	<p>CO-1. To be able to understand Nature, Scope and Importance of International Economics.</p> <p>CO-2. To able to understand theories international trade.</p> <p>CO-3. To able to understand gains from international trade & their measurements.</p> <p>CO-4. To able to understand theory of intervention in trade.</p> <p>CO-5. To able to understand the theory of regional blocks.</p> <p>CO-6. To able to understand trade policies in India.</p> <p>CO-7. To be able to understand international financial institutions.</p> <p>CO-8. To able to understand foreign direct investments.</p> <p>CO-9. To be able to understand foreign exchange market.</p>
<p style="text-align: center;">S-4: Public Finance - II (3169)</p>	<p>CO-1. To able to understand Functions and Role of Government in Economy and Meaning, Nature, Scope & Importance's of public finance</p> <p>CO-2. To understand various Approaches about Role of Government and Principle of Maximum Social Advantage- Dr. Dalton.</p> <p>CO-3. To be able to understand concept of public expenditure and understand concept of public revenue.</p> <p>CO-4. To be able to understand incidence & approaches of taxation.</p> <p>CO-5. To able to understand concept of public debt.</p> <p>CO-6. To be able to understand concepts of budget & deficit finance.</p> <p>CO-7. To able to understand taxation & public debt of India.</p> <p>CO-8. To able to understand fiscal federalism in India.</p>

PROGRAM OUTCOMES: M. A. ECONOMICS

	After successful completion of Two-year degree program in Economics student should be able to
Programme Outcomes	<p>PO-1. To Demonstrate advanced knowledge of micro economic and macroeconomic theories.</p> <p>PO-2. To Apply economic concepts to analyse real-world economic problems at national and global levels.</p> <p>PO-3. To Interpret economic data using statistical and econometric tools.</p> <p>PO-4. To Evaluate public policies related to growth, development, finance, environment, and rural–urban issues.</p> <p>PO-5. To Develop analytical and critical thinking skills in economic decision-making.</p> <p>PO-6. To Assess the role of financial institutions and markets in economic development.</p> <p>PO-7. To Examine issues of economic growth, structural transformation, and sustainable development.</p> <p>PO-8. To Understand demographic trends and their economic implications.</p> <p>PO-9. To Apply mathematical and quantitative techniques in economic modeling.</p> <p>PO-10. To Analyze rural and urban development challenges and governance mechanisms.</p> <p>PO-11. To Evaluate environmental and climate-related economic policies.</p> <p>PO-12. Design and conduct independent research using appropriate methodology.</p> <p>PO-13. To Communicate economic ideas effectively through reports, presentations, and academic writing.</p> <p>PO-14. To Demonstrate ethical standards and professional responsibility in research and policy analysis.</p> <p>PO-15. Prepare for higher education, competitive examinations, and careers in academia, banking, research institutions, and public administration.</p>

PROGRAM SPECIFIC OUTCOMES: M. A. ECONOMICS

After successful completion of two-year degree program in Economics, students should be able to	
Program Specific Outcomes	<p>PSO-1. To Analyze advanced macroeconomic models studied in Macro Economic Analysis</p> <p>PSO-2. To Evaluate theories of economic growth and development in the Indian and global context.</p> <p>PSO-3. To Assess rural development policies and programs for inclusive growth.</p> <p>PSO-4. To Examine the structure and functioning of the Indian Financial System and financial sector reforms.</p> <p>PSO-5. To Apply demographic theories to analyze population trends and development issues.</p> <p>PSO-6. To Use mathematical tools for economic analysis and optimization problems.</p> <p>PSO-7. To Apply econometric techniques for empirical research and hypothesis testing.</p> <p>PSO-8. To Analyze urbanization trends, urban governance, and development policies in India.</p> <p>PSO-9. To Evaluate environmental economics theories and climate change policies including the Paris Agreement framework.</p> <p>PSO-10. To Interpret monetary and fiscal policies in the context of macroeconomic stabilization.</p>

COURSE OUTCOMES: M. A. ECONOMICS

Course	Outcomes
	After completion of these courses' students should be able to:-
Semester-I	
EC-MJ -411T Micro Economic Analysis-I (Mandatory Theory)	<p>CO-1. To provide a thorough understanding of the principles of economics</p> <p>CO-2. To enable students to apply micro economic concepts in various contexts.</p> <p>CO-3. To enable understanding the basic theories in microeconomics such as demand theory, production theory, market structures.</p> <p>CO-4. To discuss the modern developments in micro economics such as Modern Demand theories.</p> <p>CO-5. Ability to apply the concepts of micro economics such as demand, supply, revenue, cost, elasticity, etc.</p>

<p>EC-MJ -412T Public Economics I</p>	<p>CO-1. To develop an understanding of various policies in public economics like fiscal policy, public debt policy, fiscal finances, etc.</p> <p>CO-2. To help the students to understand the normative policies and compare it with the policies framed and followed by Indian economy.</p> <p>CO-3. To impart information to the students about the reforms like taxation reforms in India.</p> <p>CO-4. Ability to understand, apply and analyze concepts-public debt, budget, fiscal policy in public economics.</p> <p>CO-5. Ability to interpret the theories relating to public economics in real life situations.</p> <p>CO-6. Ability to discuss and debate public finance and policies w.r.t. India</p>
<p>EC-MJ -413T : International Trade (Mandatory Theory)</p>	<p>CO-1. To develop an understanding of the theoretical concept in international trade.</p> <p>CO-2. To analyze international economics with reference to terms of trade, trade policy, trade agreements etc.</p> <p>CO-3. To provide knowledge to students regarding recent developments and changes in international banking, international banking agreements etc.</p> <p>CO-4. To make the students understand role of international economic organization and global crisis development.</p> <p>CO-5. Ability to understand the concepts of international economics such as comparative cost, terms of trade, trade policies and trade agreements</p> <p>CO-6. Ability to interpret and apply theory relating to understanding international trade</p> <p>CO-7. Ability to discuss and debate the effects of trade policy, trade agreements, exchange rate policies on the world economy/trade</p>
<p>EC-MJ -414T : Money Market (Mandatory Theory)</p>	<p>CO-1. Offers theoretical and practical knowledge of managing the capital resources of an organization or company in an efficient way</p> <p>CO-2. Provide analytical skills and facilitate study of Money markets, basics of trading and its regulation, market forces, demand and supply</p> <p>CO-3. Understand the risks, returns as well as legal parameters of a Money market</p> <p>CO-4. Observe and interpret Money markets to uncover potential opportunities.</p>
<p>EC-ME -415T Agricultural Economics (Elective Theory)</p>	<p>CO-1. To develop an understanding of agricultural economics in the theoretical as well as practical context</p> <p>CO-2. To discuss and debate the various issues and challenges faced by</p>

	<p>agrarian economies w.r.t. production, productivity, efficiency, employment, etc.</p> <p>CO-3. Ability to analyze and evaluate the subject with reference to various aspects of agrarian economies</p>
<p>EC-MJ -415T Research Methodology</p>	<p>CO-1. Develop and demonstrate and examine topics under Economics to pursue research</p> <p>CO-2. Evaluate and examine subject areas in economics and explore possibilities of research.</p>
<p>Semester-II</p>	
<p>EC-MJ -421T : Micro Economic Analysis II (Mandatory Theory)</p>	<p>CO-1. To provide a thorough understanding of the principles of economics</p> <p>CO-2. To enable students to apply micro economic concepts in various contexts.</p> <p>CO-3. To enable understanding the basic theories in microeconomics such as demand theory, production theory, market structures.</p> <p>CO-4. To discuss the modern developments in micro economics such as Game Theory.</p> <p>CO-5. Ability to apply the concepts of micro economics such as demand, supply, revenue, cost, elasticity, etc.</p>
<p>EC-MJ -422T Public Economics II (Mandatory Theory)</p>	<p>CO-1. To develop an understanding of various policies in public economics like fiscal policy, public debt policy, fiscal finances, etc.</p> <p>CO-2. To help the students to understand the normative policies and compare it with the policies framed and followed by Indian economy.</p> <p>CO-3. To impart information to the students about the reforms like taxation reforms in India.</p> <p>CO-4. Ability to understand, apply and analyze concepts-public debt, budget, fiscal policy in public economics.</p> <p>CO-5. Ability to interpret the theories relating to public economics in real life situations.</p> <p>CO-6. Ability to discuss and debate public finance and policies w.r.t. India</p>
<p>EC-MJ -423T: International Finance (Mandatory Theory)</p>	<p>CO-1. To develop an understanding of the theoretical concept in international finance- Balance of Payments, exchange rate policies, capital flows, etc.</p> <p>CO-2. To compare and contrast the scenarios on international trade in India vis-à-vis the world economy.</p> <p>CO-3. To provide knowledge to students regarding recent developments and</p>

	<p>changes in international banking, international banking agreements etc.</p> <p>CO-4. To make the students understand role of international economic organization and global crisis development.</p> <p>CO-5. Ability to understand and interpret concepts such as Balance of Payments, Exchange Rates, Foreign Exchange transactions, international capital flows, etc.</p> <p>CO-6. Ability to critically analyze the effects of deficits, exchange risk, role of foreign capital on the world economy/trade</p> <p>CO-7. Ability to discuss and debate on subjects related to international trade and finance w.r.t the Indian Economy</p>
EC-MJ -425T: Capital Market (Mandatory Theory)	<p>CO-1. Learn the importance and working of capital market.</p> <p>CO-2. Understand the working of BSE and NSE, and OTCEI in detail.</p> <p>CO-3. Aware about working of capital market in India.</p> <p>CO-4. Expose them to various instruments of capital market.</p> <p>CO-5. Learn and acquire the knowledge of financial services offered by agencies.</p>
EC-ME -425T: Labour Economics (Elective Theory)	<p>CO-1. To develop an understanding of labor economics in the theoretical as well as practical context.</p> <p>CO-2. To discuss and debate the various issues and challenges faced by labor with reference to division of labor, employment, wage determination, etc.</p> <p>CO-3. To demonstrate on the various aspects of labor dynamics and labor relations w.r.t. India</p> <p>CO-4. Ability to analyze and evaluate the subject with reference to various aspects of Labor economics.</p> <p>CO-5. Ability to develop an understanding of the labor with its intricacies and imperfections and to be able to construct intellectual dialogue on the challenges of labor w.r.t. the Indian Economy.</p>
EC-FP -428T: Field Project (FP)	<p>CO-1. Therefore, regular students who do their postgraduation as internal students will be given an opportunity to get exposed to a few elements of social research and also, they are expected to complete a small research project under expert guidance and supervision.</p> <p>CO-2. To understand various branches of Economics.</p> <p>CO-3. It is essentially a job-oriented exercise to enable them to take up the exciting field of social and economic research.</p>
Semester-III	

<p>Major Mandatory Core Course DSC-1 Macro Economics Analysis-I (EC-MJ-631T)</p>	<p>CO-1. To Understand Approaches to Macro Economics.</p> <p>CO-2. Compare the Classical, Keynesian, and Neo-Classical approaches.</p> <p>CO-3. To Analyze the key features of the Classical approach.</p> <p>CO-4. To Evaluate the contribution of John Maynard Keynes to macroeconomic theory.</p> <p>CO-5. To Interpret the relevance of Neo-classical synthesis in modern macroeconomics.</p> <p>CO-6. To Analyze National Income and Social Accounting.</p> <p>CO-7. To Understand Theories and Functions of Money</p> <p>CO-8. To Evaluate Demand and Supply of Money</p> <p>CO-9. Explain the RBI's approach to money supply, including High Powered Money and Money Multiplier.</p> <p>CO-10. Present and interpret the Social Accounting Matrix (SAM).</p>
<p>Major Mandatory Core Course DSC-2 Growth & Development -I (EC-MJ-632T)</p>	<p>CO-1. To Understand Concepts and Measurement of Growth and Development.</p> <p>CO-2. To Analyze Major Theories of Economic Growth and Development</p> <p>CO-3. To Evaluate Poverty, Inequality and Unemployment</p> <p>CO-4. To Understand Human Capital and Development</p> <p>CO-5. To Interpret the concept of Human Development, quality of life, and Human Development Index (HDI) developed by the United Nations Development Programme.</p> <p>CO-6. To Understand functional distribution of income and recent inequality trends.</p> <p>CO-7. To Describe the Harrod–Domar Growth Model.</p> <p>CO-8. To Distinguish between income-based and alternative measures of development.</p> <p>CO-9. Identify and evaluate the barriers to economic development.</p> <p>CO-10. To Analyze the Solow Model of Economic Growth developed by Robert Solow.</p>

<p>Major Mandatory Core Course DSC-3 Rural Development (EC-MJ-633T)</p>	<p>CO-1. Explain the concept, definition, and characteristics of the rural economy.</p> <p>CO-2. To Differentiate between rural and urban economy in terms of structure, occupation, income, and infrastructure.</p> <p>CO-3. To Identify the basic elements of rural development and analyze dilemmas in the development process.</p> <p>CO-4. To Understand major theories of rural development.</p> <p>CO-5. To Analyze the determinants of rural development, including natural and physical resources, technology, infrastructure, institutions, and organizational changes.</p> <p>CO-6. To Evaluate the role of agriculture, rural industries, and Panchayati Raj Institutions in rural development.</p> <p>CO-7. To Examine major challenges in rural development such as agricultural distress, lack of finance, irrigation problems, poverty, unemployment, and migration.</p> <p>CO-8. To Assess the status of education, health, and rural infrastructure in promoting sustainable rural growth.</p> <p>CO-9. To Explain key rural development policies in India, including land reforms, agricultural price policy, rural credit policy, cooperative policy, and National Agriculture Policy.</p> <p>CO-10. To Evaluate the impact of poverty and unemployment alleviation programmes.</p>
<p>Major Mandatory Core Course DSC-4 Indian Financial System (EC-MJ-634T)</p>	<p>CO-1. Explain the meaning and role of the financial system in economic development.</p> <p>CO-2. To Describe the structure of the Indian Financial System, including financial institutions, financial markets, and financial instruments.</p> <p>CO-3. To Analyze the development of the Indian financial system and evaluate major financial sector reforms in India.</p> <p>CO-4. To Explain the objectives and functions of the Reserve Bank of India.</p> <p>CO-5. To Evaluate the autonomy of RBI, including its advantages and limitations in policy implementation.</p> <p>CO-6. To Assess the role of RBI in the Indian economy.</p>

	<p>CO-7. To Analyze the monetary policy of RBI, including recent developments and emerging challenges in the Indian economy.</p>
<p>Major Elective Core Course Demography (EC-ME-635T)</p>	<p>CO-1. To Explain the meaning, nature, and scope of demography and trace the development of population studies as a discipline.</p> <p>CO-2. To Analyze major population theories.</p> <p>CO-3. To Describe the stages of population growth (Primitive, Pre-Industrial, Modern stages) and compare world population growth patterns.</p> <p>CO-4. To Examine the distribution and growth of population in developed and developing countries, including international comparisons.</p> <p>CO-5. To Evaluate the relationship between population and development.</p> <p>CO-6. To Analyze the concept of labor force participation and workforce participation and their role in economic development.</p> <p>CO-7. To Explain the objectives and provisions of India’s National Population Policy, 2000 and assess its impact.</p> <p>CO-8. To Assess the demographic profile of India.</p>
<p>Research Project (EC -RP-637P)</p>	<p>CO-1. To Identify and formulate a clear research problem related to economics or allied subjects.</p> <p>CO-2. To Review relevant literature and theoretical frameworks to build a conceptual understanding of the research topic.</p> <p>CO-3. Design an appropriate research methodology, including selection of research design, sampling techniques, and tools of data collection.</p> <p>CO-4. To Collect, classify, and organize primary and/or secondary data systematically.</p> <p>CO-5. To Apply suitable quantitative and qualitative techniques for data analysis and interpretation.</p> <p>CO-6. To Use statistical tools, charts, tables, and graphs to present research findings effectively.</p> <p>CO-7. To Interpret results logically and draw valid conclusions and policy suggestions.</p> <p>CO-8. To Prepare a structured research report following academic writing standards, citation methods, and ethical practices.</p>

	<p>CO-9. To Demonstrate presentation skills, critical thinking, and independent research ability during project viva and evaluation.</p>
<p>SEM. IV</p>	
<p>Major Mandatory Core Course DSC-1 Macro Economics Analysis-II (EC-MJ-641T)</p>	<p>CO-1. To Assess the impact of fiscal policy within the IS–LM framework, including the government sector.</p> <p>CO-2. To Explain the meaning and types of inflation, including demand-pull and cost-push inflation</p> <p>CO-3. To Analyze the Phillips Curve relationship between inflation and unemployment.</p> <p>CO-4. To Analyze the Psychological Law of Consumption given by John Maynard Keynes.</p> <p>CO-5. To Evaluate the factors influencing the consumption function.</p> <p>CO-6. Explain the concept of investment, including gross and net investment, autonomous and induced investment.</p> <p>CO-7. To Analyze the Marginal Efficiency of Capital (MEC) and its role in investment decisions.</p> <p>CO-8. To Examine the Investment Multiplier and Acceleration Principle and their impact on national income.</p> <p>CO-9. To Assess the impact of fiscal policy within the IS–LM framework, including the government sector.</p> <p>CO-10. Examine the Real Business Cycle Theory and its policy implications.</p>
<p>Major Mandatory Core Course DSC-2 Growth & Development -II (EC-MJ-642T)</p>	<p>CO-1. Explain the role of agriculture in economic development and identify major barriers to agricultural growth.</p> <p>CO-2. To Analyze the impact of land reforms, size of land holdings, and agricultural technology on productivity.</p> <p>CO-3. To Evaluate the role of industrial and service sectors in economic development and structural transformation.</p> <p>CO-4. To Examine the interdependence among agriculture, industry, and service sectors in a developing economy.</p> <p>CO-5. To Interpret theories of financing for development, including Keynesian and Quantity Theory approaches.</p>

	<p>CO-6. To Assess the role of technology in economic development and differentiate between labor-saving, capital-saving, and neutral technical progress.</p> <p>CO-7. To Compare labor-intensive and capital-intensive techniques of production and their implications for employment and output.</p> <p>CO-8. To Evaluate the importance of human capital formation, including education, research & development, invention, and innovation.</p> <p>CO-9. Explain the concept of sustainable development and the importance of environmental accounting.</p> <p>CO-10. To Analyze the relationship between population, poverty, economic growth, and environment.</p>
<p>Major Mandatory Core Course DSC-3 Urban Economics (EC-MJ-643T)</p>	<p>CO-1. To Analyze the historical growth of urban areas and identify major causes of urbanization.</p> <p>CO-2. Explain the concept and meaning of urban economy and describe the process of urbanization.</p> <p>CO-3. To Examine the drivers of urban economic growth and evaluate the economics of urban development.</p> <p>CO-4. To Interpret classical theories of urban growth including the Von Thunen Model, Concentric Zone Model, and Central Place Theory.</p> <p>CO-5. Differentiate between various types of Urban Local Bodies and assess the functions and limitations of the Cantonment Board.</p> <p>CO-6. To Analyze the causes, location patterns, and development policies related to slum areas and assess issues of local body finance.</p> <p>CO-7. To Examine the nature and causes of urban poverty and evaluate urban transport systems and related authorities.</p> <p>CO-8. To Assess the structure of urban labor markets, especially issues of informal employment.</p> <p>CO-9. To Explain trends in urbanization in India, including migration and urban population growth.</p> <p>CO-10. To Evaluate government initiatives such as Jawaharlal Nehru National Urban Renewal Mission and Atal Mission for Rejuvenation and Urban Transformation for urban development.</p>

<p>Major Elective Core Course</p> <p>Economics of Environment (EC-ME-644T)</p>	<p>CO-1. To Explain the meaning, nature, scope, and significance of Economics of Environment.</p> <p>CO-2. To Differentiate between environment as an economic good and social good and analyze renewable and non-renewable common property resources.</p> <p>CO-3. To Evaluate the trade-off between economic development and environment, including the Environmental Kuznets Curve and limits to growth.</p> <p>CO-4. Explain the concept and principles of sustainable development in the context of environmental protection.</p> <p>CO-5. To Assess the environmental impact of agricultural development, including technological change, groundwater depletion, and deforestation.</p> <p>CO-6. To Analyze environmental issues arising from industrialization, pollution, and urbanization.</p> <p>CO-7. To Examine global environmental challenges such as ozone depletion, greenhouse effect, global warming, climate change, and biodiversity loss.</p> <p>CO-8. To Compare environmental regulation approaches-command and control versus market-based instruments such as emission taxes, subsidies, and emissions trading.</p>
<p>Research Project (EC -RP-646P)</p>	<p>CO-1. To Identify and formulate a clear research problem related to economics or allied subjects.</p> <p>CO-2. To Review relevant literature and theoretical frameworks to build a conceptual understanding of the research topic.</p> <p>CO-3. Design an appropriate research methodology, including selection of research design, sampling techniques, and tools of data collection.</p> <p>CO-4. To Collect, classify, and organize primary and/or secondary data systematically.</p> <p>CO-5. To Apply suitable quantitative and qualitative techniques for data analysis and interpretation.</p> <p>CO-6. To Use statistical tools, charts, tables, and graphs to present research findings effectively.</p> <p>CO-7. To Interpret results logically and draw valid conclusions and policy suggestions.</p>

	<p>CO-8. To Prepare a structured research report following academic writing standards, citation methods, and ethical practices.</p> <p>CO-9. To Demonstrate presentation skills, critical thinking, and independent research ability during project viva and evaluation.</p>
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DEPARTMENT OF ENGLISH

Programme Outcomes: B. A. English

After successfully completing undergraduate B.A. English Program students should be able to:

Programme Outcomes	<ul style="list-style-type: none">• Critical Thinking <p>PO-1-Interpret literature by applying critical approaches.</p> <p>PO-2-Able to implement literary devices.</p> <p>PO-3-Get acquainted with terminology in critical appreciation.</p>
	<ul style="list-style-type: none">• Comprehension Skills <p>PO-4-To comprehend evolution of different genres of literature.</p>
	<ul style="list-style-type: none">• Effective Communication <p>PO-5-To develop oral and written communication skills in English.</p> <p>PO-6-To enhance vocabulary and its application in communication</p>
	<ul style="list-style-type: none">• Business Communication <p>PO-7-To apply syntactic in business communication.</p>
	<ul style="list-style-type: none">• Social Interaction <p>PO-8-To use interpersonal and intrapersonal communication skills to interact in different situations.</p>
	<ul style="list-style-type: none">• Ideal Citizenship <p>PO-9-To inculcate values of ideal citizen through creating respect for self and others.</p>
	<ul style="list-style-type: none">• Ethics <p>PO-10-To study and understand what is right and wrong in human behavior.</p> <p>PO-11-To give real and practical guidance to our lives.</p>
	<ul style="list-style-type: none">• Environment and Sustainability <p>PO-12-To take care of our Eco-system for future of mankind.</p> <p>PO-13-To sustain natural resources to protect life.</p>
	<ul style="list-style-type: none">• Goal Oriented Education <p>PO-14-To engage students on reaching a specific objective driven by purpose.</p>

Programme Specific Outcomes: B. A. English

After successfully completing undergraduate B.A. English Program students should be able to:

Programme Specific Outcomes	<p>PSO-1. To comprehend evolution of criticism and its application in language and literature.</p>
	<p>PSO-2. Able to comprehend renowned master pieces of English literature.</p>

	PSO-3. To apply English language to improve skills in Listening, Speaking, Reading and Writing.
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Course Outcomes: B. A. English

Course	Outcomes
	After completion of these courses' students should be able to:
Semester-I	
BA-EN- 111T Major Introduction to English Language and Literature I (Core)	CO-1: Recognize the significance of elements in short story CO-2: Explore the characteristics and structures of different poetic genres CO-3: Enhance creative writing and self-expression CO-4: Acquire skills of word formation CO-5: Develop vocabulary
OE -EN- 01T Communicative Competence in English I GE/OE (General Paper-1)	CO-1: Enrich spoken ability in English CO-2: Make them capable of using language and knowing people CO-3: Make aware of mispronunciation CO-4: Acquire the basic skills of effective writing
SEC- EN - 112T Grooming Life Skills I	CO-1: Develop Self-competency and Confidence CO-2: Enhance Intellectual Competency CO-3: Cultivate Professional Competency CO-4: Acquire Career Skills
AEC- EN-01 Enhancing English Communication Skills, I	CO-1: Develop active listening skills to understand English speakers CO-2: Enhance ability to express fluently, confidently, and coherently in English CO-3: Enhance reading skills in English CO-4: Acquire and utilize non-verbal cues effectively CO-5: Learn formal and informal communication styles
Semester-II	
BA-EN- 121T Major Introduction to English Language and Literature II (Core)	CO-1: Recognize the significance of elements in short story CO-2: Explore the characteristics and structures of different poetic genres CO-3: Enhance creative writing and self-expression CO-4: Acquire skills of word formation CO-5: Develop vocabulary

<p>OE -EN- 02T Communicative Competence in English II GE/OE (General Paper-1)</p>	<p>CO-1: Enrich spoken ability in English CO-2: Make them capable of using language and knowing people CO-3: Make aware of mispronunciation CO-4: Acquire the basic skills of effective writing</p>
<p>SEC- EN - 112T Grooming Life Skills -II</p>	<p>CO-1: Develop Self-competency and Confidence CO-2: Enhance Intellectual Competency CO-3: Cultivate Professional Competency CO-4: Acquire Career Skills</p>
<p>AEC- EN-01 Enhancing English Communication Skills-II</p>	<p>CO-1: Develop active listening skills to understand English speakers CO-2: Enhance ability to express fluently, confidently, and coherently in English CO-3: Enhance reading skills in English CO-4: Acquire and utilize non-verbal cues effectively CO-5: Learn formal and informal communication styles</p>
<p>Semester-III</p>	
<p>BA-EN-231T Major (Core) Introduction to English Language III</p>	<p>CO-1: Know the importance of stress and intonation pattern in English CO-2: Use idioms and one-word substitutes in communication CO-3: Acquire skill of using correct articles CO-4: Understand varieties of English</p>
<p>BA-EN-232T Major (Core) Appreciating Poetry, I</p>	<p>CO-1: Develop the skill of appreciating poetry CO-2: Enable to understand the thought and imagination in poetry CO-3: Appreciate the rhyme, rhythm and style of masterpieces CO-4: Understand the process of writing poem</p>
<p>VSC-EN-234T VSC Introduction to Electronic Media/Print Media</p>	<p>CO-1: Develop their skills in field of Electronic Media CO-2: Hold a live discussion, television programme, radio announcement and editing CO-3: Develop innovative thinking, investigation skills and analytical skills CO-1: Develop their skills in field of Print Media CO-2: Conduct an interview, Editorial Writing, Column Writing and editing CO-3: Help to develop innovative thinking, investigation skills and analytical skills</p>

<p>FP-EN-236P Field Project</p>	<p>CO-1: Students will produce a well-organized research report that demonstrates thorough investigation.</p> <p>CO-2: Students will successfully apply theoretical concepts from their coursework to their field project</p> <p>CO-3: Students will present their project findings clearly and professionally</p> <p>CO-4: Students will exhibit the ability to critically evaluate their data and sources.</p> <p>CO-5: Students will show evidence of effective teamwork and collaborative effort.</p>
<p>MN-EN-233T English for Competitive Examinations I</p>	<p>CO-1: Enrich the skills of English language</p> <p>CO-2: Use English Language fluently</p> <p>CO-3: Compete the examinations</p> <p>CO-4: Explore English Grammar in professional life.</p>
<p>OE-EN-03T GE/OE Communicative Competence in English III</p>	<p>CO-1: Enrich spoken ability in English</p> <p>CO-2: Make them capable of using language and knowing people</p> <p>CO-3: Make aware of mispronunciation</p> <p>CO-4: Acquire the basic skills of effective writing</p>
<p>Semester-IV</p>	
<p>BA-EN-241T Major (Core) Introduction to English Language IV</p>	<p>CO-1: Know the importance of stress and intonation pattern in English</p> <p>CO-2: Use idioms and one-word substitutes in communication</p> <p>CO-3: Acquire skill of using correct articles</p> <p>CO-4: Understand varieties of English</p>
<p>BA-EN-242T Major (Core) Appreciating Poetry, II</p>	<p>CO-1: Develop the skill of appreciating poetry</p> <p>CO-2: Enable to understand the thought and imagination in poetry</p> <p>CO-3: Appreciate the rhyme, rhythm and style of masterpieces</p> <p>CO-4: Understand the process of writing poem</p>
<p>SEC SEC-EN-243T Grooming Life Skills III</p>	<p>CO-1: Develop the skill of appreciating poetry</p> <p>CO-2: Enable to understand the thought and imagination in poetry</p> <p>CO-3: Appreciate the rhyme, rhythm and style of masterpieces</p> <p>CO-4: Understand the process of writing poem</p>
<p>CEP CEP-EN-246P Community Engagement Programme</p>	<p>CO-1: Students will produce a well-organized research report that demonstrates thorough investigation.</p> <p>CO-2: Students will successfully apply theoretical concepts from their coursework to their field project</p> <p>CO-3: Students will present their project findings clearly and professionally</p>

	<p>CO-4: Students will exhibit the ability to critically evaluate their data and sources.</p> <p>CO-5: Students will show evidence of effective teamwork and collaborative effort.</p>
<p>MN-EN-243T English for Competitive Examinations III</p>	<p>CO-1: Enrich the skills of English language</p> <p>CO-2: Use English Language fluently</p> <p>CO-3: Compete the examinations</p> <p>CO-4: Explore English Grammar in professional life.</p>
<p>OE-EN-04T GE/OE Communicative Competence in English III</p>	<p>CO-1: Enrich spoken ability in English</p> <p>CO-2: Make them capable of using language and knowing people</p> <p>CO-3: Make aware of mispronunciation</p> <p>CO-4: Acquire the basic skills of effective writing.</p>
<p>Semester-V</p>	
<p>Course: 3017 Compulsory English</p>	<p>CO-1. Define communicative use of language in Indian Context.</p> <p>CO-2. Identify types of sentences.</p> <p>CO-3. Outline the idea of varied cultural experiences.</p> <p>CO-4. Define types of communication.</p> <p>CO-5. Summarize in English Prose and Poetry.</p> <p>CO-6. Apply sentence transformation in given format.</p>
<p>Course: 3337 General III Advanced Study of English Language and Literature</p>	<p>CO-1. Define communicative use of language in Indian Context.</p> <p>CO-2. Identify types of sentences.</p> <p>CO-3. Outline the idea of varied cultural experiences</p> <p>CO-4. Define types of communication.</p> <p>CO-5. Summarize in English Prose and Poetry.</p>
<p>Course: 3338 Special III Appreciating Novel</p>	<p>CO-1. Define purpose and types of fiction.</p> <p>CO-2. Comprehend various elements of a novel.</p> <p>CO-3. Apply critical theories to the study of novels.</p> <p>CO-4. Identify different literary devices used in novel</p> <p>CO-5. Compare and contrast the prescribed novels in the syllabus.</p>
<p>Course: 3339 Special IV Introduction to Literary Criticism</p>	<p>CO-1. Define criticism and identify different types of criticism.</p> <p>CO-2. Outline the history of English literary criticism</p> <p>CO-3. Analyze independently prose passages and poems.</p> <p>CO-4. Compare and contrast different critical theories.</p> <p>CO-5. Develop literary competence for aesthetic pleasure.</p>
	<p>CO-1. To equip the students with social skills</p>

<p>Course: 3339 (SEC 2-C & SEC 2-D) Title of the Paper: Mastering Life Skills and Life Values</p>	<p>CO-2. To train the students' interpersonal skills CO-3. To build self-confidence and communicate effectively CO-4. To Encourage the students to think critically CO-5. To learn stress management and positive thinking CO-6. To enhance leadership qualities CO-7. To make the students about universal human values CO-8. To develop overall personality of the students</p>
<p>Semester-VI</p>	
<p>Course: 3017 Compulsory English</p>	<p>CO-1. Define communicative use of language in Indian Context. CO-2. Identify types of sentences. CO-3. Outline the idea of varied cultural experiences. CO-4. Define types of communication. CO-5. Summarize in English Prose and Poetry. CO-6. Apply sentence transformation in given format.</p>
<p>Course: 3337 General III Advanced Study of English Language and Literature</p>	<p>CO-1. Define communicative use of language in Indian Context. CO-2. Identify types of sentences. CO-3. Outline the idea of varied cultural experiences CO-4. Define types of communication. CO-5. Summarize in English Prose and Poetry. CO-6. Apply sentence transformation in given format.</p>
<p>Course: 3338 Special III Appreciating Novel</p>	<p>CO-1. Define purpose and types of fiction. CO-2. Comprehend various elements of a novel. CO-3. Apply critical theories to the study of novels. CO-4. Identify different literary devices used in novel CO-5. Compare and contrast the prescribed novels in the syllabus.</p>
<p>Course: 3339 Special IV Introduction to Literary Criticism</p>	<p>CO-1. Define criticism and identify different types of criticism. CO-2. Outline the history of English literary criticism CO-3. Analyze independently prose passages and poems. CO-4. Compare and contrast different critical theories. CO-5. Develop literary competence for aesthetic pleasure.</p>
<p>Course: 3339 (SEC 2-C & SEC 2-D) Title of the Paper: Mastering Life Skills and Life Values</p>	<p>CO-1. To equip the students with social skills CO-2. To train the students' interpersonal skills CO-3. To build self-confidence and communicate effectively CO-4. To Encourage the students to think critically</p>

Programme Outcomes: M. A. English

After successfully completing Post Graduate M.A. English Program students should be able to:	
Critical Thinking	PO-1- Apply various important critical approaches and their canons to various texts. The students will be able to implement literary critical theories and discuss literary texts among their peers. They will be able to familiarize themselves with the glossary used in criticism.
Analytical Skills	PO-2- The students will be able to analyze and evaluate different categories of literature such as short stories, drama, poetry, fiction and non-fiction.
Effective Communication	PO-3- The students will be able to develop oral and written communication skills in English. They will be able to enrich their vocabulary and its usage in communication. The students will be able to apply grammatical rules to day-to-day spoken and written language.
Social Interaction	PO-4- The students will be able to use interpersonal and intrapersonal communication skills to interact effectively in social situations like interviews, group discussions, seminars etc.
Effective Citizenship	PO-5- The students will be able to accomplish their duties and responsibilities as citizens successfully by being a part of larger community.
Ethics	PO-6- The students will be able to identify the intricacies of human psyche through various themes and genres of literature. They will be able to develop a profound understanding of human values such as righteousness, morality, responsiveness, goodness etc.
Environment and Sustainability	PO-7- The students will become aware about the issues related to environment and the steps needed to be implemented for its sustainability through the study of Eco-Critical texts.
Self-directed and Life-long Learning	PO-8- The students will be able to grasp brilliant segments of prose and poetry in English whereby each and every unit will be a lesson in life- long learning.
Cognitive Skills	PO-9- The students will be able to comprehend, learn, process and apply knowledge in day-to-day life.
Research Oriented Learning	PO-10- Students will be able to demonstrate high-level aptitude in literary research.
Programme Specific Outcomes: M. A. English	

After successfully completing Post Graduate M.A. English Program students should be able to:	
Programme Specific Outcomes	PSO-1. Students will be able to understand the evolution of criticism and its application in English literature.

	<p>PSO-2. Students will be able to comprehend excellent pieces of Indian Writing in English.</p> <p>PSO-3. Students will be able to apply knowledge of English language to improve skills in Listening, Speaking, Reading and Writing.</p> <p>PSO-4. Students will be able to explain different theoretical and practical aspects of language and literature teaching.</p>
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Course Outcomes: M. A. English

Course	Outcomes
	After completion of these courses' students should be able to: -
FYPG SEM. - I	
Contemporary Studies in English Language	<p>CO - 1: Understand how linguistic concepts can be applied to the study of literature</p> <p>CO -2: Familiarize with the tools of language that may be used in translation, textual analysis, etc.</p> <p>CO -3: Understand the correlation between the evolution of linguistic theory and the corresponding developments in the field of language learning</p>
Literary Criticism and Theory	<p>CO - 1: Interpret literature by applying critical approaches</p> <p>CO - 2: Analyze independently prose passages and poems</p> <p>CO - 3: Compare and contrast different critical theories</p> <p>CO – 4: Expand the theoretical perspective while appreciating the work of Art</p>
English Literature from 1550 to 1798	<p>CO - 1: Analyze selected masterpieces of English literature from the literary canon.</p> <p>CO - 2: Empower themselves to evaluate text independently</p> <p>CO - 3: Critically appreciate English poetry and its relevance to various Ideologies</p>
English Literature from 1798 to the Present	<p>CO - 1: Help the students undertake research in comparative literature</p> <p>CO - 2: Acquaint themselves with diction and style of different genres in English Literature</p> <p>CO - 3: Understand the creative process of poetry writing</p>
Translation Studies	<p>CO - 1: Understand the nature and meaning of the translation through various theories of translation</p> <p>CO - 2: Understand various concepts in translation through practical work of translation</p> <p>CO - 3: Familiarize with issues in translation theory and practice</p>

Introduction to Literary Forms	<p>CO - 1: Familiarize with the elements of short story</p> <p>CO -2: Familiarize with the elements and the types of novel, drama and poetry</p> <p>CO - 3: Critically evaluate poetry independently</p>
Research Methodology	<p>CO - 1: Familiarize the procedure involved in research</p> <p>CO - 2: Undertake research work</p> <p>CO - 3: Demonstrate high-level aptitude in literary research</p>
FYPG SEM. - II	
Contemporary Studies in English Language	<p>CO - 1: Understand how linguistic concepts can be applied to the study of literature</p> <p>CO -2: Familiarize with the tools of language that may be used in translation, textual analysis, etc.</p> <p>CO -3: Understand the correlation between the evolution of linguistic theory and the corresponding developments in the field of language learning</p>
Literary Criticism and Theory	<p>CO - 1: Interpret literature by applying critical approaches</p> <p>CO - 2: Analyze independently prose passages and poems</p> <p>CO - 3: Compare and contrast different critical theories</p> <p>CO – 4: Expand the theoretical perspective while appreciating the work of Art</p>
English Literature from 1550 to 1798	<p>CO - 1: Analyze selected masterpieces of English literature from the literary canon.</p> <p>CO - 2: Empower themselves to evaluate text independently</p> <p>CO - 3: Critically appreciate English poetry and its relevance to various Ideologies</p>
English Literature from 1798 to the Present	<p>CO - 1: Help the students undertake research in comparative literature</p> <p>CO - 2: Acquaint themselves with diction and style of different genres in English Literature</p> <p>CO - 3: Understand the creative process of poetry writing</p>
Translation Studies	<p>CO - 1: Understand the nature and meaning of the translation through various theories of translation</p> <p>CO - 2: Understand various concepts in translation through practical work of translation</p> <p>CO - 3: Familiarize with issues in translation theory and practice</p>
Introduction to Literary Forms	<p>CO - 1: Familiarize with the elements of short story</p> <p>CO -2: Familiarize with the elements and the types of novel, drama and poetry</p>

	CO - 3: Critically evaluate poetry independently
Research Methodology	CO - 1: Familiarize the procedure involved in research CO - 2: Undertake research work CO - 3: Demonstrate high-level aptitude in literary research
	SYPG SEM. - III
Mandatory EN-MJ-631T World Classics-I	CO1: understand the importance of classics through selected literary texts. CO2: appreciate and analyze the literary nuances in the prescribed works. CO3: critically analyze the prescribed texts from different perspectives. CO4: apply the knowledge of values, culture and human relations in everyday life. CO5: explore the possibilities of using knowledge gained through texts in their life.
Mandatory EN-MJ-632T American Literature I	CO-1: Understand the major historical and cultural developments of the American Literature CO-2: Understand the literary works of eminent American writers CO-3: Analyze the various genres of American literature (Poetry, Fiction and Drama) CO-4: Assess the connection between literary texts and American history and culture.
Mandatory EN-MJ-633T Indian Writing in English I	CO-1: Learn major movements and figures of Indian Literature in English CO-2: Acquire skill of literary sensibility CO-3: Use language in an artistic way CO-4: Understand the role of human values
Mandatory EN-MJ-634T English Language and Literature Teaching I	CO-1: Comprehend different theories, approaches, methods and techniques that could be incorporated for language and literature teaching. CO-2: Create tasks for developing language skills, and teaching pronunciation, grammar and vocabulary effectively CO-3: Justify their point of view on some of the significant issues in language teaching, etc.
Elective EN-ME-635T Women Studies	CO-1: Critically examine and analyses the selected representative literary samples. CO-2: Familiarize with key concepts in feminism and feminist theories CO-3: Develop the research aptitude and build their analytical skill through oral and written exercise

	<p>CO-4: Identify and analyze key themes, motifs, and literary devices in works of literature by marginalized writers</p> <p>CO-5: Evaluate the significance of literary representations in challenging dominant narratives and advocating for social change</p> <p>CO-6: Engage in critical discussions and debates on issues of social justice, equality, and human rights as reflected in marginalized literature</p>
<p>Elective EN-ME-635T Digital Humanities</p>	<p>CO 1: Demonstrate an understanding of the key tools, applications and concepts related to Digital Humanities.</p> <p>CO 2: Display an understanding of how technology is evolving and changing historical teaching, rewriting and publishing.</p> <p>CO 3: Employ digital tools and methods to analyze humanities</p> <p>CO 4: Critically evaluate and incorporate digital technology into academic research.</p> <p>CO 5: Create a piece of digital scholarship to understand various film theories.</p> <p>CO 6: interpret the prescribed films from different perspectives.</p> <p>CO 7: apply appropriate film theories to analyze the prescribed films.</p> <p>CO 8: the possibilities of research in film studies.</p>
<p>RP EN-RP-636P Research Project I</p>	<p>CO 1: Demonstrate an ability to plan a research project, such as is required in a research proposal prior to the launch of their work</p> <p>CO 2: Demonstrate expert knowledge in the subject of their research project, such as through an integrated literature survey</p> <p>CO 3: Synthesize the information to develop and complete a case study related to be submitted to journal or presented at a professional conference.</p> <p>CO 4: Evaluate multiple sources to develop a review of the literature demonstrating writing in the format of a peer reviewed / UGC Care Listed journal</p>
	<p>MA-II SEM. - IV</p>
<p>Mandatory EN-MJ-641T American Literature II</p>	<p>CO-1: Understand the major historical and cultural developments of the American Literature</p> <p>CO-2: Understand the literary works of eminent American writers</p> <p>CO-3: Analyze the various genres of American literature (Poetry, Fiction and Drama)</p> <p>CO-4: Assess the connection between literary texts and American history and culture.</p>
<p>Mandatory EN-MJ-642T</p>	<p>CO-1: Learn major movements and figures of Indian Literature in English</p>

<p>Indian Writing in English II</p>	<p>CO-2: Acquire skill of literary sensibility CO-3: Use language in an artistic way CO-4: Understand the role of human values</p>
<p>Mandatory EN-MJ-643T English Language and Literature Teaching II</p>	<p>CO-1: Comprehend different theories, approaches, methods and techniques that could be incorporated for language and literature teaching. CO-2: Create tasks for developing language skills, and teaching pronunciation, grammar and vocabulary effectively CO-3: Justify their point of view on some of the significant issues in language teaching, etc.</p>
<p>Elective EN-ME-644T A Marginalised Literature</p>	<p>CO-1: Critically examine and analyses the selected representative literary samples. CO-2: Familiarize with key concepts in feminism and feminist theories CO-3: Develop the research aptitude and build their analytical skill through oral and written exercise CO-4: Identify and analyze key themes, motifs, and literary devices in works of literature by marginalised writers CO-5: Evaluate the significance of literary representations in challenging dominant narratives and advocating for social change CO-6: Engage in critical discussions and debates on issues of social justice, equality, and human rights as reflected in marginalized literature.</p>
<p>Elective EN-ME-644T B Film Studies</p>	<p>CO 1: Demonstrate an understanding of the key tools, applications and concepts related to Digital Humanities. CO 2: Display an understanding of how technology is evolving and changing historical teaching, rewriting and publishing. CO 3: Employ digital tools and methods to analyze humanities CO 4: Critically evaluate and incorporate digital technology into academic research. CO 5: Create a piece of digital scholarship to understand various film theories.</p>
<p>RP EN-RP-645P Research Project</p>	<p>CO 1: Demonstrate an ability to plan a research project, such as is required in a research proposal prior to the launch of their work CO 2: Demonstrate expert knowledge in the subject of their research project, such as through an integrated literature survey CO 3: Synthesize the information to develop and complete a case study related to being submitted to journal or presented at a professional conference.</p>

DEPARTMENT OF GEOGRAPHY

Programme Outcomes: B.A. Geography

Department of Geography	After successful completion of three-year degree program in Geography, students should be able to
Programme Outcomes	<p>PO-1. Demonstrate knowledge of Human, Physical and Cultural features of the earth and locate them on a map.</p> <p>PO-2. Know about the basic disciplines of Geography and its subbranches.</p> <p>PO-3. Know the basic concepts and terminologies used in Geography like interior of the earth, plate tectonic, sea floor spreading, population growth, disasters, composition and structure of atmosphere, hydrosphere, etc.</p> <p>PO-4. Differentiate between minerals and rocks, weather and climate, interior of the earth, basic industries, farming etc.</p> <p>PO-5. Get information about the causes and effects of local, national and international problems like global warming, acid rain, ozone depletion, soil degradation, deforestation etc.</p> <p>PO-6. Carry out surveying and learn the art of map making and prepare maps for the areas with the help of surveying techniques.</p> <p>PO-7. Gain knowledge of quantitative methods and their ability to use statistical and cartographical methods to solve geographical problems.</p> <p>PO-8. Construct various types of projections and scales as per requirement of the study.</p> <p>PO-9. Collect primary and secondary data in the field.</p> <p>PO-10. Apply various statistical formulas to analyse data.</p> <p>PO-11. Use cartographic techniques with the help of simple software techniques like MS Excel.</p> <p>PO-12. Handle topographical and weather maps and interpret them.</p> <p>PO-13. Identify types of rocks.</p> <p>PO-14. Know about Geographical Information System (GIS) and Remote Sensing (RS).</p> <p>PO-15. Development of the basic concept of research.</p> <p>PO-16. The understanding of the basic framework of sampling and data collection.</p>

Programme Specific Outcomes: B.A. Geography

Department of Geography	After successful completion of three-year degree program in Geography students should be able to
Programme Specific Outcomes	<p>PSO-1: Give the students a sufficient knowledge of fundamental principles, methods, and a clear perception of geographical tools and know how to use them by modelling, solving, and interpreting.</p> <p>PSO-2: To prepare the students sufficiently in both logical and computational skills in geography.</p> <p>PSO-3: To develop a competitive attitude for building a strong academic – industrial collaboration, with focus on continuous learning skills.</p> <p>PSO-4: Enhancing students’ overall development and preparing them with geographical analysis abilities, problem solving skills, creative talent and power of communication necessary for various kinds of employment.</p> <p>PSO-5: Enabling students to develop a positive attitude towards geography as an interesting and valuable subject of study.</p> <p>PSO-6: Enabling students to Gauge the hypothesis, theories, and techniques provisionally.</p>

Course Outcomes: B.A. Geography

Course	Outcomes
	After completion of these courses’ students should be able to :-
Semester-I	
DISCIPLINE SPECIFIC CORE COURSE Physical Geography (BA-GE-111T)	<p>CO-1: Understand fundamental concepts, theories and approaches of Physical Geography</p> <p>CO-2: Recognize functions of complex interactive earth systems.</p> <p>CO-3: Demonstrate scientific explanation of physical processes of the atmosphere, hydrosphere and lithosphere.</p> <p>CO-4: Describe diverse human activities in changing natural environment.</p>
OPEN ELECTIVE (OE) Rainwater Harvesting (OE-GE-01)	<p>CO-1. Familiarize with the rainwater harvesting methods and techniques.</p> <p>CO-2. The student develops water conservation and management skills.</p> <p>CO-3. To acquire advanced knowledge about surface and rooftop rainwater harvesting.</p>

Introduction to Remote Sensing (GE- SEC-112T)	CO-1. Obtain knowledge about the concepts of remote sensing. CO-2. Acquire knowledge of satellite platforms & sensors.
Semester-II	
DISCIPLINE SPECIFIC CORE COURSE Human Geography (BA-GE-121T)	CO-1. To introduce the students to the basic concepts of Human geography. CO-2. The student develops theoretical, applied, and computational skills. CO-3. To acquaint the students with the value and application of Human geography in different regions and environments.
Water Pollution and Management (OE- GE- 02T)	CO-1. List the main water pollutants and their effects on human health and the environment CO-2. Discuss several types & causes of water pollution. CO-3. To acquire knowledge about effects of surface & ground water pollution. CO-4. Describe techniques used for wastewater treatment.
Introduction to Geographical Information System (GE-SEC-122T)	CO-1. Comprehend knowledge about the concepts in GIS. CO-2. Acquire skills in map-making using GIS
VALUE EDUCATION COURSE (VEC) Environmental Science (VEC-01T)	CO-1. Understand the importance of environment and sustainable development CO-2. Understand the meaning, structure, functions and types of ecosystem. CO-3. Understand the classification and effects of over exploitation of natural resources CO-4. Understand the importance and levels of biodiversity and biogeographic zones of India.
Semester-III	
DSC-1 Geomorphology (GE-MJ-231T):	CO-1. To Understand the basic concepts, nature, and scope of geomorphology. CO-2. To Explain the origin, structure, and composition of the earth system. CO-3. To Identify different types of rocks, minerals, and weathering processes. CO-4. To Recognize various erosional and depositional landforms created

	by natural agents.
DSC-2 Practical in Scale and Map Projection (GE-MJ-232P):	<p>CO-1. To Understand the concept and types of map scales.</p> <p>CO-2. To Convert scales and calculate distance on maps.</p> <p>CO-3. To Understand principles and types of map projections.</p> <p>CO-4. To gain knowledge of Construct and interpret different map projections.</p> <p>CO-5.to understand the different types of maps and map scale.</p> <p>CO-6. To Apply economic theories to real-world market situations and interpret diagrams related to cost, revenue, market equilibrium, and factor pricing.</p>
DSC 3: Geography of Maharashtra (GE-MN-233T):	<p>CO-1. To Understand the physical geography of Maharashtra.</p> <p>CO-2. To Explain climate, soil, and natural resources of Maharashtra.</p> <p>CO-3. To Analyze agricultural and industrial development in the state.</p> <p>CO-4. To Understand regional development issues and planning in Maharashtra.</p> <p>CO-5. To Explain regional disparity in development.</p>
Vocational Skill Course (VSC): Fundamentals of Remote Sensing (GE-VSC-234T)	<p>CO-1. To Understand the basic principles of remote sensing.</p> <p>CO-2. To Identify different types of satellites and sensors.</p> <p>CO-3. To Interpret satellite imagery and aerial photographs.</p> <p>CO-4. To Apply remote sensing techniques in geographical analysis.</p>
FIELD PROJECT CORE COURSE -1: Field Project (GE-FP-235P)	<p>CO-1. To Conduct field observation and geographical surveys.</p> <p>CO-2. To Collect primary data using field techniques.</p> <p>CO-3. To Organize, tabulate, analyze, and interpret field data using statistical and analytical tools</p> <p>CO-4. Prepare a structured field project report including introduction, objectives, methodology, data analysis, findings, conclusions, and recommendations.</p> <p>CO-5. Prepare field reports based on geographical studies.</p> <p>CO-6. To Present research findings effectively through written reports and oral presentations.</p> <p>CO-7. Work collaboratively in teams and follow ethical practices in data</p>

	collection and reporting.
Open Elective (OE): Watershed Management (GE-OE-201T)	<p>CO-1. To Understand the concept and importance of watershed management.</p> <p>CO-2. To Identify watershed characteristics and drainage systems.</p> <p>CO-3. To explain soil and water conservation techniques.</p> <p>CO-4. To Evaluate watershed development programs.</p>
	S. Y. U.G. (SEM- IV)
DSC-3 Population and Settlement Geography (GE-MJ-241T)	<p>CO-1. To Understand population distribution, growth, and structure.</p> <p>CO-2. To Analyze demographic characteristics and migration.</p> <p>CO-3. To Explain rural and urban settlement patterns.</p> <p>CO-4. To Understand Concept of Over Population, Under Population & Optimum Population, Evaluate population problems and settlement planning.</p> <p>CO-5. To Understand Distribution and Density of Population, Sources of Population Data</p>
DSC-4 Techniques of Spatial Analysis (GE-MJ-242P)	<p>CO-1. To introduce S.O.I. Toposheet & Relief Representation</p> <p>CO-2. To Understand Interpretation of S.O.I. Toposheets and Data generation.</p> <p>CO-3. To understand the Introduction & Interpretation Weather Maps</p> <p>CO-4. To acquire advanced knowledge about observation of weather Maps. Use statistical methods in geographical research.</p> <p>CO-5. To Apply quantitative techniques to geographical data</p>
DSC 3: Practical in Cartographic Techniques (GE-MN-243P)	<p>CO-1. To Understand the principles of cartography and acquire skills in map-making and spatial representation of geographical data.</p> <p>CO-2. Create two-dimensional and three-dimensional diagrams that will assist in analysing information.</p> <p>CO-3. Acquire skills in map-making and spatial representation of geographical data.</p> <p>CO-4. To Interpret cartographic representations</p> <p>CO-5. To Prepare thematic maps using various cartographic methods.</p>
Skill Enhancement Course (SEC): Practical	CO-1. To Student can explain different characteristics of Remote Sensing and GIS.

in Remote Sensing and GIS (GE-SEC-244P)	CO-2. To know about Aerial Photography EMR Interaction. CO-3. To acquire advanced knowledge & skill about Image Pre- Processing (Digital and Manual Methods) Classification and Interpretation. CO-4. To Apply geospatial techniques for environmental studies.
T. Y. B.A. (SEM- V)	
Geography of India -I	CO-1. To acquaint the students with geography of our Nation. CO-2. To make the student aware of the magnitude of problems and Prospects at National level. CO-3. To help the students to understand the inter relationship between the subject and the society. CO-4. To help the students to understand the recent trends in regional studied
Geography of India - II	CO-1. To acquaint the students with geography of our Nation. CO-2. To make the student aware of the magnitude of problems and Prospects at National level. CO-3. To help the students to understand the inter relationship between the subject and the society. CO-4. To help the students to understand the recent trends in regional Studied
Practical Geography- I (Techniques of Spatial Analysis) Practical Geography- II (Techniques of Spatial Analysis, Surveying and Excursion /Village/ Project Report)	CO-1. To introduce the basic concepts and techniques of Geographical Analysis. CO-2. To introduce the students with SOI Toposheets and acquire the Knowledge of Toposheet interpretation. CO-3. To introduce the students with Weather Maps and acquire the Knowledge of its interpretation. CO-4. To introduce the students with Aerial Photographs and Satellite Images and acquire knowledge to interpret it . CO-5. To acquaint students with the spatial and structural characteristics of Practical Geography. CO-6. To explain the elementary and essential principles on field of practical work.

<p>SEC 2 C Value/Skill based Course Research Methodology - I</p>	<p>CO-1. To develop the understanding of the basic concept of research CO-2. To develop the understanding of the basic framework of sampling and data collection CO-3. To develop the understanding of various sampling methods and Techniques</p>
<p>Semester-VI</p>	
<p>SEC 2 D Value/ Skill based Course Research Methodology – II</p>	<p>CO-1. To identify various sources of information for data collection. CO-2. Understanding of the conducting survey on various issues and developing the Report writing skill of students</p>
<p>Geography of Disaster Management-I & II</p>	<p>CO-1. To introduce students the concept of disaster & its relationship with Geography. CO-2. To acquaint the students with the utility & application of hazards in different areas & its management. CO-3. To make the students aware of the need for protection & disaster management.</p>

PROGRAMME OUTCOMES: M.A. Geography

Department of Geography	After successful completion of Two-year degree program in Geography student should be able to:
Programme Outcomes	<p>PO-1. Ability of Problem Analysis: Student will be able to analyses the problems of physical as well as cultural environments of both rural and urban areas. Moreover, they will try to find out the possible measures to solve those problems.</p> <p>PO-2. Conduct Social Survey Project: They will be eligible for conducting social survey projects, which are needed for measuring the status of development of a particular group or section of society.</p> <p>PO-3. Individual and teamwork: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.</p> <p>PO-4. Application of modern instruments: Students will be able to learn the application of various modern instruments and by these, they will be able to collect primary data.</p> <p>PO-5. Application of GIS and modern Geographical Map Making Techniques: They will learn how to prepare map based on GIS by using the modern geographical map-making techniques.</p> <p>PO-6. Critical Thinking: Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions from different perspectives.</p> <p>PO-7. Development of Observation Power: As a student of Geography Of course, they will be capable of developing their observation power through field experience and in future, they will be able to identify the socio-environmental problems of a locality.</p> <p>PO-8. Development of Communication Skill and Interaction Power: After the completion of the course, they will be efficient in their communication skill as well as power of social interaction. Some of the students are being able to understand and write effective reports and design credentials, make effective demonstrations, and give and receive clear instructions.</p> <p>PO-9. Effective Citizenship: Demonstrate empathetic social concern and equity centered national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.</p> <p>PO-10. Enhancement of the ability of Management: Demonstrate</p>

	<p>knowledge and understanding of the management principles and apply these to their own work, as a member and leader in a team, to manage projects. They will perform effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.</p>
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Programme Specific Outcomes: M.A. Geography

Department of Geography	<p>After successful completion of Two-year degree program in Geography student should be able to</p>
	<p>PSO-1. Design and conduct independent research in their chosen field in the discipline</p> <p>PSO-2. Demonstrate knowledge of concepts, methods, and theories designed to enhance understanding of the natural world and human society.</p> <p>PSO-3. Communicate the results and significance of their research in both written and oral form</p> <p>PSO-4. Evaluate how historical events have been influenced by, and have influenced, physical and human geographic factors in local, regional, national, and global settings.</p> <p>PSO-5. Examine social and environmental processes, with a particular focus on space and place, critical theory, practical application, analysis and intervention in chosen field within the discipline of Geography</p> <p>PSO-6. Evaluate causes, consequences, and possible solutions to persistent, contemporary, and emerging global issues.</p> <p>PSO-7. Follow established ethical guidelines for research and teaching</p> <p>PSO-8. Have an in-depth understanding of and mastery of the literature in, at least one particular geographic subfield.</p> <p>PSO-9. Classify processes of environmental change and evaluate the relationship between human beings and their surroundings, bringing to bear knowledge from many disciplines.</p>

Course Outcomes: M.A. Geography

Course	Outcomes
	After completion of these courses' students should be able to:-
Semester-I	
GE-MJ-511T: Principles of Geomorphology	<p>CO-1. Accurately describe the concept of a drainage basin and stream network, including their components and interconnectedness.</p> <p>CO-2. Demonstrate a comprehensive understanding of the basic laws and models of fluvial processes, enabling them to explain and apply them to real-world scenarios.</p> <p>CO-3. Discuss the characteristics of drainage basin hydrology, including aspects such as precipitation, runoff, and stream flow patterns.</p> <p>CO-4. Apply quantitative methods to measure and assess fluvial processes and landforms, allowing them to collect and analyze data related to river systems effectively.</p> <p>CO-5. Analyze the role of fluvial processes in shaping landscapes, including erosion, deposition, and landform evolution.</p> <p>CO-6. Explain in detail the factors influencing the formation and evolution of river channels, such as sediment transport, channel morphology, and boundary conditions.</p> <p>CO-7. Identify different flow types within a river system and measure the velocity of the river flow, utilizing appropriate measurement techniques and tools.</p>
GE-MJ-512T: Principles of Population Geography	<p>CO-1. Aware of basic principles and concepts in population geography.</p> <p>CO-2. Knows the various theories in population geography</p> <p>CO-3. Understood the dynamics of population and its role in population policies</p> <p>CO-4. Realize the worldwide distribution of population.</p> <p>CO-5. By understanding about population structure and characteristics of different countries, they can also predict the future population scenario of the country.</p> <p>CO-6. Understanding the population growth of different countries, they can also predict the future population setting of the country.</p>
GE-MJ-513P: Practicals in Geomorphology	<p>CO-1. Understand the stream ordering methods of stappers and Harton and calculate the stream orders and bifurcation ratio</p> <p>CO-2. Getting knowledge of the drainage basin analysis and preparing the relative relief map, absolute relief map, and hypsometric analysis.</p> <p>CO-3. Understand the slope profile and their types and draw the block</p>

	<p>diagram</p> <p>CO-4. Understand a river's cross-section through toposheet.</p>
GE-MJ-514P: Practicals in Population Geography	<p>CO-1. Understand calculation techniques of growth rates.</p> <p>CO-2. Calculate projection and apply it to various states of India.</p> <p>CO-3. Studying in hdi and gdi gives me knowledge of society.</p> <p>CO-4. Apply various theories in population geography to their society.</p> <p>CO-5. Understood the dynamics of population and its role in population policies</p> <p>CO-6. By understanding about population structure and characteristics of different countries, they can also predict the future population scenario of the country.</p> <p>CO-7. Understanding the population growth of different countries, they can also predict the future population setting of the country.</p>
GE-MJ-515P: Practicals in Agriculture Geography	<p>CO-1. Students will be able to calculate the level and index of agricultural productivity</p> <p>CO-2. Students will be able to calculate crop combination using various methods</p> <p>CO-3. Students will be able to calculate agricultural efficiency.</p>
GE-ME-516T: Agriculture Geography	<p>CO-1. Understand the introduction to agriculture, nature, scope, significance, and approaches of agriculture geography.</p> <p>CO-2. Understand the influence of physical, economic, and technological factors on agriculture patterns.</p> <p>CO-3. Getting ideas of the agricultural system its meaning and concept, Whittlesey's classification of the agricultural system.</p> <p>CO-4. Understand the definition and characteristics of arid and semi-arid regions and study droughts and famines, and the role of irrigation and dry farming.</p> <p>CO-5. Understand types of agriculture and problem and prospects of agriculture and study sustainable agricultural development in India.</p>
GE-RM-517T: Research Methodology in Geography	<p>CO-1. Understand the research process and different types of research designs</p> <p>CO-2. Identify research problems and formulate research questions</p> <p>CO-3. Choose appropriate research methods and data collection techniques</p> <p>CO-4. Analyze and interpret research data</p> <p>CO-5. Write research reports and communicate research findings</p>

	effectively CO-6. Understand the new trends and approaches in research methodology. CO-7. Analyze and apply the research aptitude in their research work.
Semester-II	
GE-MJ-521T: Principles of Climatology	CO-1. Understand the difference between weather & climate and nature, scope, origin, composition, and structure of the atmosphere. CO-2. Getting facts about Heat Budget and factors that effects Heat Budget. CO-3. Understand the concept of horizontal, vertical temperature, and inversion of temperature. CO-4. Identify the Atmospheric pressure and winds humidity and the concept of precipitation and its types. CO-5. Understand the Air masses and Fronts and the Weather Forecasting. CO-6. Students will understand the insolation, mechanism of heat transfer, lapse rate, and inversion of temperature. CO-7. Students will recognize atmospheric pressure, pressure belts, and their relationship with the wind system.
GE-MJ-522T: Principles of Economic Geography	CO-1. Students understand the nature, scope, approaches, production, exchange, consumption, and recent trends of economic geography. CO-2. Understand the fundamental theories in economic geography. CO-3. Review, understand and apply the modes of economic development by various models.
GE-MJ-523T: Geography of Tourism	CO-1. Students understand the tourism influencing factors: historical, natural, social-cultural, and economic. CO-2. Study tourism motivating factors for pilgrimages, leisure, recreation, and elements. CO-3. Understand the tourism types: eco-ethnos coastal and adventure tourism, national and international tourism, globalization, and tourism. CO-4. Study and understand the environmental laws and tourism-current trends, spatial and recent changes, tourism circuits-short and longer, accommodation and supplementary accommodation other facilities, Indian hotel industry.
GE-MJ-524P: Practicals in Climatology	CO-1. Students will be able to measure weather elements using weather instruments CO-2. Students will be able to represent climatic data using appropriate

	<p>methods</p> <p>CO-3. Students will classify climate using Koppen's and Thornthwaite's methods</p>
<p>GE-MJ-525P: Practicals in Economic Geography</p>	<p>CO-1. Understand concepts of crop combination, agricultural efficiency, and agricultural productivity.</p> <p>CO-2. Examine Location Quotient, Lorenz Curve, Gini's Coefficient, and Von Thunen.</p> <p>CO-3. Understand transport network analysis</p> <p>CO-4. Get information about the gravity potential population surface model</p> <p>CO-5. Understand the application of the breaking point theory (trade area)</p>
<p>Practical of Statistical Techniques for Geography</p>	<p>CO-1. Understand the statistical characteristics of geographical data, scales of measurement.</p> <p>CO-2. Clear the facts about the probability, types of probability and applications and uses.</p> <p>CO-3. Understand the concept of sampling and designing and conduct a sample survey for data collation and data analysis.</p> <p>CO-4. Evaluate, calculate and understand the parametric and non-parametric statistical tests.</p> <p>CO-5. Understand the correlation and regression analysis and their application in various fields of geography.</p>
<p>Semester-III</p>	
<p>Principles of Geographic Information System (GE-MJ-631T)</p>	<p>CO1: Understand basic concepts and components of GIS.</p> <p>CO2: Explain spatial data models such as raster and vector.</p> <p>CO3: Apply GIS techniques for spatial data analysis.</p> <p>CO4: Perform overlay analysis and thematic mapping.</p>
<p>Geographical Thoughts (GE-MJ-632T)</p>	<p>CO1: Understand historical development of geographical thought.</p> <p>CO2: Analyze determinism, possibilism and neo-determinism.</p> <p>CO3: Interpret modern geographical paradigms and models.</p>

<p>Statistical Techniques in Geography (GE-MJ-633P)</p>	<p>CO1: Apply statistical methods in geographical research. CO2: Use correlation and regression techniques. CO3: Analyze spatial data using quantitative techniques.</p>
<p>Practical in Geographic Information System (GE-MJ-634P)</p>	<p>CO1: Perform digitization and georeferencing. CO2: Create spatial database and thematic maps. CO3: Conduct spatial analysis using GIS software.</p>
<p>Oceanography (GE-ME-635T)</p>	<p>CO1: Understand origin and structure of ocean basins. CO2: Analyze physical and chemical properties of seawater. CO3: Evaluate marine resources and ocean pollution.</p>
<p>Research Project-I (GE-RP-636P)</p>	<p>CO1: Understand the fundamentals of research methodology and the process of selecting a research problem in Geography. CO2: Develop skills in literature review and identification of research gaps related to geographical studies. CO3: Formulate research objectives, hypotheses and design an appropriate research methodology. CO4: Collect primary and secondary data using field survey, questionnaires, and geospatial techniques. CO5: Apply basic statistical and GIS techniques for preliminary analysis of geographical data. CO6: Prepare a structured research proposal and present preliminary findings effectively.</p>
	<p>Semester-IV</p>
<p>Introduction to Remote Sensing (GE-MJ-641T)</p>	<p>CO1: Understand the basic concepts, principles, and history of Remote Sensing in geographical studies. CO2: Explain the electromagnetic spectrum and energy interactions with the atmosphere and Earth's surface. CO3: Identify different satellite platforms, sensors, and types of remote sensing data. CO4: Interpret satellite imagery and aerial photographs for geographical analysis. CO5: Analyse the applications of Remote Sensing in land use, agriculture,</p>

	<p>water resources, and environmental studies.</p> <p>CO6: Apply Remote Sensing techniques for spatial analysis and geographical research.</p>
<p>Geography of India (GE-MJ-642T)</p>	<p>CO1: Understand the physiographic divisions of India and their geographical significance.</p> <p>CO2: Analyze the climate, soils, natural vegetation, and drainage systems of India.</p> <p>CO3: Explain the distribution and utilization of natural resources such as minerals, water, and forests in India.</p> <p>CO4: Examine the agricultural patterns, cropping systems, and irrigation practices in different regions of India.</p> <p>CO5: Assess the industrial development, transportation networks, and economic activities across India.</p> <p>CO6: Evaluate the regional disparities and development issues in India using geographical perspectives.</p>
<p>Watershed Management (GE-MJ-643T)</p>	<p>CO1: Understand the concept, scope, and importance of watershed management in sustainable resource development.</p> <p>CO2: Explain the components and characteristics of a watershed, including drainage patterns, slope, soil, and land use.</p> <p>CO3: Analyze the causes and impacts of soil erosion, water scarcity, and land degradation in watershed areas.</p> <p>CO4: Evaluate various watershed management techniques such as soil conservation, rainwater harvesting, and afforestation.</p> <p>CO5: Assess the role of community participation and government programmes in watershed development.</p> <p>CO6: Apply geospatial techniques and planning approaches for sustainable watershed management and rural development.</p>
<p>Practical in Remote Sensing (GE-MJ-644P)</p>	<p>CO1: Understand the basic principles and concepts of Remote Sensing and its applications in geographical studies.</p> <p>CO2: Identify different satellite platforms, sensors, and types of remote sensing data used for spatial analysis.</p> <p>CO3: Interpret satellite imagery and aerial photographs for identifying landforms, land use, and environmental features.</p> <p>CO4: Perform image processing techniques such as image enhancement, classification, and interpretation.</p> <p>CO5: Prepare thematic maps and spatial data outputs using Remote</p>

	<p>Sensing techniques.</p> <p>CO6: Apply Remote Sensing applications in environmental monitoring, resource management, and geographical research.</p>
<p>Practical in Watershed Management (GE-MJ-645P)</p>	<p>CO1: Understand the concept, objectives, and importance of watershed management.</p> <p>CO2: Identify watershed characteristics using topographic maps, satellite imagery, and GIS tools.</p> <p>CO3: Delineate watershed boundaries and analyze drainage patterns using geospatial techniques.</p> <p>CO4: Assess soil erosion, land use patterns, and water resource availability in watershed areas.</p> <p>CO5: Apply watershed management practices for sustainable land and water resource development.</p> <p>CO6: Prepare watershed management plans using GIS-based spatial analysis.</p>
<p>Geography of Rural Development (GE-ME-646T)</p>	<p>CO1: Understand the concept, nature, and scope of rural development in geographical studies.</p> <p>CO2: Analyze the physical, social, and economic characteristics of rural areas and their spatial variations.</p> <p>CO3: Examine the problems and challenges of rural development, such as poverty, unemployment, and lack of infrastructure.</p> <p>CO4: Evaluate various rural development programmes and policies implemented in India.</p> <p>CO5: Assess the role of agriculture, natural resources, and rural industries in rural development.</p> <p>CO6: Apply geographical approaches and planning strategies for sustainable rural development.</p>
<p>Research Project-II (GE-RP-647P)</p>	<p>CO1: Conduct independent research work in a selected area of Geography.</p> <p>CO2: Apply geospatial technologies such as GIS, Remote Sensing, and GPS in geographical research.</p>

DEPARTMENT OF HINDI

Programme Outcomes: B. A. Hindi

Department of Hindi	After successful completion of three-year degree program in Hindi students should be able to
Programme Outcomes	<p>A graduate of this program is expected to:</p> <p>PO-1: छात्रों को हिंदी भाषा के उद्भव, विकास तथा विभिन्न रूपों एवं बोलियों का ज्ञान प्राप्त हुआ।</p> <p>PO-2: छात्रों काव्यशास्त्र का सैद्धांतिक एवं अनुप्रयोगात्मक ज्ञान प्राप्त हुआ।</p> <p>PO-3: छात्रों में हिंदी साहित्य के इतिहास के विकासक्रम और लेखन परंपरा के संबंध में यथोचित दृष्टिकोण विकसित हुआ।</p> <p>PO-4: छात्रों को भाषा विज्ञान के माध्यम से हिंदी भाषा के व्यवस्थित और यथोचित प्रयोग का ज्ञान प्राप्त हुआ।</p> <p>PO-5: छात्र हिंदी गद्य और पद्य की विभिन्न साहित्य विधाओं से परिचित हुए।</p> <p>PO-6: छात्रों में हिंदी भाषा और साहित्य को समझने, अध्ययन, आस्वादन और मूल्यांकन की क्षमता निर्माण हुई।</p> <p>PO-7: साहित्य की विभिन्न विधाओं के माध्यम से छात्रों का भावात्मक विकास हुआ।</p> <p>PO-8: छात्रों में हिंदी साहित्य के माध्यम से नैतिक मूल्य, राष्ट्रीय मूल्य तथा सामाजिक मूल्यों के प्रति आस्था निर्माण हुई।</p> <p>PO-9: छात्रों को सरकारी कार्यालयों में प्रयुक्त कार्यालयीन हिंदी भाषा का परिचय प्राप्त हुआ।</p> <p>PO-10: छात्रों को संचार माध्यम लेखन एवं हिंदी भाषा का परिचय प्राप्त हुआ।</p>

Programme Specific Outcomes: B. A. Hindi

Department of Hindi	After successful completion of three year degree program in Hindi students should be able to
Programme Specific Outcomes	<p>PSO-1: हिंदी भाषा का व्यवस्थित और यथोचित ज्ञान</p> <p>PSO-2: भावात्मक और सौंदर्यात्मक विकास</p> <p>PSO-3: निवेदक और सूत्र संचालक</p> <p>PSO-4: पटकथा लेखक, संवाद लेखक, विज्ञापन लेखक</p> <p>PSO-5: प्रकाशक, संपादक, संवाददाता</p> <p>PSO-6: दुभाषिया, अनुवादक, प्रूफ शोधक</p> <p>PSO-7: एम.ए., बी. एड.,</p> <p>PSO-8: पत्रकारिता, अनुवाद और दूरसंचार : पदविका और पदवी</p> <p>PSO-9: मूल्य संवर्धन : नैतिक, राष्ट्रीय, सामाजिक मूल्यों का संवर्धन</p> <p>PSO-10: राष्ट्रीय एकात्मता, समानता, बंधुता, उत्तरदायित्व और वैज्ञानिकता का विकास</p> <p>PSO-11: नागरी सेवा परीक्षा</p> <p>PSO-12: वाचन, श्रवण, संवाद एवं लेखन कौशल का विकास</p> <p>PSO-13: माध्यम लेखन कौशल का विकास</p>

Course Outcomes: B. A. Hindi

Outcomes	
Course	After completion of these courses' students should be able to:-
Semester-I	
आधुनिक हिंदी साहित्य - 1 BA-HN-111T	CO-1: छात्र हिंदी कहानी एवं काव्य साहित्य से अवगत हुए। CO-2: छात्र हिंदी के प्रतिनिधि कहानीकारों एवं कवियों से परिचित हुए। CO-3: छात्रों में साहित्य अध्ययन की दृष्टि विकसित हुई। CO-4: छात्रों का मौलिक लेखन की ओर रुझान बढ़ गया। CO-5: छात्रों में लेखन कौशल एवं आलोचनात्मक दृष्टिकोण विकसित हुआ। CO-6: छात्रों में कहानी एवं काव्य साहित्य के मूल्यांकन का कौशल विकसित हुआ। CO-7: छात्र कहानी एवं काव्य साहित्य की संवेदना तथा शिल्पगत अध्ययन से अवगत हुए। CO-8: छात्रों में सृजनात्मक शक्ति, कल्पना शक्ति, विचार क्षमता तथा सामाजिक ऐक्य भावना विकसित हुई। CO-9: छात्रों में राष्ट्रीय ऐक्य, सामाजिक उत्तरदायित्व, वैज्ञानिकता आदि मूल्य वृद्धिगत हुए। CO-10: छात्रों में राष्ट्रप्रेम तथा सामाजिक प्रतिबद्धता की भावना विकसित हुई।
हिंदी पत्रकारिता SEC-HN-112T	CO-1: छात्र पत्रकारिता के स्वरूप से परिचित हो गए। CO-2: छात्रों में पत्रकारिता से संबंधित लेखन कौशल विकसित हुआ। CO-3: छात्र पत्रकारिता के विभिन्न भेदों से अवगत हुए। CO-4: छात्रों में समाचार लेखन कौशल विकसित हुआ। CO-5: छात्र समाचार के तत्वों से अवगत हुए। CO-6: छात्रों को समाचार लेखन के सिद्धांतों की जानकारी प्राप्त हुई। CO-7: छात्र समाचार लेखन के सोपानों से अवगत हुए। CO-8: छात्र समाचार लेखक के गुणों से परिचित हुए। CO-9: छात्र पत्रकारिता के क्षेत्र में रोजगार प्राप्ति हेतु तैयार हुए।
हिंदी साहित्य का इतिहास (आदिकाल एवं भक्तिकाल) OE-HN-01T	CO-1: छात्र हिंदी साहित्य लेखन की परंपरा से अवगत हुए। CO-2: छात्र हिंदी साहित्य के काल विभाजन से परिचित हुए। CO-3: छात्रों को हिंदी साहित्य के नामकरण का परिचय प्राप्त हुआ। CO-4: छात्र आदिकालीन एवं भक्तिकालीन परिस्थितियों से अवगत हुए। CO-5: छात्र आदिकालीन एवं भक्तिकालीन साहित्य की प्रवृत्तियों से परिचित हुए। CO-6: छात्रों को आदिकाल तथा भक्तिकाल के प्रमुख कवियों का परिचय प्राप्त हुआ। CO-7: छात्र संत काव्यधारा की प्रवृत्तियों से परिचित हुए। CO-8: छात्र सूफी काव्यधारा की प्रवृत्तियों से अवगत हुए। CO-9: छात्र रामभक्ति काव्यधारा की प्रवृत्तियों से परिचित हुए। CO-10: छात्र कृष्णभक्ति काव्यधारा की प्रवृत्तियों से अवगत हुए।
Semester-II	

<p>आधुनिक हिंदी साहित्य - 2 BA-HN-121T</p>	<p>CO-1: छात्र हिंदी व्यंग्य साहित्य के स्वरूप से परिचित हुए। CO-2: छात्र निबंध एवं एकांकी विधा से अवगत हुए। CO-3: छात्र रेखाचित्र विधा से परिचित हुए। CO-4: छात्र हिंदी के प्रतिनिधि कवियों से परिचित हुए। CO-5: छात्रों में काव्य के मूल्यांकन का कौशल विकसित हुआ। CO-6: छात्र काव्य की संवेदना तथा शिल्पगत अध्ययन से अवगत हुए। CO-7: छात्रों में निबंध लेखन कौशल विकसित हुआ। CO-8: छात्र पत्र लेखन कला से अवगत हुए। CO-9: छात्रों में लेखन कौशल विकसित हुआ। CO-10: छात्रों में सर्जनात्मक शक्ति एवं संभाषण कला विकसित हुई। CO-11: साहित्य के माध्यम से छात्रों का भावात्मक विकास हुआ।</p>
<p>माध्यम लेखन SEC-HN-122T</p>	<p>CO-1: छात्र माध्यम लेखन के स्वरूप से परिचित हुए। CO-2: छात्र माध्यम लेखन के विभिन्न प्रकारों से अवगत हुए। CO-3: छात्रों में विज्ञापन लेखन कौशल विकसित हुआ। CO-4: छात्र साक्षात्कार लेखन की प्रक्रिया से अवगत हुए। CO-5: छात्रों में रेडियो लेखन कौशल विकसित हुआ। CO-6: छात्रों में वार्ता लेखन कौशल निर्माण हुआ। CO-7: छात्रों में रेडियो नाटक लेखन कौशल विकसित हुआ। CO-8: छात्र उद्घोषणा लेखन की प्रक्रिया से अवगत हुए। CO-9: छात्रों में टेलीविजन लेखन कौशल निर्माण हुआ। CO-10: छात्र मिडिया के क्षेत्र में रोजगार प्राप्ति हेतु तैयार हुए।</p>
<p>हिंदी साहित्य का इतिहास (रीतिकाल एवं आधुनिक काल) OE-HN-02T</p>	<p>CO-1: छात्र रीतिकाल एवं आधुनिक काल की परिस्थितियों से अवगत हुए। CO-2: छात्र रीतिकाल एवं आधुनिक काल की साहित्य की प्रवृत्तियों से परिचित हुए। CO-3: छात्र रीतिसिद्ध काव्य, रीतिबद्ध काव्य तथा रीतिमुक्त काव्य से परिचित हुए। CO-4: छात्रों को रीतिकाल एवं आधुनिक काल के प्रमुख कवियों का परिचय प्राप्त हुआ। CO-5: छात्र भारतेंदुयुगीन काव्य की प्रवृत्तियों से परिचित हुए। CO-6: छात्रों को द्विवेदीयुगीन काव्य की प्रवृत्तियों से अवगत कराना। CO-7: छात्र छायावाद की प्रवृत्तियों से परिचित हुए। CO-8: छात्र प्रगतिवाद की प्रवृत्तियों से अवगत हुए। CO-9: छात्र प्रयोगवाद की प्रवृत्तियों से परिचित हुए। CO-10: छात्र राष्ट्रीय काव्यधारा की प्रवृत्तियों से अवगत हुए। CO-11: छात्रों में काव्य के मूल्यांकन की दृष्टि विकसित हुई।</p>
<p>Semester-III</p>	
<p>काव्यशास्त्र HN-MJ-231T</p>	<p>CO-1: छात्रों को काव्यशास्त्र का परिचय प्राप्त हुआ। CO-2: छात्र काव्य के स्वरूप से अवगत हुए। CO-3: छात्र काव्य-हेतुओं से अवगत हुए। CO-4: छात्र काव्य प्रयोजनों से परिचित हुए। CO-5: छात्र काव्य के तत्वों से अवगत हुए। CO-6: छात्र शब्द-शक्तियों से परिचित हुए। CO-7: छात्र रस का स्वरूप समझ गए।</p>

	<p>CO-8: छात्रों में भारतीय काव्यशास्त्र के प्रति रुचि निर्माण हुई।</p> <p>CO-9: छात्रों में भारतीय काव्यशास्त्र के प्रति समीक्षात्मक दृष्टिकोन विकसित हुआ।</p>
<p>मध्ययुगीन काव्य तथा उपन्यास साहित्य HN-MJ-232T</p>	<p>CO-1: छात्र मीराबाई के काव्य से अवगत हुए।</p> <p>CO-2: छात्र संत साहित्य के स्वरूप से परिचित हुए।</p> <p>CO-3: छात्रों को संत साहित्य की प्रवृत्तियों की जानकारी हुई।</p> <p>CO-4: छात्रों में काव्य मूल्यांकन की क्षमता विकसित हुई।</p> <p>CO-5: छात्रों में संत साहित्य के प्रति समीक्षात्मक दृष्टि विकसित हुआ।</p> <p>CO-6: छात्रों में आदर्श और मूल्य वृद्धिगत हुए।</p> <p>CO-7: छात्र भारतीय उपन्यास की अवधारणा से समझ गये।</p> <p>CO-8: छात्रों में उपन्यास के मूल्यांकन का कौशल विकसित हुआ।</p>
<p>आधुनिक कहानी, काव्य तथा व्यावहारिक हिंदी HN-MN-233T</p>	<p>CO-1: छात्र हिंदी कहानी साहित्य से अवगत हुए।</p> <p>CO-2: छात्र हिंदी के प्रातिनिधिक गद्यकारों से परिचित हुए।</p> <p>CO-3: छात्र कहानी की संवेदना तथा शिल्पगत अध्ययन से अवगत हुए।</p> <p>CO-4: छात्रों में सृजनात्मक शक्ति, कल्पना शक्ति तथा सामाजिक ऐक्य भावना विकसित हुई।</p> <p>CO-5: छात्रों को हिंदी काव्य साहित्य से अवगत हुए।</p> <p>CO-6: छात्र हिंदी के प्रतिनिधि कवियों से परिचित हो गए।</p> <p>CO-7: छात्र काव्य की संवेदना तथा शिल्पगत अध्ययन से अवगत हुए।</p> <p>CO-8: छात्रों में काव्य-सर्जन कला का विकास हुआ।</p> <p>CO-9: छात्रों में काव्य आस्वादन की रुचि विकसित हुई।</p> <p>CO-10: छात्रों में राष्ट्रप्रेम तथा सामाजिक प्रतिबद्धता की भावना विकसित हुई।</p>
<p>अनुवाद : स्वरूप एवं व्यवहार HN-VSC-234T</p>	<p>CO-1: छात्रों को अनुवाद के स्वरूप का परिचय प्राप्त हुआ।</p> <p>CO-2: छात्र अनुवाद प्रक्रिया से अवगत हुए।</p> <p>CO-3: छात्र अनुवादक के गुणों से अवगत हुए।</p> <p>CO-4: छात्र अनुवाद के क्षेत्रों से परिचित हुए।</p> <p>CO-5: छात्रों में अनुवाद कौशल विकसित हुआ।</p> <p>CO-6: छात्र अनुवाद की सहायक सामग्री से परिचित हुए।</p> <p>CO-7: छात्रों में मराठी से हिंदी में अनुवाद का कौशल विकसित हुआ।</p> <p>CO-8: छात्रों में अंग्रेजी से हिंदी में अनुवाद का कौशल विकसित हुआ।</p>
<p>हिंदी भाषा शिक्षण HN-AEC-03T</p>	<p>CO-1: छात्रों को हिंदी वर्णमाला का परिचय प्राप्त हुआ।</p> <p>CO-2: छात्र लिपि से अवगत हुए।</p> <p>CO-3: छात्र वर्णों के उच्चारण एवं वर्गीकरण से अवगत हुए।</p> <p>CO-4: छात्र स्वराघात से परिचित हुए।</p> <p>CO-5: छात्र समास से परिचित हुए।</p> <p>CO-6: छात्रों में लघुकथा लेखन का कौशल विकसित हुआ।</p> <p>CO-7: छात्र लघुकथाओं से परिचित हुए।</p> <p>CO-8: छात्र गीतों से अवगत हुए।</p> <p>CO-9: छात्रों में हिंदी भाषा और साहित्य के प्रति रुचि निर्माण हुई।</p>
<p>‘</p>	<p>CO-1: छात्र हिंदी कथा साहित्य के स्वरूप से अवगत हुए।</p>

<p>हिंदी साहित्य HN-OE-201T</p>	<p>CO-2: छात्र हिंदी कथा साहित्य के उद्भव एवं विकास से परिचित हुए। CO-3: छात्र हिंदी के विभिन्न कहानीकारों से परिचित हुए। CO-4: छात्र हिंदी काव्य साहित्य से अवगत हुए। CO-5: छात्र हिंदी काव्य साहित्य के उद्भव एवं विकास से परिचित हुए। CO-6: छात्र हिंदी के विभिन्न कवियों से परिचित हुए। CO-7: छात्रों में लेखन कौशल विकसित हुआ। CO-8: छात्रों में सृजनात्मक शक्ति, कल्पना शक्ति, विचार क्षमता तथा सामाजिक ऐक्य की भावना विकसित हुई।</p>
<p>क्षेत्रीय परियोजना (Field Project) HN-FP-236P</p>	<p>CO-1: छात्र क्षेत्रीय परियोजना के स्वरूप एवं महत्व से अवगत हुए। CO-2: छात्रों को क्षेत्रीय परियोजना कार्य का प्रत्यक्ष अनुभव प्राप्त हुआ।</p>
<p>Semester-IV</p>	
<p>साहित्य के भेद HN-MJ-241T</p>	<p>CO-1: छात्रों को गद्य के भेदों का परिचय प्राप्त हुआ। CO-2: छात्र उपन्यास एवं कहानी के स्वरूप एवं तत्वों से अवगत हुए। CO-3: छात्र निबंध के स्वरूप एवं तत्वों से अवगत हुए। CO-4: छात्र रेखाचित्र एवं संस्मरण के स्वरूप एवं तत्वों से परिचित हुए। CO-5: छात्र जीवनी के स्वरूप एवं तत्वों से अवगत हुए। CO-6: छात्रों को नाटक एवं एकांकी के स्वरूप एवं तत्वों का परिचय प्राप्त हुआ। CO-7: छात्र आलोचना विधा से परिचित हुए। CO-8: छात्र छंदों से परिचित हुए। CO-9: छात्रों में भारतीय काव्यशास्त्र के प्रति रुचि निर्माण हुई। CO-10: छात्रों में भारतीय काव्यशास्त्र के प्रति समीक्षात्मक दृष्टिकोण विकसित हुआ।</p>
<p>मध्ययुगीन काव्य तथा नाटक साहित्य HN-MJ-242T</p>	<p>CO-1: छात्र रहीम के काव्य से अवगत हुए। CO-2: छात्र बिहारी के काव्य से अवगत हुए। CO-3: छात्र बिहारी के काव्यकला से अवगत हुए। CO-4: छात्रों में नाटक विधा के आस्वादन की रुचि को बढ़ गयी। CO-5: छात्र रंगमंच से अवगत हुए। CO-6: छात्रों में अभिनय गुण विकसित हुए। CO-7: छात्र नाट्यालोचन से अवगत हुए।</p>
<p>एकांकी, व्यंग्य साहित्य तथा व्यावहारिक हिंदी HN-MN-243T</p>	<p>CO-1: छात्रों को हिंदी के कथेतर साहित्य से परिचित हुए। CO-2: छात्रों में एकांकी आस्वादन की रुचि विकसित हुए। CO-3: छात्रों को हिंदी व्यंग्य कहानी साहित्य से अवगत हुए। CO-4: छात्रों को हिंदी व्यंग्य काव्य साहित्य से अवगत हुए। CO-5: छात्रों को हिंदी एकांकी, व्यंग्य कहानी, व्यंग्य कविता विधाओं के रचनात्मक पहलुओं से परिचित हुए। CO-6: छात्रों में मानवीय मूल्य संवर्धित हुए। CO-7: छात्रों में देशप्रेम की भावना संस्कारित हुई।</p>
<p>जनसंचार माध्यम HN-SEC-244T</p>	<p>CO-1: छात्रों को जनसंचार माध्यम के स्वरूप का परिचय प्राप्त हुआ। CO-2: छात्र जनसंचार के विशिष्ट संघटक तत्वों से अवगत हुए। CO-3: छात्र जनसंचार के स्तरों से अवगत हुए।</p>

	<p>CO-4: छात्र संचार माध्यमों के उद्देश्यों से परिचित हुए।</p> <p>CO-5: छात्र माध्यम के भेदों से परिचित हुए।</p> <p>CO-6: छात्रों में कंटेंट तथा ब्लॉग लेखन कौशल विकसित हुआ।</p> <p>CO-7: छात्र फीचर लेखन के स्वरूप एवं तत्वों से परिचित हुए।</p> <p>CO-8: छात्रों में फीचर लेखन कौशल विकसित हुआ।</p> <p>CO-9: छात्रों में माध्यम लेखन के प्रति रुचि निर्माण हुई।</p>
<p>हिंदी साहित्य - 2 HN-OE-202T</p>	<p>CO-1: छात्र हिंदी व्यंग्य साहित्य के स्वरूप से अवगत हुए।</p> <p>CO-2: छात्र निबंध एवं एकांकी विधा से परिचित हुए।</p> <p>CO-3: छात्र रेखाचित्र विधा से परिचित हुए।</p> <p>CO-4: छात्र हिंदी काव्य साहित्य से अवगत हुए।</p> <p>CO-5: छात्रों में काव्य के मूल्यांकन का कौशल विकसित हुआ।</p> <p>CO-6: छात्र हिंदी के विभिन्न कवियों से परिचित हुए।</p> <p>CO-7: छात्रों में लेखन कौशल विकसित हुआ।</p> <p>CO-8: साहित्य के माध्यम से छात्रों का भावात्मक विकास हुआ।</p> <p>CO-9: छात्रों में सृजनात्मक शक्ति, कल्पना शक्ति, विचार क्षमता तथा सामाजिक ऐक्य की भावना विकसित हुई।</p>
<p>सामुदायिक सहभागिता कार्यक्रम Community Engagement Programme HN-CEP-245P</p>	<p>CO-1: छात्र क्षेत्रीय परियोजना के स्वरूप एवं महत्व से अवगत हुए।</p> <p>CO-2: छात्रों को क्षेत्रीय परियोजना कार्य का प्रत्यक्ष अनुभव प्राप्त हुआ।</p> <p>CO-3: छात्रों में समाज के प्रति उत्तरदायित्व की भावना विकसित हुई।</p> <p>CO-4: छात्रों में राष्ट्रप्रेम तथा सामाजिक प्रतिबद्धता की भावना विकसित हुई।</p> <p>CO-5: छात्र समाज जीवन एवं समस्याओं से अवगत हुए।</p> <p>CO-6: छात्रों में सहभागिता कौशल विकसित हुआ।</p>
<p>हिंदी भाषा शिक्षण HN-AEC-04T</p>	<p>CO-1: छात्रों को हिंदी वर्णमाला का परिचय प्राप्त हुआ।</p> <p>CO-2: छात्र लिपि से अवगत हुए।</p> <p>CO-3: छात्र वर्णों के उच्चारण एवं वर्गीकरण से अवगत हुए।</p> <p>CO-4: छात्र स्वराघात से परिचित हुए।</p> <p>CO-5: छात्र समास से परिचित हुए।</p> <p>CO-6: छात्रों में लघुकथा लेखन का कौशल विकसित हुआ।</p> <p>CO-7: छात्र लघुकथाओं से परिचित हुए।</p> <p>CO-8: छात्र गीतों से अवगत हुए।</p>
Semester-V	
<p>DSE-1C हिंदी साहित्य का इतिहास (35091)</p>	<p>CO-1. छात्रों को हिंदी साहित्य के इतिहास का परिचय प्राप्त हुआ।</p> <p>CO-2. छात्रों को साहित्येतिहास लेखन का परिचय प्राप्त हुआ।</p> <p>CO-3. छात्र हिंदी साहित्य के इतिहास के काल विभाजन और नामकरण से अवगत हो गए।</p> <p>CO-4. छात्रों को आदिकालीन साहित्य की प्रवृत्तियाँ, रचनाएँ और रचनाकारों का परिचय प्राप्त हुआ।</p> <p>CO-5. छात्र भक्तिकालीन साहित्य की प्रवृत्तियाँ, रचनाएँ और रचनाकारों से अवगत हो गए।</p> <p>CO-6. छात्रों को रीतिकालीन साहित्य की प्रवृत्तियाँ, रचनाएँ और रचनाकारों का परिचय प्राप्त हुआ।</p>
<p>DSE-2C भाषा विज्ञान</p>	<p>CO-1: छात्रों को भाषा विज्ञान के स्वरूप का परिचय प्राप्त हुआ।</p>

<p>(35092)</p>	<p>CO-2. छात्रों को भाषा विज्ञान की व्याप्ति समझ में आ गई। CO-3. छात्रों को भाषा विज्ञान के अध्ययन की दिशाओं का ज्ञान प्राप्त हुआ। CO-4. छात्र भाषा विज्ञान के अनुप्रयोगात्मक पक्ष से अवगत हो गए। CO-5. छात्रों को साहित्य के अध्ययन में भाषा विज्ञान की उपयोगिता समझ में आ गई। CO-6. छात्रों को भाषा विज्ञान का अन्य शाखाओं से संबंध का ज्ञान प्राप्त हुआ।</p>
<p>CC-1E कथेतर विधाएँ (35093)</p>	<p>CO-1. छात्रों को हिंदी संस्मरण साहित्य का परिचय प्राप्त हुआ। CO-2. छात्र हिंदी रेखाचित्र साहित्य से अवगत हो गए। CO-3. छात्रों में साहित्य के मूल्यांकन की दृष्टि विकसित हो गई। CO-4. छात्रों में संस्मरण और रेखाचित्र साहित्य के रसास्वादन की दृष्टि विकसित हुई। CO-5. छात्रों में सभा इतिवृत्त लेखन कौशल का विकास हुआ। CO-6. छात्रों में वार्ता लेखन कौशल का विकास हुआ।</p>
<p>SEC-2C पटकथा लेखन (35096)</p>	<p>CO-1. छात्रों को स्क्रिप्ट लेखन का परिचय प्राप्त हुआ। CO-2. छात्र दृश्य-श्रव्य माध्यम लेखन के विभिन्न प्रकारों से अवगत हो गए। CO-3. छात्रों में पटकथा लेखन की दृष्टि विकसित हो गई। CO-4. छात्रों में ड्राफ्ट बनाने का कौशल विकसित हुआ। CO-5. छात्रों में कथा और संवाद लेखन कौशल का विकास हो गया। CO-6. छात्र वृत्तचित्र और शॉर्टफिल्म लेखन से परिचित हो गए।</p>
<p>Semester-VI</p>	
<p>DSE-ID हिंदी साहित्य का इतिहास (36091)</p>	<p>CO-1. छात्र हिंदी साहित्य के आधुनिक काल की पृष्ठभूमि से अवगत हो गए। CO-2. छात्रों को भारतेंदू युगीन काव्य की विशेषताओं का परिचय प्राप्त हुआ। CO-3. छात्रों को द्विवेदी युगीन काव्य की विशेषताओं का परिचय प्राप्त हुआ। CO-4. छात्र आधुनिक काल की रचनाओं एवं रचनाकारों से परिचित हो गए। CO-5. छात्र हिंदी गद्य साहित्य के उद्भव विकास से अवगत हो गए।</p>
<p>DSE-2D भाषा विज्ञान (36092)</p>	<p>CO-1. छात्रों को हिंदी भाषा के स्वरूप का परिचय प्राप्त हुआ। CO-2. छात्र हिंदी भाषा के विविध रूपों से परिचित हो गए। CO-3. छात्रों को हिंदी भाषा की विभिन्न बोलियों का परिचय प्राप्त हुआ। CO-4. छात्र भाषा विज्ञान के अनुप्रयोगात्मक पक्ष से अवगत हो गए। CO-5. छात्रों को हिंदी भाषा के शब्द भंडार का परिचय प्राप्त हुआ। CO-6. छात्रों में शोध आलेख लेखन की दृष्टि विकसित हो गई।</p>
<p>CC-1F कथेतर विधाएँ (36093)</p>	<p>CO-1. छात्र हिंदी गजल साहित्य से अवगत हो गए। CO-2. छात्रों को गजल के स्वरूप एवं तत्वों का ज्ञान प्राप्त हुआ। CO-3. छात्रों में गजल साहित्य के मूल्यांकन की दृष्टि विकसित हुई। CO-4. छात्रों में पत्र लेखन कौशल का विकास हुआ।</p>
<p>SEC-2D भाषा विज्ञान (36096)</p>	<p>CO-1. छात्र सिनेमा के स्वरूप से अवगत हो गए। CO-2. छात्रों को हिंदी साहित्य और सिनेमा के अंत CO-3. छात्रों में साहित्य के फिल्मांतरण की दृष्टि CO-4. छात्र हिंदी उपन्यासों पर आधारित फिल्मों से अवगत हो गए। CO-5. छात्र हिंदी कहानियों पर आधारित फिल्मों से अवगत हो गए। CO-6. छात्रों को भारतीय सिनेमा के उद्भव एवं विकास का परिचय प्राप्त हुआ।</p>

Programme Outcomes: M. A. Hindi

Department of Hindi	After successful completion of two-year PG degree program in Hindi a student should be able to:
Programme Outcomes	<p>PO-1. छात्रों हिंदी साहित्य के विभिन्न रूपों, विधाओं, प्रवृत्तियों, रचनाओं और रचनाकारों का परिचय प्राप्त हुआ।</p> <p>PO-2. भारतीय एवं पाश्चात्य साहित्यशास्त्र का सैद्धांतिक और अनुप्रयोगात्मक ज्ञान प्राप्त हुआ।</p> <p>PO-3. समीक्षात्मक दृष्टिकोन विकसित हुआ।</p> <p>PO-4. भाषा और साहित्य के अध्ययन, आस्वादन और मूल्यांकन की क्षमता का विकास हुआ।</p> <p>PO-5. साहित्य और युग जीवन का संबंध विशद करने का दृष्टिकोन विकसित हुआ।</p> <p>PO-6. साहित्य की विभिन्न विधाओं के माध्यम से छात्रों का भावात्मक विकास हुआ।</p> <p>PO-7. छात्रों में हिंदी साहित्य के माध्यम से नैतिक मूल्य, राष्ट्रीय मूल्य तथा सामाजिक मूल्यों के प्रति आस्था निर्माण हुई।</p> <p>PO-8. छात्रों को सरकारी कार्यालयों में प्रयुक्त कार्यालयीन हिंदी भाषा का परिचय प्राप्त हुआ।</p> <p>PO-9. अनुसंधान करने की क्षमता निर्माण हुई।</p> <p>PO-10. अनुवादक, दुभाषिया बनने की क्षमता निर्माण हुई।</p>

Programme Specific Outcomes: M. A. Hindi

Department of Hindi	After successful completion of two-year PG degree program in Hindi, a student should be able to:
Programme Specific Outcomes	<p>PSO-1. हिंदी भाषा का व्यवस्थित और यथोचित ज्ञान।</p> <p>PSO-2. भावात्मक और सौंदर्यात्मक विकास।</p> <p>PSO-3. अनुसंधान कर्ता।</p> <p>PSO-4. निवेदक और सूत्र संचालक।</p> <p>PSO-5. पटकथा लेखक, संवाद लेखक, विज्ञापन लेखक।</p> <p>PSO-6. प्रकाशक, संपादक, संवाददाता।</p> <p>PSO-7. दुभाषिया, अनुवादक, प्रूफ शोधक।</p> <p>PSO-8. मूल्य संवर्धन : नैतिक, राष्ट्रीय, सामाजिक मूल्यों का संवर्धन।</p> <p>PSO-9. राष्ट्रीय एकात्मता, समानता, बंधुता, उत्तरदायित्व और वैज्ञानिकता का विकास।</p> <p>PSO-10. सृजनात्मक लेखन।</p> <p>PSO-11. NET /SET परीक्षा।</p> <p>PSO-12. अध्यापक, प्राध्यापक, हिंदी अधिकारी, हिंदी सलाहकार, हिंदी निदेशक।</p> <p>PSO-13. प्रबोधक, उपदेशक।</p>

Course Outcomes: M. A. Hindi

Course	Outcomes
	After completion of these courses' students should be able to:
Semester – I	
प्राचीन तथा मध्ययुगीन काव्य (HN-MJ-511T)	<p>CO-1. छात्रों को हिंदी की प्राचीन तथा मध्ययुगीन काव्य प्रवृत्तियों का परिचय प्राप्त हुआ।</p> <p>CO-2. छात्रों को मध्ययुगीन काव्य प्रवृत्तियों की पृष्ठभूमि पर कवि विशेष की रचनाओं का परिचय प्राप्त हुआ।</p> <p>CO-3. छात्रों को आदिकाल और भक्तिकाल के साहित्य की प्रवृत्तियों की जानकारी प्राप्त हुई।</p> <p>CO-4. छात्रों को तत्कालीन काव्य भाषा की प्रवृत्तियों का परिचय प्राप्त हुआ।</p> <p>CO-5. छात्रों में काव्य मूल्यांकन की क्षमता विकसित हुई।</p> <p>CO-6. छात्रों में सर्जनात्मक कौशल विकसित हुआ।</p> <p>CO-7. छात्रों में काव्य के प्रति समीक्षात्मक दृष्टि विकसित हुई।</p> <p>CO-8. छात्र प्राचीन तथा मध्ययुग की काव्य परंपरा से परिचित हुए।</p>
कथा साहित्य (HN-MJ-512T)	<p>CO-1. छात्र उपन्यास विधा से अवगत हुए।</p> <p>CO-2. छात्र कहानी विधा से अवगत हुए।</p> <p>CO-3. छात्रों में पाठ्य रचनाओं में अभिव्यक्त मूल्यों का संप्रेषण हुआ।</p> <p>CO-4. छात्रों में आलोचनात्मक दृष्टि का विकास हुआ।</p> <p>CO-5. छात्रों में सर्जनात्मक कौशल का विकास हुआ।</p> <p>CO-6. छात्रों में हिंदी कथा साहित्य के प्रति अभिरुचि संवर्धित हुई।</p> <p>CO-7. छात्रों में राष्ट्र के प्रति प्रेम एवं सामाजिक प्रतिबद्धता की भावना विकसित हुई।</p>
भारतीय काव्यशास्त्र (HN-MJ-513T)	<p>CO-1. छात्रों को भारतीय काव्यशास्त्र के विकासक्रम का परिचय प्राप्त हुआ।</p> <p>CO-2. छात्र भारतीय काव्यशास्त्र के प्रमुख संप्रदायों से अवगत हुए।</p> <p>CO-3. छात्रों में रचना वैशिष्ट्य और मूल्यबोध को परखने की क्षमता विकसित हुई।</p> <p>CO-4. छात्रों में आलोचनात्मक दृष्टि विकसित हुई।</p> <p>CO-5. छात्र साधारणीकरण की अवधारणा से अवगत हुए।</p> <p>CO-6. छात्र रस सिद्धांत से परिचित हुए।</p> <p>CO-7. छात्र अलंकार सिद्धांत से अवगत हुए।</p> <p>CO-8. छात्रों को रीति एवं ध्वनि सिद्धांत की जानकारी प्राप्त हुई।</p> <p>CO-9. छात्र वक्रोक्ति एवं औचित्य सिद्धांत से परिचित हुए।</p>
अनुवाद विज्ञान (HN-MJ-514T)	<p>CO-1. छात्रों को अनुवाद के स्वरूप का परिचय प्राप्त हुआ।</p> <p>CO-2. छात्र अनुवाद के महत्व एवं व्याप्ति से अवगत हुए।</p> <p>CO-3. छात्र अनुवाद की प्रक्रिया से परिचित हुए।</p> <p>CO-4. छात्र अनुवाद के सामाजिक एवं सांस्कृतिक पक्ष से अवगत हुए।</p> <p>CO-5. छात्रों में अनुवाद का कौशल विकसित हुआ।</p> <p>CO-6. छात्र अनुवाद में आनेवाली समस्याएँ तथा उनके समाधान से परिचित हुए।</p> <p>CO-7. छात्र अनुवाद के भेदों से अवगत हुए।</p> <p>CO-8. छात्र अनुवाद और भाषा विज्ञान के संबंध से परिचित हुए।</p>

<p>नाटककार मोहन राकेश (HN-ME-515T)</p>	<p>CO-1. छात्र नाटक के स्वरूप एवं संरचना से परिचित हुए। CO-2. छात्र नाटक के रचना विधान से अवगत हुए। CO-3. छात्रों को हिंदी रंगमंच की जानकारी प्राप्त हुई। CO-4. छात्रों को हिंदी नाटक के विकासक्रम का परिचय प्राप्त हुआ। CO-5. छात्रों में नाटक के मूल्यांकन की क्षमता विकसित हुई। CO-6. छात्रों में नाट्याभिनय कौशल विकसित हुआ। CO-7. छात्रों में नाटक के प्रति समीक्षात्मक दृष्टि विकसित हुई। CO-8. छात्रों में नाटक साहित्य के आस्वादन की दृष्टि विकसित हुई।</p>
<p>शोध प्रविधि (HN-RM-518T)</p>	<p>CO-1. छात्र शोध प्रविधि से अवगत हुए। CO-2. छात्रों में शोध दृष्टि का विकास हुआ। CO-3. छात्र नये शोध-प्रवाहों से परिचित हुए। CO-4. छात्र शोध प्रक्रिया से अवगत हुए। CO-5. छात्रों में शोध प्रबंध लेखन कौशल विकसित हुआ। CO-6. छात्रों को शोध के भेदों की जानकारी प्राप्त हुई। CO-7. छात्र शोध के मूल तत्वों से परिचित हुए। CO-8. छात्रों में सर्जनात्मक कौशल विकसित हुआ। CO-9. छात्रों में समीक्षात्मक दृष्टि विकसित हुई।</p>
<p>Semester –II</p>	
<p>मध्ययुगीन काव्य (HN-MJ-521T)</p>	<p>CO-1. छात्रों को हिंदी की मध्ययुगीन काव्य प्रवृत्तियों का परिचय प्राप्त हुआ। CO-2. छात्रों को मध्ययुगीन काव्य प्रवृत्तियों की पृष्ठभूमि पर कवि विशेष की रचनाओं का परिचय प्राप्त हुआ। CO-3. छात्रों को भक्तिकाल और रीतिकाल के साहित्य की प्रवृत्तियों की जानकारी प्राप्त हुई। CO-4. छात्रों को तत्कालीन काव्य भाषा की प्रवृत्तियों का परिचय प्राप्त हुआ। CO-5. छात्रों में काव्य मूल्यांकन की क्षमता विकसित हुई। CO-6. छात्रों में सर्जनात्मक कौशल विकसित हुआ। CO-7. छात्रों में काव्य के प्रति समीक्षात्मक दृष्टि विकसित हुई। CO-8. छात्र मध्ययुग की काव्य परंपरा से परिचित हुए।</p>
<p>कथेतर गद्य साहित्य (HN-MJ-522T)</p>	<p>CO-1. छात्रों को हिंदी कथेतर साहित्य की प्रवृत्तियों का परिचय प्राप्त हुआ। CO-2. छात्र हिंदी निबंध साहित्य से परिचित हुए। CO-3. छात्र हिंदी आत्मकथा साहित्य से अवगत हुए। CO-4. छात्रों को हिंदी रेखाचित्र साहित्य का परिचय प्राप्त हुआ। CO-5. छात्र हिंदी व्यंग्य साहित्य से परिचित हुए। CO-6. छात्र हिंदी संस्मरण साहित्य से अवगत हुए। CO-7. छात्रों में कथेतर साहित्य के मूल्यांकन की क्षमता विकसित हुई। CO-8. छात्रों में सर्जनात्मक कौशल विकसित हुआ। CO-9. छात्रों में कथेतर के प्रति समीक्षात्मक दृष्टि विकसित हुई।</p>

<p>पाश्चात्य काव्यशास्त्र (HN-MJ-523T)</p>	<p>CO-1. छात्र पाश्चात्य काव्यशास्त्र से अवगत हुए। CO-2. छात्र पाश्चात्य काव्यशास्त्र के विकासक्रम से परिचित हुए। CO-3. छात्रों को पाश्चात्य काव्यशास्त्र के सिद्धांतों का ज्ञान प्राप्त हुआ। CO-4. छात्रों को काव्यशास्त्रीय समीक्षा का महत्व अवगत हुआ। CO-5. छात्र प्लेटो के काव्यशास्त्रीय सिद्धांतों से अवगत हुए। CO-6. छात्र अरस्तु के काव्यशास्त्रीय सिद्धांतों से परिचित हुए। CO-7. छात्रों में काव्यशास्त्रीय अध्ययन के द्वारा समीक्षात्मक दृष्टि विकसित हुई। CO-8. छात्र पाश्चात्य काव्यशास्त्र के विभिन्न वादों से परिचित हुए।</p>
<p>प्रयोजनमूलक हिंदी (HN-MJ-524T)</p>	<p>CO-1. छात्र प्रयोजनमूलक हिंदी के स्वरूप से अवगत हुए। CO-2. छात्र प्रयोजनमूलक हिंदी स्वरूपगत विशेषताओं से परिचित हुए। CO-3. छात्र प्रयोजनमूलक हिंदी की विभिन्न प्रयुक्तियों से अवगत हुए। CO-4. छात्र प्रयोजनमूलक हिंदी की सीमाएँ एवं संभावनाओं से परिचित हुए। CO-5. छात्रों को राजभाषा हिंदी के संवैधानिक प्रावधानों की जानकारी प्राप्त हुई। CO-6. छात्र कार्यालयी हिंदी का स्वरूप से परिचित हुए। CO-7. छात्र पारिभाषिक शब्दावली से परिचित हुए। CO-8. छात्रों में हिंदी भाषा के संबंध में प्रयोजनमूलक कौशल विकसित हुआ।</p>
<p>हिंदी उपन्यास (HN-ME-525T)</p>	<p>CO-1. छात्र हिंदी उपन्यास के स्वरूप एवं संरचना से परिचित हुए। CO-2. छात्र उपन्यास के रचना विधान से अवगत हुए। CO-3. छात्र हिंदी उपन्यास की विभिन्न शैलियों से अवगत हुए। CO-4. छात्रों को हिंदी उपन्यास के विकासक्रम का परिचय प्राप्त हुआ। CO-5. छात्रों में उपन्यास के मूल्यांकन की क्षमता विकसित हुई। CO-6. छात्रों में उपन्यास के आस्वादन का कौशल विकसित हुआ। CO-7. छात्रों में उपन्यास के प्रति समीक्षात्मक दृष्टि विकसित हुई। CO-8. छात्र हिंदी के प्रमुख उपन्यासकार और उपन्यासों से परिचित हुए।</p>
<p>Field Project (HN-FP-529T)</p>	<p>CO-1. छात्र क्षेत्रीय परियोजना के स्वरूप एवं महत्व से अवगत हुए। CO-2. छात्रों को क्षेत्रीय परियोजना कार्य का प्रत्यक्ष अनुभव प्राप्त हुआ। CO-3. छात्रों में क्षेत्रीय परियोजना का कौशल विकसित हुआ। CO-4. छात्रों का समाज एवं क्षेत्र विशेष के साथ अंतर-संबंध प्रस्थापित हुआ।</p>
<p>Semester –III</p>	
<p>आधुनिक काव्य HN-MJ-631T</p>	<p>CO-1: छात्र आधुनिक काव्य से अवगत हुए। CO-2: छात्रों में आधुनिक काव्य के अध्ययन की दृष्टि विकसित हुई। CO-3: छात्रों में आधुनिक काव्य के मूल्यांकन की दृष्टि विकसित हुई। CO-4: छात्र आधुनिक काव्य की संवेदना एवं शिल्पगत अध्ययन से अवगत हुए। CO-5: छात्रों में काव्य-सर्जन कौशल का विकास हुआ। CO-6: छात्र आधुनिक काव्य की प्रवृत्तियों से परिचित हुए। CO-7: छात्र आधुनिक कवि विशेष की रचनाओं से परिचित हुए। CO-8: छात्रों में आधुनिक काव्य के प्रति समीक्षात्मक दृष्टिकोण विकसित हुआ।</p>

<p style="text-align: center;">भाषा विज्ञान HN-MJ-632T</p>	<p>CO-1: छात्र भाषा विज्ञान के स्वरूप का परिचित हुए। CO-2: छात्र भाषा विज्ञान के अध्ययन की दिशाओं से अवगत हुए। CO-3: छात्रों को स्वनविज्ञान के स्वरूप एवं स्वन वर्गीकरण का परिचय प्राप्त हुआ। CO-4: छात्र स्वनिम विज्ञान से परिचित हुए। CO-5: छात्र रुपिम विज्ञान से अवगत हुए। CO-6: छात्र वाक्य विज्ञान से परिचित हुए। CO-7: छात्रों को अर्थ विज्ञान का परिचय प्राप्त हुआ। CO-8: छात्रों में प्रोक्ति विज्ञान का ज्ञान विकसित हुआ। CO-9: छात्रों में भाषा विज्ञान के प्रति रुचि निर्माण हुई।</p>
<p style="text-align: center;">हिंदी साहित्य का इतिहास HN-MJ-633T</p>	<p>CO-1: छात्र हिंदी साहित्य लेखन की परंपरा से अवगत हुए। CO-2: छात्र हिंदी साहित्य के काल विभाजन से परिचित हुए। CO-3: छात्रों को हिंदी साहित्य के नामकरण का परिचय प्राप्त हुआ। CO-4: छात्र आदिकालीन एवं भक्तिकालीन परिस्थितियों से अवगत हुए। CO-5: छात्र आदिकालीन एवं भक्तिकालीन साहित्य की प्रवृत्तियों से परिचित हुए। CO-6: छात्रों को आदिकाल तथा भक्तिकाल के प्रमुख कवियों का परिचय प्राप्त हुआ। CO-7: छात्र सिद्ध साहित्य, नाथ साहित्य तथा रासो साहित्य से अवगत हुए। CO-8: छात्र सगुण काव्यधारा की प्रवृत्तियों से परिचित हुए। CO-9: छात्र निर्गुण काव्यधारा की प्रवृत्तियों से अवगत हुए। CO-10: छात्र रीतिकालीन परिस्थितियों से अवगत हुए। CO-11: छात्र रीतिकालीन साहित्य की प्रवृत्तियों से परिचित हुए। CO-12: छात्र रीतिसिद्ध काव्य, रीतिबद्ध काव्य तथा रीतिमुक्त काव्य से परिचित हुए। CO-13: छात्रों को रीतिकाल के प्रमुख कवियों का परिचय प्राप्त हुआ।</p>
<p style="text-align: center;">हिंदी व्याकरण HN-MJ-634T</p>	<p>CO-1: छात्र हिंदी भाषा की लिंग व्यवस्था से परिचित हुए। CO-2: छात्र हिंदी भाषा की वचन व्यवस्था से अवगत हुए। CO-3: छात्रों को हिंदी भाषा की कारक व्यवस्था का परिचय प्राप्त हुआ। CO-4: छात्र समास से परिचित हुए। CO-5: छात्र संज्ञा एवं सर्वनाम से अवगत हुए। CO-6: छात्र विशेषण एवं क्रिया से परिचित हुए। CO-7: छात्रों को अव्ययों का परिचय प्राप्त हुआ। CO-8: छात्रों में हिंदी व्याकरण का ज्ञान विकसित हुआ। CO-9: छात्रों में हिंदी व्याकरण के प्रति रुचि निर्माण हुई।</p>
<p style="text-align: center;">हिंदी आलोचना HN-ME-635T</p>	<p>CO-1: छात्र हिंदी आलोचना के स्वरूप से परिचित हुए। CO-2: छात्रों को हिंदी आलोचना के विकास का परिचय प्राप्त हुआ। CO-3: छात्र हिंदी की विभिन्न आलोचना पद्धतियों से अवगत हुए। CO-4: छात्र हिंदी आलोचकों के प्रदेय से परिचित हुए। CO-5: छात्र आलोचना के विभिन्न प्रकारों से अवगत हुए। CO-6: छात्रों को हिंदी के प्रमुख आलोचकों के आलोचनात्मक प्रतिमानों का परिचय प्राप्त हुआ। CO-7: छात्रों में आलोचनात्मक दृष्टि विकसित हुई।</p>

<p>शोध परियोजना HN-RP-637P</p>	<p>CO-1: छात्रों को शोध परियोजना की सैद्धांतिक जानकारी प्राप्त हुई। CO-2: छात्रों में मौलिक अनुसंधान के प्रति रुचि निर्माण हुई। CO-3: छात्रों में अनुसंधानात्मक वृत्ति विकसित हुई। CO-4: छात्रों में साहित्य और समाज के प्रति सकारात्मक दृष्टिकोन विकसित हुआ। CO-5: छात्र साहित्यिक प्रवृत्ति एवं शैलियों से परिचित हुए। CO-6: छात्रों में साहित्यिक आंदोलनों को समझने की क्षमता विकसित हुई। CO-7: छात्रों में भाषिक कौशल्य निर्माण हुआ। CO-8: छात्रों में समस्या के विश्लेषण की क्षमता विकसित हुई।</p>
<p>Semester –IV</p>	
<p>आधुनिक कविता HN-MJ-641T</p>	<p>CO-1: छात्र आधुनिक काव्य से अवगत हुए। CO-2: छात्रों में आधुनिक काव्य के अध्ययन की दृष्टि विकसित हुई। CO-3: छात्रों में आधुनिक काव्य के मूल्यांकन की दृष्टि विकसित हुई। CO-4: छात्र आधुनिक काव्य की संवेदना एवं शिल्पगत अध्ययन से अवगत हुए। CO-5: छात्रों में काव्य-सर्जन कौशल का विकास हुआ। CO-6: छात्र आधुनिक काव्य की प्रवृत्तियों से परिचित हुए। CO-7: छात्र आधुनिक कवि विशेष की रचनाओं से परिचित हुए। CO-8: छात्रों में आधुनिक काव्य के प्रति समीक्षात्मक दृष्टिकोन विकसित हुआ। CO-9: छात्रों में आधुनिक काव्य के माध्यम से सृजनात्मक शक्ति, कल्पना शक्ति, विचार क्षमता तथा सामाजिक ऐक्य की भावना विकसित हुई।</p>
<p>हिंदी भाषा का विकास HN-MJ-642T</p>	<p>CO-1: छात्र भाषा विज्ञान के स्वरूप का परिचित हुए। CO-2: छात्र भाषा विज्ञान के अध्ययन की दिशाओं से अवगत हुए। CO-3: छात्रों को स्वनविज्ञान के स्वरूप एवं स्वन वर्गीकरण का परिचय प्राप्त हुआ। CO-4: छात्र स्वनिम विज्ञान से परिचित हुए। CO-5: छात्र रुपिम विज्ञान से अवगत हुए। CO-6: छात्र वाक्य विज्ञान से परिचित हुए। CO-7: छात्रों को अर्थ विज्ञान का परिचय प्राप्त हुआ। CO-8: छात्रों में प्रोक्ति विज्ञान का ज्ञान विकसित हुआ। CO-9: छात्रों में भाषा विज्ञान के प्रति रुचि निर्माण हुई।</p>
<p>हिंदी साहित्य का इतिहास HN-MJ-643T</p>	<p>CO-1: छात्र आधुनिक कालीन परिस्थितियों से अवगत हुए। CO-2: छात्र आधुनिक काल की साहित्य की प्रवृत्तियों से परिचित हुए। CO-3: छात्रों को आधुनिक काल के प्रमुख कवियों का परिचय प्राप्त हुआ। CO-4: छात्र भारतेंदू युगीन काव्य की प्रवृत्तियों से परिचित हुए। CO-5: छात्रों को द्विवेदीयुगीन काव्य की प्रवृत्तियों से अवगत कराना। CO-6: छात्र छायावाद की प्रवृत्तियों से परिचित हुए। CO-7: छात्र प्रगतिवाद की प्रवृत्तियों से अवगत हुए। CO-8: छात्र प्रयोगवाद की प्रवृत्तियों से परिचित हुए। CO-9: छात्र राष्ट्रीय काव्यधारा की प्रवृत्तियों से अवगत हुए। CO-10: छात्रों में काव्य के मूल्यांकन की दृष्टि विकसित हुई।</p>

<p>हिंदी लोकसाहित्य HN-ME-644T</p>	<p>CO-1: छात्र भारतीय लोकसाहित्य के स्वरूप से परिचित हुए। CO-2: छात्रों को लोकसाहित्य की विभिन्न विधाओं का जानकारी प्राप्त हुई। CO-3: छात्र लोकसाहित्य की व्यापकता से अवगत हुए। CO-4: छात्र महाराष्ट्र के लोकसाहित्य से परिचित हुए। CO-5: छात्र लोकसाहित्य का महत्व समझ गए। CO-6: छात्र लोकसाहित्य के विशेष अध्ययन के लिए प्रेरित हुए। CO-7: छात्रों में लोकसाहित्य के प्रति आलोचनात्मक दृष्टि विकसित हुई। CO-8: छात्रों में लोकसाहित्य के प्रति रुचि निर्माण हुई।</p>
<p>शोध परियोजना HN-RP-646P</p>	<p>CO-1: छात्रों को शोध परियोजना की सैद्धांतिक जानकारी प्राप्त हुई। CO-2: छात्रों में मौलिक अनुसंधान के प्रति रुचि निर्माण हुई। CO-3: छात्रों में अनुसंधानात्मक वृत्ति विकसित हुई। CO-4: छात्रों में साहित्य और समाज के प्रति सकारात्मक दृष्टिकोण विकसित हुआ। CO-5: छात्र साहित्यिक प्रवृत्ति एवं शैलियों से परिचित हुए। CO-6: छात्रों में साहित्यिक आंदोलनों को समझने की क्षमता विकसित हुई। CO-7: छात्रों में भाषिक कौशल्य निर्माण हुआ। CO-8: छात्रों में समस्या के विश्लेषण की क्षमता विकसित हुई।</p>

DEPARTMENT OF HISTORY

Programme Outcomes: B.A. History

Department of History	After successful completion of three-year degree program in History students should be able to
Programme Outcomes	<p>PO-1. Students will acquire comprehensive knowledge of Indian history with special reference to Maratha History (1630–1707) and Maharashtra in the 19th & 20th centuries, understanding political, social, economic, and cultural developments.</p> <p>PO-2. Students will critically analyse historical events such as the administrative policies of Chhatrapati Shivaji Maharaj, reform movements, and colonial impact using primary and secondary sources.</p> <p>PO-3. Knowledge of administrative systems, especially the policies of Chhatrapati Shivaji Maharaj.</p> <p>PO-4. Basic skills in source analysis, documentation, museology, and archaeology.</p> <p>PO-5. Understanding importance of preservation of monuments, museums, and cultural heritage.</p> <p>PO-6. Ability to write, present, and discuss historical issues effectively.</p> <p>PO-7. Development of values like national integration, social responsibility, and constitutional awareness.</p> <p>PO-8. Preparation for careers in teaching, research, competitive exams, museum and heritage sectors.</p> <p>PO-9. Participation of different genders and social groups in the State struggle will help the students respect their contribution.</p> <p>PO-10. It will help develop a sense of national unity.</p>

Programme Specific Outcomes: B.A. History

	After successful completion of three-year degree program in History students should be able to
Programme Specific Outcomes	<p>PSO - 1. The programme enables students to acquire comprehensive knowledge of Maratha history (1630–1707) and its political and cultural significance.</p> <p>PSO - 2. Research Aptitude: Students will acquire basic historical research skills.</p> <p>PSO - 3. Analytical Skills: Students will learn to scientifically evaluate and assess the authenticity and credibility of source materials.</p> <p>PSO - 4. Professional Development: Students will have opportunities in historical and heritage areas.</p> <p>PSO - 5. Critical Thinking: Students will know the importance of raising questions and finding answers scientifically.</p> <p>PSO - 6. Human Values and ethics: The role of ordinary people in the national movement will be appreciated.</p> <p>PSO - 7. Problem Solving: They will learn to accept a challenge, assess the complexity and find a solution.</p> <p>PSO - 8. Policy Analysis: Students will learn post facto implications and consequences of policies.</p> <p>PSO - 9. Disciplinary knowledge: They will know the basics of the idea of history and salient events, personalities and thoughts.</p> <p>PSO- 10. Cultural Intelligence- Students will learn to appreciate the similarities and differences in various cultures and know that acceptance and respect for each other is the way forward.</p>

Course Outcomes: B.A. History

Course	Outcomes
	After completion of these courses' students should be able to:-
Semester-I	
BA-HI-111T History of the Maratha (1630-1707)	<p>CO-1: Develop the ability to analyze sources for Maratha History.</p> <p>CO-2: Learn significance of regional history and political foundation of the region</p> <p>CO-3: Enhance their perception of 17th century Maharashtra and India in context of Maratha history</p> <p>CO-4: Know skills of leadership and the administrative system of the</p>

	Maratha
OE-HI-01T Maharashtra in the 19th Century	<p>CO-1: Enhance their perception of 19th Century Maharashtra.</p> <p>CO-2: Relate and understand their life with the 19th Century Maharashtra</p> <p>CO-3: Significance of Regional History and Socio- religious Reformism foundation of the region</p> <p>CO-4: Develop the ability to analyze sources for 19th century Maharashtra history</p> <p>CO-5: Appreciate the skills of leadership and the Socio-religious System of the Maharashtra</p>
SEC-HI-112T Museology	<p>CO1: Understand the Concepts of Museum and learn the basic Principles of Museology</p> <p>CO2: Gain Comprehensive Knowledge of the Process of Cringe and Conserving Museum of Objects</p>
Semester-II	
BA-HI-121T Administrative Policy of Chhatrapati Shivaji Maharaj	<p>CO -1. Aware of the administrative Institutions of the Maratha</p> <p>CO -2. Develop the ability to analyses sources for Maratha History</p> <p>CO -3. Learning significance of regional history and Political foundation of the region</p> <p>CO -4. Make broader perception of 17th century Maharashtra and India in context of Maratha history</p> <p>CO- 5. Appreciate the skills of leadership and the administrative system of the Maratha</p>
OE-HI-02T History of Maharashtra in the 20th Century	<p>CO-1: Develop the ability to analyses sources for 20th century Maharashtra history</p> <p>CO-2: Learn significance of regional history and Socio- Religious reformism foundation of the region</p> <p>CO-3: Enhance their Perception of 20th century Maharashtra.</p> <p>CO-4: Know the skills of leadership and the Socio-Religious system of the Maharashtra</p>
SEC-HI-122T Archaeology	<p>CO-1: Understand the definition, aims and scope of Archaeology so as to understand its applications in interpreting the human past</p> <p>CO-2: Understand the nature of the archaeological record and the unique role of Science in Archaeology</p> <p>CO- 3: Understand the Archaeology.</p>

Semester-III

<p>HI-MJ -231T Medieval India- Dehli Sultanate (1206-1526)</p>	<p>CO-1: Provides examples of sources used to study various periods in history.</p> <p>CO-2: Relates key historical developments during medieval period occurring in one place with another.</p> <p>CO-3: Analyses socio - political and economic changes during medieval period.</p> <p>CO- 4: Estimate the foreign invasion and the achievement of rulers</p>
<p>HI-MJ -232T Modern World - Part I</p>	<p>CO-1: It will enable students to develop the overall understanding of the Modern World.</p> <p>CO-2: The students will get acquainted with the Renaissance, major political, socio-religious and economic developments during the Modern World.</p> <p>CO-3: It will enhance their perception of the history of the Modern World.</p> <p>CO-4: It will enable students to understand the significance of the intellectual, economic, political developments in the Modern World.</p>
<p>HI-MN -233T Ancient India Part -I</p>	<p>CO-1: Study the transition from the Indus Vally to Vedic period.</p> <p>CO-2: Focus on society, culture and religion practices.</p> <p>CO-3: Explore the emergence of urban planning, trade networks etc.</p> <p>CO-4: Understand the reasons for the decline of the Indus valley</p>
<p>HI-OE-203 T Glimpses of Modern India Part -1</p>	<p>CO-1: Students will learn the importance of the freedom movement and understand the relevance of the struggle that the freedom fighters went through.</p> <p>CO-2: Students will get to know the path of India's progress in the period after independence and the years that followed.</p> <p>CO-3: Students will grasp analytical explanations of major historical developments the country has witnessed.</p>
<p>HI-VSC-234T Popular Indian Culture</p>	<p>CO- 1. Students will get an overall understanding of the the Popular Culture in India.</p> <p>CO- 2. They will understand the Visual Arts, Performances, Audio-Visual expressions, Fairs, Festivals and Rituals.</p> <p>CO- 3. They will have an understanding of the importance of Popular Indian Culture.</p>
	<p>CO-1: Identify and document historical sites and local heritage resources through field visits.</p>

<p>HI-FP-235 P Field Visit & Report Writing</p>	<p>CO-2: Apply basic research methods such as observation, data collection, and interviews during field study.</p> <p>CO-3: Prepare a well-structured field visit report using appropriate academic writing and referencing style.</p>
<p>Semester-IV</p>	
<p>HI-MJ-241T Medieval India-Mughal Empire (1526-707)</p>	<p>CO-1. Draws comparisons between policies of different rulers.</p> <p>CO-2. Understanding Role of Akbar in the consolidation of Mughal rule in India.</p> <p>CO-3. Understand Aurangzeb's conflict with Rajput as, Maratha and weakening Mughals age.</p> <p>CO-4. Analyses factors which led to the emergence of new religious ideas and movements (Bhakti and Sufi)</p>
<p>HI-MJ-242T Modern World Part- II</p>	<p>CO-1: It will enable students to develop the overall understanding of the Modern World.</p> <p>CO-2: The students will get acquainted with the major nationalist movements, the World War II and its consequences, the Cold War and its Consequence</p> <p>CO-3: It will enhance their overall perception of the history of the Modern World.</p> <p>CO-4: It will enable students to understand the significance of the strategic political developments in the Modern World.</p>
<p>HI-MN-243T Ancient India: Part II</p>	<p>CO-1. Analyze the rise of Maurya Empire.</p> <p>CO-2. Understand the significance of advancement in Science, Medicine, Mathematics and Arts.</p> <p>CO-3. Understand the structure of South Kingdom</p> <p>CO-4. Understand the fine arts of south kingdom</p>
<p>HI-OE-04T Glimpses Of Modern India -II</p>	<p>CO-1: To acquaint the students with the importance of the Indian Constitution and its features.</p> <p>CO-2: To bring to light the major happenings in the initial years after independence.</p> <p>CO-3: Along with political events, economic and scientific progress will be discussed.</p>
<p>HI-SEC-244T Heritage Management</p>	<p>CO-1: Student will understand over all process of Heritage Management.</p> <p>CO-2: Student will get the knowledge about scope and the fact of Heritage Management.</p>

	<p>CO- 3: The students will enable them to understand the legal and commercial framework of Heritage.</p>
<p>HI-CEP-245P Local Historical Survey</p>	<p>CO- 1: Gain an understanding of rural life, Indian historical culture & ethos and social realities.</p> <p>CO- 2: Develop a sense of empathy and bonds of mutuality with local community.</p> <p>CO- 3: Appreciate significant contributions of local communities to Indian society and history.</p> <p>CO- 4: Learn to value the local knowledge and wisdom of the community.</p> <p>CO- 5: Identify opportunities for contributing to community's socioeconomic improvements.</p>
<p>Semester-V</p>	
<p>Indian National Movement (1885- 1947) Sem –V (35174)</p>	<p>CO-1. It will enable students to develop an overall understanding of modern India.</p> <p>CO-2. It will increase the spirit of healthy Nationalism, Democratic Values and secularism among the students.</p> <p>CO-3. Students will understand various aspects of the Indian Independence Movement and the creation of Modern India</p>
<p>Introduction to Historiography Sem-V (35171)</p>	<p>CO-1. Students know source of history.</p> <p>CO-2. Students can study the interdisciplinary approach of History</p> <p>CO-3. Students will be introduced to the Information and importance of Historiography.</p> <p>CO-4 Students will learn about the usefulness of history in the 21st century, its changing perspectives the new ideas that have been invented. Increased the knowledge of research in history.</p>
<p>Maharashtra in the 19th Century Sem- V (35172)</p>	<p>CO-1. Students will develop the ability to analyze sources for 19th century Maharashtra</p> <p>CO-2. It will enhance their perception of 19th & 20th Century Maharashtra</p> <p>CO-3. Students will learn significance of Regional History and Socio religious reformism foundation of the region.</p> <p>CO-4. I appreciate the skills of leadership and the Socio-Religious System of the Maharashtra.</p>
<p>Research Paper Writing (SEC) Sem-V</p>	<p>CO-1. Students understand basic concepts of research.</p> <p>CO-2. Students understand basic framework of sampling and data collection.</p>

(36177)	<p>CO-3. Acquaint the students with various sampling methods and techniques</p> <p>CO-4 Student Develop the skill of report writing</p>
Semester-VI	
<p>Archaeology Sem –VI (SEC) (36177)</p>	<p>CO-1. Students will learn to understand the definition, aims and scope of Archaeology so as to understand its applications in interpreting the human past.</p> <p>CO-2 They will be understand the nature of the archaeological record and the unique role of science in archaeology.</p> <p>CO-3. They will have an overall understanding of the Archaeology.</p>
<p>Applied History Sem-VI (36171)</p>	<p>CO-1. Students will be introduced to the information and importance of applied History.</p> <p>CO-2. Students will learn about the Historical significance of Archaeology and Archives and opportunities in the field of Archaeology and Archives.</p> <p>CO-3. Through this course, students will be informed about the opportunities in the field of Media and Museums.</p> <p>CO-4. Students will learn about the usefulness of history in the 21st Century, its changing perspectives, the new ideas that have been invented, and the importance of history in a Competitive World.</p>
<p>Maharashtra in the 20th Century Sem-VI (36172)</p>	<p>CO-1. Students will develop the ability to analyze sources for 20th century Maharashtra</p> <p>CO-2. It will enhance their perception of 20th Century Maharashtra</p> <p>CO-3. Students will learn significance of Regional History and Socio religious reformism foundation of the region</p>
<p>Indian After Independence- (1947-1991) Sem-VI (36174)</p>	<p>CO- 1. It will enable students to develop an overall understanding of the Contemporary India.</p> <p>CO-2 To increase the spirit of healthy Nationalism, Democratic Values and Secularism among the students.</p> <p>CO-3 Students will understand various aspects of India’s domestic and foreign policies that shaped post-Independence India.</p>

Programme Outcomes: M.A. History

	<p>After successful completion of two-year degree program in History students should be able to:</p>
<p>Programme Outcomes</p>	<p>PO-1. Demonstrate in-depth knowledge of Cultural History of Maharashtra, Intellectual History of the Modern World, Economic History of Modern India, Medieval Indian Art & Architecture, and Post-World War II global developments.</p> <p>PO-2. Critically evaluate various schools of historiography including nationalist, Marxist, subaltern, feminist, and post-colonial interpretations in Indian and global contexts.</p> <p>PO-3. Design and execute independent historical research using appropriate methodologies, archival sources, fieldwork techniques, and referencing styles.</p> <p>PO-4. Interpret primary and secondary sources systematically and construct evidence-based historical arguments.</p> <p>PO-5. Analyze socio-economic transitions in Modern India (1857–1991) and assess their long-term impact on contemporary Indian society.</p> <p>PO-6. Examine the evolution of cultural traditions, intellectual movements, and ideological developments in Maharashtra and the modern world.</p> <p>PO-7. Assess major global developments after World War II (1945–2000), including Cold War politics, decolonization, globalization, and emerging world orders.</p> <p>PO-8. Apply interdisciplinary approaches by integrating insights from economics, political science, sociology, art history, and cultural studies in historical analysis.</p> <p>PO-9. Develop academic writing skills, research reporting, presentation abilities, and professional documentation in historical studies.</p> <p>PO-10. Exhibit ethical research practices, academic integrity, respect for cultural diversity, and professional responsibility in teaching, research, and public history domains.</p>

Programme Specific Outcomes: M.A. History

	<p>After successful completion of Two-year degree program in History students should be able to</p>
<p style="text-align: center;">Programme Specific Outcomes</p>	<p>PSO-1. Students will acquire in-depth knowledge of the cultural evolution of Maharashtra, including traditions, literature, art forms, and social institutions.</p> <p>PSO-2. Students will analyze major intellectual movements and ideological developments in the modern world and Maharashtra.</p> <p>PSO-3. Students will evaluate the economic structure of modern India, including colonial impact, industrialization, agrarian changes, and economic policies.</p> <p>PSO-4. Students will develop analytical skills to interpret medieval Indian art and architectural styles within socio-political and religious contexts.</p> <p>PSO-5. Students will critically examine nationalism, reform movements, colonial policies, and freedom struggle dynamics.</p> <p>PSO-6. Students will assess different schools of Indian historiography (colonial, nationalist, Marxist, subaltern, etc.) and interpret historical narratives critically.</p> <p>PSO-7. Students will evaluate political, economic, and social developments in independent India, including constitutional development and policy reforms.</p> <p>PSO-8. Students will analyze Cold War politics, decolonization, globalization, and international relations in the post-World War II era.</p> <p>PSO-9. Students will develop advanced research skills including problem identification, hypothesis framing, use of primary and secondary sources, citation methods, and academic writing through research projects.</p> <p>PSO-10. Students will enhance critical thinking, academic writing, presentation skills, and ethical research practices suitable for higher education, civil services, and research careers.</p>

Course Outcomes: M.A. History

Course	Outcomes
	After completion of these courses' students should be able to:-
Semester-I	
HI-MJ-511T History: Theory and Method	<p>CO- 1. Students will be able to understand the conceptual base and understanding of History and its forces.</p> <p>CO- 2. Students will come to know existing paradigms and challenges the outdated.</p> <p>CO- 3. Students will understand the process of the research and formulating hypotheses and develop broad frames</p>
HI-MJ-512T Evolution of Ideas and Institutions in Early India	<p>CO-1- Understand of the social economic and institutional bases of early India.</p> <p>CO- 2 Understand early Indian history.</p> <p>CO -3 The glimpses of early Indian Institutions</p> <p>CO-4 Understand the Political, Social and Economic Indian culture evolved by different ideas thought-out time</p>
HI-MJ-513T Maratha Polity	<p>CO -1. Understand the administrative system of Marathas.</p> <p>CO -2. Get acquainted with the nature of Maratha Polity</p> <p>CO -3. Understand the basic components of the Maratha administrative structure</p> <p>CO -4. Understand the basic concepts of the Maratha polity</p>
HI-MJ- 514T Science and Technology in Early India	<p>CO -1. The paper aims to acquaint the student with the scientific attitudes nurtured and developed by Indian scientists at ancient period</p> <p>CO- 2. It is hoped that the student will learn to analyses the philosophical background of science, it implications in terms of technology</p> <p>CO -3. To assessment the role of scientific progress in the process of modernization in India</p>
HI-ME-515T History of Deccan – Pre-History to Chalukyas	<p>CO- 1. Studying the administrative system of Marathas.</p> <p>CO- 2. Getting acquaint with the nature of Maratha Polity</p> <p>CO- 3. The basic components of the Maratha administrative structure</p> <p>CO- 4. Understand the basic concepts of the Maratha Polity</p>
HI-RM-516T Research Methodology in	<p>CO -1. The process of research in History</p> <p>CO- 2. Understand formulating hypothesis and its application to the</p>

History	<p>research problem.</p> <p>CO -3. Understand the types of research and its areas.</p> <p>CO- 4. Understand Different Research Methodologies.</p>
Semester-II	
HI-MJ-521T Approaches to History	<p>CO -1. Getting adequate conceptual base brings better understanding of history and its forces.</p> <p>CO -2. Existing paradigms and challenging the outdated.</p> <p>CO -3. Understand research in terms of formulating hypotheses.</p>
Ideas and Institutions in Medieval India	<p>CO-1. Able to analyze Perception Limitations & range of Sources of Medieval India.</p> <p>CO-2. Understand political ideas & institutions of Medieval India.</p> <p>CO-3. Able to illustrate emergence of caste-based societies in Medieval India.</p> <p>CO-4. Able to explain emergence of state in Medieval India.</p>
HI-MJ-522T Ideas and Institutions in Medieval India	<p>CO -1. Examines the nature of Medieval Indian society, economy, State formations, and the main religious currents of the time</p> <p>CO- 2 Understand continuation of the course on Ancient India.</p> <p>CO -3. Understand of the nature of society, and the problems of the challenge to that society, through colonialism, at Later stage</p>
HI-MJ-523T Socio-Economic History of the Marathas	<p>CO- 1. The socio-economic History of the Marathas in an analytical way</p> <p>CO- 2. Get acquainted with the components of social structure and their functions</p> <p>CO- 3. Understand the relationship between religion, caste, custom, traditions, class in 17th and 18th century Maratha Society</p> <p>CO- 4. Understand aspects of economic life</p> <p>CO -5. Trace the determinants of changes in social and economic life</p>
HI-MJ-524T Science and Technology in Medieval India	<p>CO- 1. Get acquaint the student with the scientific attitudes nurtured and developed by Indian Scientists through the ages</p> <p>CO- 2. Learn to analyses the philosophical background of science, its Implications in terms of technology</p> <p>CO- 3. Assess the role of scientific progress in the process of modernization of India</p>
HI-ME-525T Marathas in 17th and 18th	<p>CO-1: Understand the social, economic and institutional bases of</p>

Century: Power Politics	Ancient India CO-2: Understand of Ancient Indian history.
HI-FP-526P Field visit & Report Writing HI-FP-526P Field visit & Report Writing	CO-1: It helps in making good bonding with classmates. CO-2: The field trip provides an opportunity to explore a child abilities, talent, and skills on different experiences.
Semester-III	
HI-MJ-631T Cultural History of Maharashtra	CO-1: Understand the Culture concept and its different retrospectives. CO-2: To situate and interpret the Cultural manifestations across Historical Memory. CO-3: To understand the enriching Cultural Heritage of Maharashtra.
HI-MJ-632T Intellectual History of the Modern World	CO-1: Understand Significant Impact of the Modern concepts such as Renaissance, Humanism, Calvinism etc. CO-2: To Study the different reforming and Counter-reforming Movements. CO-3: To understand the Significance of Intellectual development in the Modern world
HI-MJ-633T Economic History of Modern India	CO-1: To acquaint structural and conceptual changes in Indian economy after coming of the British. CO-2: To understand the exploitative nature of the British rule by economical prospective CO-3: Understand the process of internalization by Indians of new economic ideas, principles and practices.
HI-MJ-634T Medieval Indian Arts and Architecture	CO-1: Students will get an overall understanding of the development of Medieval Art and Architecture. CO-2: They will understand the changing patterns of the Art and Architecture during the Medieval India. CO-3: They will have an understanding of the impact of Persian Art on Islamic Art and Architecture in Medieval India
HI-ME-635T History of Modern India(1857-1947)	CO- 1: To develop an overall understanding of the Multi-dimensional of Modern India. CO- 2: Understand various Aspects of the Indian Independence Movement and the creation of Modern India. CO- 3: Understand various aspects of India's Domestic and Foreign Policies that shaped post-Independence India.

<p>HI-RP-636P Research Project</p>	<p>CO- 1: Students can identify and formulate a research problem and devise a project completion strategy.</p> <p>CO- 2: Students will acquire observation, inquiry, and problematising skills and can also learn writing and verbal skills to present their observations of the research activity.</p> <p>CO- 3: Students can demonstrate various components of research that may help them in their future.</p> <p>CO-4: Studies and may get opportunities to participate in local and global research projects.</p>
<p>SEM.IV</p>	
<p>HI-MJ-641T Modern Maharashtra: History of Ideas</p>	<p>CO-1: Explore the Ideas which have given Maharashtra its unique character.</p> <p>CO-2: To offer a specialized knowledge for the Intellectual History of Maharashtra.</p>
<p>HI-MJ-642T Debates in Indian Historiography</p>	<p>CO-1: To introduce some of the issues that that have been debated by historians and to introduce some perspectives with reference to Indian History.</p> <p>CO-2: To Enhance the Multi view for Historical Study</p>
<p>HI-MJ-643T World After World War II (1945-2000)</p>	<p>CO-1: To get acquainted with the Post-World War II scenario.</p> <p>CO-2: To study key Historical development after World War II.</p> <p>CO- 3: To understand the contemporary world in the light of its background History.</p>
<p>HI-ME-644T Post-Independence India (1947-1991)</p>	<p>CO-1: It will enable students to develop an overall understanding of the Contemporary India.</p> <p>CO-2: To increase the spirit of healthy Nationalism, Democratic Values and Secularism among the Students.</p> <p>CO-3: Students will understand various aspects of India’s domestic and foreign policies that shaped post-Independence India.</p>
<p>HI-RP-645P Research Project</p>	<p>CO-1: Students can identify and formulate a research problem and devise a project completion strategy.</p> <p>CO-2: Students will acquire observation, inquiry and problematising skills and can also learn writing and verbal skills to present their observations of the research activity.</p> <p>CO- 3: Students can demonstrate various components of research that may help them in their future studies and may get opportunities to participate in local and global research projects.</p>

DEPARTMENT OF POLITICS

Programme Outcomes: B.A. Politics

Department of Politics	After successful completion of three-year degree program in Politics, students should be able to
Programme Outcomes	<p>PO-1: Students enable to develop academic proficiency in the subfields of Indian Government and Politics, Comparative Government, International Relations, Public Administration, Political Theory, and Political Ideology.</p> <p>PO-2: Students enable to develop and be able to demonstrate skills in conducting as well as presenting research in political science.</p> <p>PO-3: Students enable to analyse political and policy problems and formulate policy options.</p> <p>PO-4: Students enable to discuss the major theories and concepts of political science and its subfields and also deliver thoughtful and well-articulated presentations of research findings.</p>

Programme Specific Outcomes: B.A. Politics

Department of Politics	An Honors graduate of Political Science of the college should possess the capability to:
Programme Specific Outcomes	<p>PSO-1. Understanding nature and developments in national and international politics</p> <p>PSO-2. Analyzing the Indian constitutional provisions, major legislations and reforms.</p> <p>PSO-3. Critical evaluation of social, economic and political variables for a proper understanding of the plurality of Indian society</p> <p>PSO-4. Building overall consciousness regarding national political history, international relations and present Indian and Western political thinkers.</p> <p>PSO-5. Encouraging a comprehensive, comparative understanding of specific world constitutions such as UK, USA, China, Russia, Switzerland and France.</p> <p>PSO-6. Developing knowledge of administrative studies with special reference to Indian administrative structures and practices.</p> <p>PSO-7. Examining India's foreign relations with her neighbors and great powers.</p> <p>PSO-8. Use of case study method for analyzing the working of important international and regional organizations like UN, EU, ASEAN etc.</p>

Course Outcomes: B. A. Politics

Semester-I	
BA-PS-111T: Introduction to Indian Constitution- I	<p>CO-1: Understand the philosophy of Indian constitutions.</p> <p>CO-2: Understand and identify the causes and impact of British colonial rule.</p> <p>CO-3: Understand how to create value in young people regarding patriotism.</p> <p>CO-4: Understand the various Governments of India Acts, their provisions, and reforms.</p> <p>CO-5: Understand and know the salient features of the Indian constitution.</p> <p>CO-6: Understand and know the Fundamental rights, Fundamental Duties and Directive principles of state.</p>
OE- PS01T:Constitutional Framework of India -I	<p>CO-1: Understand and describe the historical background and the process of framing the Constitution of India.</p> <p>CO-2: Know and explain the role and significance of the Constituent Assembly and the Drafting Committee in the making of the Indian Constitution.</p> <p>CO-3: Understand and analyze the Preamble and identify the key features of the Constitution of India.</p> <p>CO-4: Understand and explain the structure, composition, and functions of the Parliament of India.</p> <p>CO-5: Understand and evaluate the roles, powers, and functions of the President and the Prime Minister of India.</p> <p>CO-6: Know and explain the structure and functions of the Indian judicial system, with special reference to the Supreme Court and the High Courts.</p>
SEC-PS-112T: Political Journalism-I	<p>CO 1- Understand the complex relationship between the media of communication and power politics.</p> <p>CO 2- Understand the critical appraisal of practices of political image management, campaigns, Propaganda and censorship</p> <p>CO 3- Understand knowing the Indian context of political Journalism.</p>
VEC-PS-01T : Indian Democracy and Constitution	<p>CO 1- Understand the philosophy of Indian Democracy.</p> <p>CO 2- Understanding the causes and impact of Democracy on Social Development.</p>

	CO 3-Understand and create value in young people regarding Constitutionalism.
SEM.II	
BA-PS-121T Introduction to Indian Constitution-II	CO 1-Understand the structure of the Indian Parliament. CO 2-Understand the structure of the government of India. CO 3-Understand the Judiciary system and Electoral system in India.
OE- PS-02T: Constitutional Framework of India-II	CO 1-Understand and articulate the Fundamental Rights, Duties, and Directive Principles as enshrined in the Indian Constitution. CO 2- Identify and describe the key characteristics of Indian federalism. CO 3- Assess the nature and scope of legislative, administrative, and financial relations between the Centre and States.
SEC-PS-122T Political Journalism-I	CO 1- Understand the complex relationship between media of communication and power Politics. CO 2-Understand the critical appraisal of practices of political image management, campaigns, Propaganda and censorship CO 3-Understand knowing the Indian context of political journalism
VEC-PS-02T: Indian Democracy and Constitution -II	CO 1-Understand the philosophy of Indian Democracy CO 2-Understanding the causes and impact of Democracy on Social Development. CO 3-Understand and create value in young people regarding Constitutionalism
Semester III	
PS-MJ-231T Western Political Thought -I	CO 1-Describe and analyze Plato's concepts of the Ideal State, education, justice, and Communism. CO 2-Discuss Aristotle's views on the state, property, slavery, and revolution. CO 3-Summarize and evaluate Machiavelli's views on human nature, religion, morality, and the state CO 4-Explain J.S. Mill's theories of utilitarianism, liberty, and representative government. CO 5-Critically analyze and apply the political theories of these thinkers to contemporary issues.

<p>PS-MJ-232 Politics in India Since Independence-II</p>	<p>CO 1-Understand analyze the challenges which Independent India faced.</p> <p>CO 2- Understand the Describe the factors that led to the partition of India.</p> <p>CO 3- Understand knowing the Evaluate the role played by leaders in Nation Building.</p>
<p>PS-VSC-234T Political Leadership and Decision Making-I</p>	<p>CO 1- Describe the significance of political leadership in Indian democracy.</p> <p>CO 2- Differentiate between various leadership styles observed in Indian political history.</p> <p>CO 3- Assess the effectiveness of political leaders based on Indian socio-political contexts.</p> <p>CO 4- Apply theories of decision making to understand Indian political processes.</p> <p>CO 5- Critically analyze the impact of interest groups and public opinion on political decisions in India.</p>
<p>PS-FP -235P</p>	<p>CO1-Students can identify and formulate a research problem and devise a project completion strategy.</p> <p>CO2-Students will acquire observation, inquiry, and problematizing skills and can also learn writing and verbal skills to present their observations of the research activity.</p> <p>CO 3-Students can demonstrate various components of research that may help them in their future studies and may get opportunities to participate in local and global research projects.</p>
<p>PS-MN-233T Political Theory and Concepts-I</p>	<p>CO1-Students will gain a clear understanding of the definitions, nature, and scope of political theory.</p> <p>CO2-Students will be able to differentiate between liberal and conservative traditions in political theory.</p> <p>CO3-Students will understand the fundamental concepts of the state, including its meaning and elements.</p>
<p>Semester - IV</p>	
<p>PS-MJ-241T Western Political Thought-II</p>	<p>CO1-Students will demonstrate a comprehensive understanding of the key concepts and theories of Hobbes, Locke, Rousseau, and Marx.</p> <p>CO2-Students will be able to analyze and compare different theories of social contract and their implications for political thought.</p>

	<p>CO3-Students will develop the ability to critically evaluate political ideologies and their relevance in modern contexts.</p> <p>CO4-Students will enhance their written and oral communication skills through discussions, presentations, and essays on political philosophy topics.</p> <p>CO5-Students will gain a deeper appreciation for the evolution of political ideas and their impact on political systems globally.</p>
<p>PS-MJ-242 Politics in India Since Independence-II</p>	<p>CO1-Understand Analyse the challenges which Independent India faced.</p> <p>CO2-Understand the Describe the factors that led to the partition of India.</p> <p>CO3-Understand knowing the Evaluate the role played by leaders in Nation Building.</p>
<p>PS-SEC-244T Human Rights in Indian Context: Theory and Practice</p>	<p>CO1- Understand the theory and history of human rights and their place in the Indian Constitution.</p> <p>CO2- Analyze the role of NGOs and activists in human rights.</p> <p>CO3- Recognize current human rights challenges in India.</p> <p>CO4- Gain skills in discussions, research, and mock tribunals on human rights issues.</p> <p>CO5- improve research and advocacy skills in human rights.</p>
<p>PS-CEP-245P Community Engagement and Service Program</p>	<p>CO1-Students can identify and formulate a research problem and devise a project completion strategy.</p> <p>CO2-Students will acquire observation, inquiry, and problematizing skills and can also learn writing and verbal skills to present their observations of the research activity.</p> <p>CO3-Students can demonstrate various components of research that may help them in their future studies and may get opportunities to participate in local and global research projects.</p>
<p>PS-MN-243T Political Theory and Concepts-II</p>	<p>CO1-Define and distinguish between power and authority and evaluate their implications in different contexts.</p> <p>CO2-Analyze and critique theories of power as exploitation and understand the concept of hegemony.</p> <p>CO3-Apply Foucault's theories to analyze power dynamics in various societal structures.</p>

	<p>CO4-Identify different types of rights and discuss their significance in contemporary political discourse.</p> <p>CO5-Evaluate dimensions of justice-social, economic, and political-and their implications for societal equity and governance.</p>
<p>PS-OE-202T Voting Awareness: Among Citizens</p>	<p>CO1-Students will recognize the significance of voter turnout in maintaining a healthy democracy.</p> <p>CO2-Students will demonstrate proficiency in organizing voter registration drives and conducting mock voting exercises.</p> <p>CO3-Students will develop creative materials, such as posters and pamphlets, to effectively promote voting awareness.</p> <p>CO4-Students will actively participate in voter education programs, social media campaigns, and community outreach activities to increase voter engagement and turnout.</p> <p>CO5-Students will recognize the significance of voter turnout in maintaining a healthy democracy.</p>
<p>Semester - V</p>	
<p>DSE 1-D (35161) Public Administration-I</p>	<p>CO1: understand the meaning, nature, scope, and significance of Public Administration.</p> <p>CO2: know the evolution, salient features, and goals of New Public Administration.</p> <p>CO3: understand the Traditional, Behavioral, and System approaches to Public Administration.</p> <p>CO4: know the concept and principles of Good Governance and E-Governance.</p> <p>CO5: understand the role and importance of Public-Private Partnership in governance.</p>
<p>DSE 2-D (35162) International Relations-I</p>	<p>CO1: understand the development, meaning, nature, and scope of International Relations as a discipline.</p> <p>CO2: understand and compare the major approaches to International Relations, including Idealism, Realism and Neo-Realism, the Systems Approach, and Marxism.</p> <p>CO3: understand the causes and consequences of the Second World War, the emergence and phases of the Cold War, and the end of the Cold War with the emerging world order.</p> <p>CO4: understand the structure, functions, peacekeeping role, and reforms of the United Nations, as well as the role of major</p>

	<p>international financial institutions such as the World Bank, IMF, and WTO.</p> <p>CO5: understand the role and significance of regional organizations such as the European Union (EU), SAARC, ASEAN, and BRICS in promoting regional cooperation and global governance</p>
<p>CC-1F (35163) Modern Political Analysis-I</p>	<p>CO1: understand the meaning, nature, scope, and features of Modern Political Analysis, and describe the differences between the traditional and modern approaches.</p> <p>CO2: understand the meaning and nature of the Political System and describe its major functions in society.</p> <p>CO3: understand Gabriel Almond's classification of Political Systems and describe its significance in political analysis.</p> <p>CO4: understand the meaning, nature, basic elements, and types of Political Culture, and describe its role in shaping political behavior.</p> <p>CO5: understand the meaning, agencies, and types of Political Socialization, and describe its importance in the development of political values.</p>
<p>CC-1F (35164) Local Self Government in Maharashtra-I</p>	<p>CO-1. Understanding the historical context and evolution of local self-government in India with a focus on the British and post-independence periods.</p> <p>CO-2. Understand the recommendations of the Vasant Rao Naik Committee, L. N. Bongirwar Committee and Prin. P. B. Patil Committee</p> <p>CO-3. Understand the recognized importance of the 73rd and 74th Amendments in Promoting decentralized and participatory governance.</p> <p>CO-4. Understand the definition and differentiate the roles of Gram Sabha and Gram Panchayat, and assess their composition, powers, and functions.</p> <p>CO-5. Understand the functions and responsibilities of Panchayat Samiti in coordinating and supervising rural development activities.</p> <p>CO-6. Understanding the significance of Zilla Parishad in regional planning, resource allocation, and overall, rural</p>

	development.
SEC-2D (35165) Samyukta Maharashtra Movement-I	<p>CO1: understand the concept, nature, and genesis of regionalism in India.</p> <p>CO2: know the role of the Indian National Congress in the development of regionalism.</p> <p>CO3: understand the emergence of regional consciousness in Maharashtra, including the ‘sons of the soil’ concept and the difficulties in the formation of Samyukta Maharashtra.</p>
Semester - VI	
DSE 1-D (36161) Public Administration-II	<p>CO1: understand the meaning, definitions, and concept of Bureaucracy.</p> <p>CO2: know the importance of Administrative Reforms in improving administration.</p> <p>CO3: understand the processes of Recruitment, Training, and Promotion in Personnel Administration.</p> <p>CO4: know the meaning, types, principles, and process of Budgeting in India, including Gender Budgeting.</p> <p>CO5: understand the concepts of Administrative Accountability and the role of Legislative and Judicial Control.</p>
DSE 2-D (36162) International Relations-II	<p>CO1: understand the meaning, principles, emergence, and relevance of the Non-Alignment Movement in the post-Cold War period.</p> <p>CO2: Understand the meaning, evolution, impacts, and limits of globalization, and describe the role of the state in the process of globalization.</p> <p>CO3: understand the key concepts of International Political Economy, including neo-colonialism, the New International Economic Order, the North-South divide, and South-South cooperation.</p> <p>CO4: Understand major contemporary global issues such as international terrorism, environmental issues, poverty, development, hunger, and human rights.</p> <p>CO5: Analyze the changing nature of global politics and international relations in the context of globalization and emerging global challenges.</p>
CC-1F (36163) Modern Political Analysis-I	CO1: understand the meaning, nature, levels, and factors

	<p>affecting political participation.</p> <p>CO2: know the concept and nature of political elite.</p> <p>CO3: understand the different approaches of elite theory proposed by Mosca, Michels, Pareto, Burnham, and C. Wright Mills.</p> <p>CO4: know the meaning, nature, and agencies of political communication.</p> <p>CO5: understand the concepts of power, influence, authority, and legitimacy along with their different types.</p>
<p>CC-1F (36164) Local Self Government in Maharashtra-II</p>	<p>CO1. Understanding the Urban Local Bodies and Their Functions</p> <p>CO2: Understanding the Urban Local Bodies and Their Functions</p> <p>CO3: Understanding the Role of the State Election Commission</p> <p>CO4: Understanding the Impact of Leadership on Local Development</p> <p>CO5: Understand the Identify and Address Challenges in Local Self-Government</p> <p>CO6: Understand the factors affecting citizen participation and suggest strategies to enhance community involvement in decision-making processes.</p>
<p>SEC-2D (36165) Samyukta Maharashtra Movement-II</p>	<p>CO1: understand the concept, nature, and genesis of regionalism in India.</p> <p>CO2: know the role of the Indian National Congress in the development of regionalism.</p> <p>CO3: understand the emergence of regional consciousness in Maharashtra, including the ‘sons of the soil’</p>

Programme Outcomes: M.A. Politics

Department of Politics	After successful completion of two-year degree program in Politics students should be able to:
Programme Outcomes	<p>PO-1. Understanding the inter relationship between policy decisions and its effects on society.</p> <p>PO-2. To develop the ability to analyze and predict socio political phenomena based on the study of existing socio-political determinants and past experiences.</p> <p>PO-3. The course curriculum inculcates among students a basic understanding of the rights and duties of citizenship</p> <p>PO-4. Establishment of linkages between academics and civil society at large so as to successfully address socio political problems.</p> <p>PO-5. Understanding nature and developments in national and international politics</p> <p>PO-6. Critical evaluation of social, economic and political variables for a proper understanding of the plurality of Indian society</p> <p>PO-7. Building overall consciousness regarding national political history, international relations and present Indian and Western political thinkers.</p> <p>PO-8. Examining India's foreign relations with her neighbors and great powers.</p> <p>PO-9. Use of case study method for analyzing the working of important international and regional organizations like UN, EU, ASEAN etc.</p> <p>PO-10. To develop comprehensive and interdisciplinary knowledge by emphasizing inter-linkages between various political, economic and social issues and challenges.</p> <p>PO-11. To generate socially-informed knowledge and cater to the educational upliftment of marginalized communities through papers like Human Rights, Political Ideas in Modern India and Women and Politics in India</p>

Programme Specific Outcomes: M.A. Politics

Department of Politics	After successful completion of two-year degree program in Politics students should be able to
Programme Specific Outcomes	<p>PSO-1. Political Sciences as ‘Master Science’ had spawned International Relations, later emerging as an autonomous discipline, Comparative Politics later shifting to Area Studies and Public Administration which again became an autonomous discipline though taking a turn to management and policy studies. This master’s programme provides a broad view of this disciplinary development.</p> <p>PSO-2. The programme provides a balanced treatment between the Western and the Indian political thought and theory.</p> <p>PSO-3. The programme provides balanced treatment to both empirical and normative aspects of the discipline of Political Science. The students get a balanced footing on concepts and methodology as the programme has made Research Methodology and Field Research compulsory.</p> <p>PSO-4. The programme draws inputs from allied disciplines and empowers the students with an interdisciplinary focus and understanding.</p> <p>PSO-5. The Programme draws on research thrust areas of the Department like India’s state and sub-state politics, public policy, India’s foreign policy, women and politics and social movements, to name a few.</p> <p>PSO-6. The programme supports problem solving skills, thinking, creativity through assignments, project work, both individual and group based.</p> <p>PSO-7. The programme empowers and motivates students for research in Political Science and related fields.</p> <p>PSO-8. Since the Department has its own dedicated library students get enough opportunity to prepare for competition examinations.</p>

Course Outcomes: M.A. Politics

Course	Outcomes
	After completion of these courses’ students should be able to;
SEMESTER - I	
PS-MJ-511T Western Political Thought	<p>CO 1: Understand the theories and concepts of Political Science.</p> <p>CO 2: Understand the function of the state in society and how it rules and regulates.</p> <p>CO 3: Understand the political ideologies and ideas which are</p>

	<p>broadly considered political creeds usually termed Political Ideology</p> <p>CO 4: Understand the various theories of Justice.</p> <p>CO 5: Understand the various theories and contemporary debates in democracy.</p>
<p>PS -MJ-512T Administrative Theory</p>	<p>CO 1: Understand the important concepts, approaches and theories of Public Administration.</p> <p>CO 2: Understanding the latest developments in the field of Public Administration. CO 3: Understand the analyze broad transformations in the study of Public</p> <p>CO 3: Understand the analyze broad transformations in the study of Public Administration in the course of changes in socio economic and political life.</p>
<p>PS -MJ-513T Political Institutions in India</p>	<p>CO 1-Understand the leading institutions of the Indian political system and to the changing nature of these institutions. Apart from explaining the structure and functions of the main Institutions</p> <p>CO2-Understanding the institutional balance of power as discussed in the Indian Constitution and as developed during the functioning of Indian democracy over the past decades.</p> <p>CO 3- Understanding of political institutions and their functions in India.</p> <p>CO 4-Understanding the evolution and working of Political parties and the way party politics in India has taken shape under diverse social settings</p>
<p>PS -MJ-514T Local Self Government In Maharashtra</p>	<p>CO 1: Understand the local leadership.</p> <p>CO 2: Understand the efforts for rural development.</p> <p>CO 3: Understand the management and theory at the local level.</p>
<p>PS -ME-515T Party System in India</p>	<p>CO 1- Understand the nature of the party system in India.</p> <p>CO 2- Understand the functioning of the main political parties operating in the system.</p> <p>CO 3- Understand the analytical perspectives on party politics in India.</p>
<p>PS-RM-516T Research</p>	<p>CO 1-Understand the comprehend basics in research methodology and applying them in research/ project work.</p> <p>CO 2-Understand the select an appropriate research design.</p>

<p>Methodology in Political Science</p>	<p>CO 3-Understand the take up and implement a research project/ study. CO 4-Understand the collect the data, edit it properly and analyze it accordingly.</p>
<p>Semester II</p>	
<p>PS-MJ-521T Comparative Political Analysis</p>	<p>CO 1: Understand the trajectory of the sub-discipline. CO 2: Understand the significance of the comparative methodology CO 3: Understand the dynamics of domestic politics across the Countries.</p>
<p>PS -MJ-522T Theory of International Politics</p>	<p>CO 1: Understand the major theories of international politics. CO 2: Understand international events from theoretical standpoint. CO 3: Understand the skill to interpret and evaluate the nature of international politics.</p>
<p>PS -MJ-523T Public Policy</p>	<p>CO 1: Understand the basic concepts, policy processes, theories, approaches and perspectives in the discipline of public policy. CO 2: Understand the making of policy and its interaction with political system. CO 3: Understand the basic methods to evaluate public policy. CO 4: Understand the basic concepts, policy processes, theories, approaches and perspectives in the discipline of public policy.</p>
<p>PS-MJ-524T Indian Political System</p>	<p>CO 1 Understand the Nature of Indian Politics CO-2: Understand the political parties in Maharashtra.</p>
<p>PS -ME-525T Politics and the Media</p>	<p>CO 1: Understanding the Media CO 2: Understanding the course is significant in Political Science discourses when we look at the crucial role of the media in all political processes. On the one hand CO 3- Understand the course is taught with its interdisciplinary character, bringing input from economics CO-4: Understand to develop insights and enhance skills in a professional manner in the age of mass media.</p>
<p>PS-RP-526 Research Project</p>	<p>CO-1: Acquisition of the ability to observe, gather and organize facts in a coherent manner.</p>
<p>SEMESTER - III</p>	

<p>PS-MJ-631T Political Theory</p>	<p>CO-1: Students will understand the meaning, definition, importance, and development of Political Theory in Political Science.</p> <p>CO-2: Students will analyze the resurgence and contemporary relevance of Political Science in modern political studies.</p> <p>Students will analyze the resurgence and contemporary relevance of Political Science in modern political studies.</p> <p>CO-3: Students will explain and critically evaluate the key political concepts of Liberty and Equality.</p> <p>CO-4: Students will understand and analyze the concepts of Power, Authority, Legitimacy, and Political Obligation in political systems.</p> <p>CO-5: Students will evaluate the concept of Justice and the role and significance of Civil Society in democratic governance.</p>
<p>PS-MJ-632 Political Sociology</p>	<p>CO-1: Students will understand the meaning, nature, scope, and importance of Political Sociology and its relevance in political studies.</p> <p>CO-2: Students will analyze the intellectual foundations of Political Sociology with reference to Karl Marx, Max Weber, Behavioral Approach, and System Approach.</p> <p>CO-3: Students will understand the concept, elements, and types of Political Culture and the role of various agencies in Political Socialization.</p> <p>CO-4: Students will examine the relationship between Political Culture and Political Socialization in shaping political behavior.</p> <p>CO-5: Students will evaluate the concept of Political Participation and Public Opinion, including factors affecting them and challenges arising from Liberalization and Privatization.</p>
<p>PS-MJ-633T State Politics in India</p>	<p>CO-1: Students will understand the formation of states in India and analyze centre–state and inter-state conflicts related to water, borders, language, religion, and ethnicity.</p> <p>CO-2: Students will examine the issues of autonomy and insurgency in Indian states with special reference to Punjab and Nagaland.</p> <p>CO-3: Students will analyze the role of national and regional political parties and their impact on state politics in India.</p> <p>CO-4: Students will evaluate the nature of identity politics, including middle-peasantry caste politics, Dalit and OBC politics, and collective mobilizations in different states.</p> <p>CO-5: Students will understand the concept of political economy and</p>

	analyze regional disparities, planning, and decentralization in states like Maharashtra, Andhra Pradesh, and Kerala.
PS-MJ-634T Development of Indian Administration	<p>CO-1: Students will understand the nature and features of administration in Ancient India with reference to Vedic administration and Kautilya's Arthashastra.</p> <p>CO-2: Students will examine the administrative systems of Medieval India, particularly Mughal and Maratha administration.</p> <p>CO-3: Students will analyze the development of administration during the British period and the evolution of constitutional institutions in India.</p> <p>CO-4: Students will understand the importance of various constitutional acts such as Regulating Acts, Council Acts, and Government of India Acts in shaping Indian administration.</p> <p>CO-5: Students will evaluate the framework of Indian administration with special reference to the Prime Minister, Council of Ministers, Election Commission, and Finance Commission.</p>
PS-ME-635T Modern Political Thinkers	<p>CO-1: Students will understand the life, work, and social reform movements of Mahatma Phule and his views on caste system, equality, and Sarvajanik Satya Dharma.</p> <p>CO-2: Students will analyze the social and economic thoughts of Mahatma Phule and their relevance to social justice and equality.</p> <p>CO-3: Students will examine the life, work, and reformist ideas of Maharshi Vitthal Ramji Shinde, especially his views on untouchability and Bahujan politics.</p> <p>CO-4: Students will evaluate the political and social philosophy of Dr. Babasaheb Ambedkar, particularly his ideas on equality, caste, religion, democracy, and eradication of untouchability.</p> <p>CO-5: Students will understand the life, work, and philosophy of Vinoba Bhave, including Sarvodaya, Bhoodan Movement, and his views on education and social transformation.</p>

<p>PS –RP-636 P Research Project (4 Credits)</p>	<p>CO1: Understand the concept, purpose, and structure of a research proposal in academic research.</p> <p>CO2: Develop the ability to prepare a research proposal including problem statement, objectives, and research design.</p> <p>CO3: Explain the components of Chapter 1: Introduction and Research Methodology in a research project.</p> <p>CO4: Apply appropriate research methods and techniques for conducting a research study.</p> <p>CO5: Analyze and summarize existing studies through a Review of Literature (Chapter 2) to support research work.</p>
<p>Semester IV</p>	
<p>PS-MJ-641T Political Process in India</p>	<p>CO1: Students will understand the evolution of the political process in India.</p> <p>CO2: Students can contextualize their understanding of the present political process.</p> <p>CO3: Students will be able to identify and comprehend various determinants shaping the political process in India, and it will familiarize students with the democratic ethos and how it shapes and gets shaped by the political process in India.</p>
<p>PS-MJ-642T Public Administration</p>	<p>CO1: Explain the meaning, nature, scope, and significance of Public Administration.</p> <p>CO2: Describe the evolution, salient features, and goals of New Public Administration.</p> <p>CO3: Analyze different approaches to Public Administration, including traditional, behavioral, and systems approaches.</p> <p>CO4: Understand the concepts and processes of Personnel Administration, including recruitment, training, and promotion.</p>
<p>PS-MJ-643T International Organizations</p>	<p>CO1: The students will develop an ability to think critically about the nature of the state’s problems and the development of global governance mechanisms.</p> <p>CO2: The students will be able to understand the effectiveness and future of international organizations.</p> <p>CO3: Students will understand, comprehend, and evaluate organizations from a comparative perspective.</p>

<p>PS-ME-644T Election Study</p>	<p>CO1: Understand the methods of studying elections in India and elsewhere.</p> <p>CO2: Learn about the practice of studying elections in India.</p> <p>CO3: Get training in empirical research methods.</p>
<p>PS -RP-645P Research Project</p>	<p>CO1: Students will comprehensively understand South Asia's geographical, historical, social and political backdrop.</p> <p>CO2: It will enhance students' understanding of democratic politics and its transitions in South Asia and thus can provide evaluative criteria for measuring the performance of democratic and non-democratic processes.</p> <p>CO3: Students can get an account of cross-sectional research on the region.</p>

DEPARTMENT OF PSYCHOLOGY

Programme Outcomes: B. A. Psychology

Department of Psychology	After successful completion of three-year degree program in Psychology a student should be able to
Programme Outcomes	<p>PO-1. Able to understand basic concepts of Psychology.</p> <p>PO-2. Understand the impact of environment, society, heredity on persons Behaviour.</p> <p>PO-3. Understand human social behavior.</p> <p>PO-4. Awareness of self and social wellbeing.</p> <p>PO-5. Think scientifically about human behavior.</p> <p>PO-6. Understand human development.</p> <p>PO-7. To write study tour report.</p> <p>PO-8. Social Interaction elicits views of others, mediate disagreements and help reach conclusions in group settings.</p> <p>PO-9. Recognize different value systems including your own, understand the moral dimensions of your decisions and accept responsibility for them.</p> <p>PO-10. Understand the issues of environmental contexts and sustainable development.</p> <p>PO-11. Acquire the ability to engage in independent and life-long learning in the broadest socio-technological changes.</p>

Programme Specific Outcomes: B. A. Psychology

Programme Specific Outcomes	<p>PSO-1. To impart knowledge and understanding of the basic concepts, systems theories of psychology and psychopathology.</p> <p>PSO-2. An ability to apply the theoretical principles of psychology demonstrating an understanding of behaviour thoughts and feelings of the individuals and the individual in group settings.</p> <p>PSO-3. Basic professional skills pertaining to psychological testing assessment and counselling.</p> <p>PSO-4. To recognize understand and respect the complexity of multiculturalism in the practice and application of counselling and psychotherapy.</p> <p>PSO-5. To get admission to a post-graduate course in Psychology.</p>
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	<p>PSO-6. To interpret data and make project research.</p> <p>PSO-7. To write scientific case study reports.</p> <p>PSO-8. To use basic psychological tests and experiments.</p> <p>PSO-9. Identify and Think on the various psychological problems.</p> <p>PSO-10. Make use of personality theories in daily practice.</p> <p>PSO-11. Make Use of Industrial theories while preparing for professional interviews.</p> <p>PSO-12. Analyze and understand abnormal human behavior in practice.</p>
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Course Outcome: B.A. Psychology

Course	Outcomes
Semester-I	
DISCIPLINE SPECIFIC CORE COURSE Foundations of Psychology (BA-PY-111T)	<p>CO-1. To define and explain the basic concepts, scope, and goals of psychology as a scientific discipline.</p> <p>CO-2. To describe major perspectives in psychology and compare their contributions to understanding human behavior.</p> <p>CO-3. To explain the structure and functions of neurons, the nervous system, and major brain regions involved in behavior.</p> <p>CO-4. To illustrate the relationship between biological processes (brain, hormones, and genetics) and psychological functioning.</p> <p>CO-5. To explain major theories of motivation and emotion and their influence on behavior.</p>
OPEN ELECTIVE (OE) Industrial Psychology (OE- PY- 01T)	<p>CO-1. Describe the concepts of industrial and organizational psychology.</p> <p>CO-2. To understand motivation and psychological principles used at workplace.</p> <p>CO-3. To evaluate the job performance factors.</p> <p>CO-4. To understand leadership and communication skills used at workplace.</p>
Skill Enhancement Course (SEC): Health Promotion Life Skills (SEC-PY-112T)	<p>CO-1. To understand various factors related to health and diseases.</p> <p>CO-2. To understand quality of life and promoting good health.</p> <p>CO-3. Students will develop personal life skills, including stress management, decision-making, and effective communication, to support healthy lifestyles.</p> <p>CO-4. Students will evaluate and implement community-based health promotion initiatives to improve overall health outcomes.</p>

Semester-II	
DISCIPLINE SPECIFIC CORE COURSE Cognitive Process (BA-PY-121T)	CO-1. To utilize cognitive concepts for comprehending human behaviour. CO-2. To Employ the concepts consciousness to enhance self-awareness. CO-3. To implement key learning and memory theories in their daily lives. CO-4. To apply advanced cognitive skills effectively.
OPEN ELECTIVE (OE) Consumer and Advertisement Psychology (OE- PY- 02T)	CO-1. To describe the role of psychology in understanding the consumer and advertisements. CO-2. To evaluate how the knowledge of attention and perception can be used to influence consumer's behaviour. CO-3. To discuss the role of learning and memory in understanding consumer behaviour. CO-4. To evaluate how consumer's emotions and attitude can influence their behaviour.
SKILL ENHANCEMENT COURSE (SEC): Basic Counseling Skills (SEC- PY-122T)	CO-1. To students will exhibit knowledge and skills in counselling clients from a wide range of diversity in all forms. CO-2 To develop active listening and communications skills to build strong therapeutic relationships. CO-3 To students will apply ethical and culturally sensitive counselling strategies to address the unique needs of clients from diverse backgrounds. CO-4. To students will critically evaluate counselling interventions and techniques to enhance client outcomes and professional competence
Semester-III	
Major PSYCHOLOGY OF ABNORMAL BEHAVIOUR-I (PY-MJ-231T)	CO-1. To. Acquire knowledge about the symptoms, diagnostic criteria, and causes of various psychological disorders. CO-2. Examine multiple probable causes and correlates of behaviour. CO-3. To Understand critiques, limitations, and implications of diagnosis and classification of psychological diseases. CO-4. To Create awareness about mental health problems in society. CO-5. To Understand the concept, definitions, and criteria used to identify abnormal behavior in psychology.

<p>Major Developmental Psychology (PY-MJ-232T)</p>	<p>CO-1. Understand the importance, characteristics and concern in lifespan development</p> <p>CO-2. Understand biological, cognitive, and socio-emotional processes.</p> <p>CO-3. To Understand the periods of development, the significance of age, and discuss developmental issues.</p> <p>CO-4. To Understand Psychoanalytic, Cognitive, Behavioral and Social Cognitive, Ethological, Ecological and Eclectic theories of development</p> <p>CO-5. To Understand methods of data collection and research designs used in Life-span development research</p> <p>CO-6. To Understand the nature, scope, and principles of human development across the lifespan.</p> <p>CO-7. Explain the major theories of human development proposed by psychologists.</p> <p>CO-8. To Describe the physical, cognitive, emotional, and social development during different stages of life.</p>
<p>Health Psychology (Minor) (PY-MN-235T)</p>	<p>CO-1. To Understand health psychology and arrive at the introduction to the role of psychology in health</p> <p>CO-2. To Understand the nature of stress and coping</p> <p>CO-3. To Understand various factors related to health and diseases.</p> <p>CO-4. To Understand quality of life and promoting the good health.</p> <p>CO-5. To Understand the concept, scope, and importance of health psychology in promoting physical and mental well-being.</p> <p>CO-6. Explain the bio psychosocial model of health and illness and its relevance to health behavior.</p>
<p>Open Elective (OE): Pre and Post Marital Counselling (PY-OE-201T)</p>	<p>CO-1. To In-depth understanding about therapies used in group counselling</p> <p>CO-2. To Updated knowledge on Family Therapy Practices</p> <p>CO-3. To Practical work knowledge about assessment and consultation</p> <p>CO-4. To Conflict Management Expertise</p> <p>CO-5. To Understand the concept and importance of pre-marital and post-marital counselling in promoting healthy marital relationships.</p> <p>CO-6. To. Identify factors influencing marital adjustment, such as</p>

	<p>communication patterns, cultural values, personality, and family background.</p> <p>CO-7. Develop effective communication and conflict-resolution skills to support couples in resolving disagreements constructively.</p>
<p>Field Project (related to major) (PY-FP-234P)</p>	<p>CO-1. Understand the application of psychological theories and concepts in real-life situations through field experience.</p> <p>CO-2. To Develop skills in psychological observation and data collection from individuals or groups in natural settings.</p> <p>CO-3. To Apply research methods and techniques such as surveys, interviews, and case studies in fieldwork.</p> <p>CO-4. To Analyze psychological problems and behaviors observed during the field project.</p> <p>CO-5. To Develop interpersonal and communication skills while interacting with participants and communities.</p> <p>CO-6. To Demonstrate ethical principles in psychological research, including confidentiality and informed consent.</p> <p>CO-7. To Interpret and organize collected data using basic psychological research tools.</p>
<p>Vocational Skill Course (VSC): School Counselling (PY-VSC-233T)</p>	<p>CO-1. To Inform knowledge of school counselors within the system</p> <p>CO-2. To Understanding and evaluation of comprehensive School counseling goals and strategies</p> <p>CO-3. To Understanding Skills of school counselor</p> <p>CO-4. To Understand the concept, principles, and importance of school counselling in supporting students' academic, emotional, and social development.</p> <p>CO-5. To Identify common psychological and behavioral problems among school students such as anxiety, stress, learning difficulties, and peer conflicts.</p> <p>CO-6. To Develop basic counselling and communication skills required to work effectively with children and adolescents.</p>
<p>Semester-IV</p>	

<p style="text-align: center;">Major Psychology of Abnormal Behaviour-II (PY-MJ-241T)</p>	<p>CO-1. To Learn descriptions, and theories underlying diagnostic nosology of psychiatric disorders.</p> <p>CO-2. To Learn and understand benefits, critiques, limitations, and implications of diagnosis and classification.</p> <p>CO-3. To Help students to acquire the knowledge about the symptoms, diagnostic criteria, and causes of various psychological disorders.</p> <p>CO-4. Examine multiple probable causes and correlations of behaviour.</p> <p>CO-5. To Create awareness about mental health problems in society.</p>
<p style="text-align: center;">Major Theories of Personality (PY-MJ-242T)</p>	<p>CO-1. To Understand the concept of personality with various theories of personality on the basis of personality psychology.</p> <p>CO-2. To Understand different framework and theoretical aspects of personality</p> <p>CO-3. To Understand and observe, interpret individual differences in behaviour in the light of sound theoretical systems of personality.</p> <p>CO-4. To Understand comprehensive overview of the major theories personality.</p> <p>CO-5. To Understand the concept, structure, and development of personality from different psychological perspectives.</p>
<p style="text-align: center;">Positive Psychology (Minor) (PY-MN-245T)</p>	<p>CO-1. To Understand how the positive psychology as the science of happiness, human strengths, positive aspects of human behaviour and ‘psychology of well-being.’</p> <p>CO-2. To How we lead our lives, find happiness and satisfaction, and face life’s challenges.</p> <p>CO-3. To How positive psychology has become an evolving mosaic of research and theory from many different areas of psychology</p> <p>CO-4.To Understand the concept and scope of Positive Psychology and its importance in improving well-being and quality of life.</p> <p>CO-5. To Explain key theories and principles of positive psychology related to happiness, optimism, and human strengths.</p>
<p style="text-align: center;">Open Elective (OE): Stress Management (PY-OE-202T)</p>	<p>CO-1. To Develop the ability to tap personal strengths for preventing stress and achieving meaningful goals</p> <p>CO-2. To Assess individual risk factors as related to stress (behavioural,</p>

	<p>emotional, physical, spiritual</p> <p>CO-3. To Accept the responsibility of taking charge of your own levels of stress.</p> <p>CO-4. To Understand the concept, types, and sources of stress in personal and professional life.</p> <p>CO-5. To Explain the psychological and physiological effects of stress on health and behavior.</p>
<p>Skill Enhancement Course (Sec) Psychological First Aid (PY-SEC-243T)</p>	<p>CO-1. To Recognize vulnerable individuals in need.</p> <p>CO-2. To Understand the ethical principles of psychological first aid.</p> <p>CO-3. Develop the psychological first aid skills and importance of self-care</p> <p>CO-4. To Employ basic Psychological first aid skills.</p> <p>CO-5. To Understand the concept and importance of Psychological First Aid (PFA) in providing immediate emotional support during crises and emergencies.</p> <p>CO-6. To Identify common psychological reactions to trauma, disasters, and stressful events.</p> <p>CO-7. To Recognize the basic principles and steps of Psychological First Aid in supporting affected individuals.</p>
<p>Community Engagement Program (CEP): (PY-CEP-244P)</p>	<p>CO-1. To Understand the importance of community engagement in promoting mental health and social well-being.</p> <p>CO-2. To Apply psychological principles and theories to address community issues and social problems.</p> <p>CO-3. To Develop skills in community interaction and communication while working with diverse groups.</p> <p>CO-4. To Identify psychological and social problems affecting individuals and communities.</p>
<p>Semester-V</p>	
	<p>CO-1. To be able to understand describe the concept of industrial and organizational Psychology, selection and training.</p> <p>CO-2. To able to understand and explain job profile, job analysis,</p>

<p>Industrial Psychology</p>	<p>recruitment and employee training.</p> <p>CO-3. To able to understand and classify the appraisal rating system.</p> <p>CO-4. To be able to understand different theories of motivation.</p> <p>CO-5. To able to understand evaluate the training programmed and job performance.</p> <p>CO-6. To understand leadership, leadership qualities and functions of leaders in industry.</p> <p>CO-7. To learn new concept ‘engineering psychology’ for easier work for workers.</p>
<p>Scientific Research and Experimental Psychology</p>	<p>CO-1. To acquire basic skills and understand basic concepts of Research Methodology.</p> <p>CO-2. To understand how to make small research project.</p> <p>CO-3. To learn to make group report/project.</p> <p>CO-4. To able to understand theory of research.</p> <p>CO-5. To understand Psychophysics.</p> <p>CO-6. To understand the perceptual processes.</p> <p>CO-7. To learn psychological testing.</p> <p>CO-8. To understand thinking processes.</p> <p>CO-9. To understand problem solving concept.</p>
<p>Psychology Practical Test and Experiments</p>	<p>CO-1. To be able to understand describe mapping of human behavior.</p> <p>CO-2. To understand and explain general ability testing, personality, adjustment and attitude.</p> <p>CO-3. To able to understand identify and classify the intellectual ability and personality patterns.</p> <p>CO-4. To be able to understand conduct testing and evaluate intellectual ability, personality traits, adjustment and attitudes of participant.</p> <p>CO-5. To able to understand analyze statistical method employed in behavior analysis.</p>

Programme Outcomes: M. A. Psychology

Department of Psychology	After successful completion of two Year post degree program in Psychology a student should be able to
Programme Outcomes	<p>PO-1. To go further higher education.</p> <p>PO-2. Take informed actions after identifying the assumptions that frame our thinking and actions, checking out the degree to which these assumptions are accurate and valid, and looking at our ideas and decisions from different perspectives.</p> <p>PO-3. Speak, read, write and listen clearly in person and through election media in English and one Indian language, and make meaning of the world by connecting people, ideas, books, media and technology.</p> <p>PO-4. Demonstrate empathetic social concern and equity centered national development and the ability to act with an informed awareness of issues and participate in civic life through volunteering.</p> <p>PO-5. To provide the students with a unique opportunity of obtaining a professional qualification in Psychology focusing on the advanced Skills.</p> <p>PO-6. To be able to understand basic concepts of Psychology and to analyse behaviour in practice.</p> <p>PO-7. Understand the Psychological way of thinking.</p> <p>PO-8. The ability to write clearly Project reports.</p> <p>PO-9. To develop comprehensive understanding of interdisciplinary issues and aspects of society.</p> <p>PO-10. To do scientific research in Psychology.</p> <p>PO-11. Collaboration, cooperation and acknowledging the dynamic of groups and communities.</p> <p>PO-12. Identifying and evaluating social problems from mental health perspective.</p>

Programme Specific Outcome: M.A. Psychology

Programme Specific Outcomes	<p>PSO-1. The ability to analyse Symptoms and able to diagnose.</p> <p>PSO-2. Students will be able to effectively communicate with psychological illnesses.</p> <p>PSO-3. Be exposed to alternative approaches to psychological problems through exposure to coursework in allied fields.</p> <p>PSO-4. To identify upcoming psychological hazards.</p> <p>PSO-5. To suggest remedy for the various psychological abnormal behaviour.</p> <p>PSO-6. To prepare the students for scientific Psychological Testing.</p> <p>PSO-7. To prepare the students for scientific Counselling.</p> <p>PSO-8. To prepare the students for Proper Prognosis.</p> <p>PSO-9. To prepare the students for appropriate news breaking, and able to take sessions.</p> <p>PSO-10. Social and Ecological responsibility towards society and learning reflected through social participation.</p> <p>PSO-11. Including strong ethical values in psychological practice.</p> <p>PSO-12. In collating multicultural approach by working with groups and communities.</p> <p>PSO-13. Instilling ethical practices in counselling process.</p>
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Course Outcomes: M. A. Psychology

Course	Outcomes
M.A (Part – I) Semester I	
PY-MJ-411T Cognitive Processes	<p>CO-1: Demonstrate a comprehensive understanding of the processes involved in sensation and Perception.</p> <p>CO-2: Demonstrate a comprehensive understanding of the process involved in attention and pattern recognition.</p> <p>CO-3: Critically evaluate and apply major concepts, theories, and empirical findings in Cognitive psychology.</p> <p>CO-4: cognitive psychology principles to analyze and resolve issues in the actual world.</p>
PY-MJ-412T Psychological Testing: Theory	<p>CO-1: Observe ethical considerations of testing in practice.</p> <p>CO-2: Analyze the types of reliability/ validity/ norms of the test.</p> <p>CO-3: Follow standardized procedure for test construction.</p>

& Applications	CO-4: Apply theoretical understanding of psychological tests to different applied fields.
PY-MJ-413T Basic Statistical Methods	<p>CO-1: Demonstrate the conceptual understanding of the basic concepts in statistics like Measures of central tendency, measures of variability, normal probability, and Correlation and regression</p> <p>CO-2: Apply different statistical techniques in data analysis and perform the calculations of the same.</p> <p>CO-3: Use different basic statistical techniques of data analysis and interpretation of results.</p>
PY-MJ-414P Psychology Practical: Tests	<p>CO-1: Conduct testing in laboratory settings and fields for research purposes.</p> <p>CO-2: Psychological test construction skills will be developed.</p> <p>CO-3: Psychological tests will be used for assessment, and screening purpose</p>
PY-ME-415T Media Psychology	<p>CO-1: Explain the scope of Media Psychology along with the research methods used in the field.</p> <p>CO-2: Describe the psychological effects of media, specifically in context of violence and erotica.</p> <p>CO-3: Develop guidelines for responsible media consumption.</p> <p>CO-4: Develop guidelines for responsible media consumption. Propose interventions and strategies to mitigate the negative effects of Media</p> <p>CO-5: Exposure and create media campaigns to promote awareness of media's psychological effects.</p>
PY RM-416T Research Methods in Psychology	<p>CO-1: Demonstrate the understanding of overall research process and about the problem, variables, and hypothesis formulation.</p> <p>CO-2: Exhibit knowledge of data gathering tools, procedures, and different research designs.</p> <p>CO-3: Develop conceptual clarity about the application of factor analysis, other multivariate techniques, qualitative approaches and psychological and psychological and psychophysical scaling.</p> <p>CO-4: Develop and apply the skills of describing and evaluating the published research</p>
M.A (Part – I) Semester II	
PY-MJ-421T	CO-1: Demonstrate a comprehensive understanding of the various types, models, and theories of learning and memory.

<p>Learning and Memory</p>	<p>CO-2: Explain the neurological basis of learning and memory processes.</p> <p>CO-3: Apply principles of learning and memory to real-world contexts and situations.</p> <p>CO-4: Critically evaluate and analyze the strengths and limitations of different learning and memory theories.</p> <p>CO-5: Apply effective learning and memory strategies to enhance cognitive performance</p>
<p>PY-MJ-422T Biopsychology</p>	<p>CO-1: Understand the Basics of Neuropsychology.</p> <p>CO-2: Develop in depth understanding of Neurological Basis of Behavior.</p> <p>CO-3: Understand the overeating system and its effect on body regulation.</p> <p>CO-4: Understanding the relationship of sleep disorders and wakefulness to brain systems.</p>
<p>PY-MJ-423T Personality</p>	<p>CO-1: Define and explain the fundamental concepts of Personality, including misconceptions and approaches.</p> <p>CO-2: Explain the differences in the psychoanalytic and neo psychoanalytic theories of Personality</p> <p>CO-3: Demonstrate the applications of personality theories in different walks of life</p> <p>CO-4: Observe and interpret individual differences in behaviour in the light of sound theoretical systems of personality.</p>
<p>PY-MJ-424P Experimental Psychology: Practical</p>	<p>CO-1: Understand the importance and practical implications of research conducted in many psychological fields.</p> <p>CO-2: Develop various skills of conducting experiments in psychology</p> <p>CO-3: Analyze and interpret experimental data using statistical techniques and psychological theories.</p> <p>CO-4: Understand the applications of experimental design in psychology.</p> <p>CO-5: Apply the principles of experimental design to address specific research questions and investigate causal relationships.</p> <p>CO-6: Develop report writing skills in the style of psychological research.</p>
<p>PY-ME-425T</p>	<p>CO-1: Define and explain the meaning and scope of criminal psychology, including theories and various schools.</p>

<p>Criminal Psychology</p>	<p>CO-2: Explain the influence of psychological disorders on criminal behaviour and the assessment of criminal tendencies.</p> <p>CO-3: Identify the different types of criminal behaviour such as cyber-crime, stalking, etc.</p> <p>CO-4: Describe the role of forensic psychology in criminal investigation.</p>
<p>PY-OJT-426 On –the Job Training/Field Project</p>	<p>CO-1: Balance theoretical understanding with practical experience</p> <p>CO-2: Understand the requirements of running Mental Health Organizations</p> <p>CO-3: Demonstrate the practical skills required in the field of mental health</p>
<p>M.A (Part – II) Semester III</p>	
<p>Major Mandatory Course Professionalism In Psychology (PY-MJ-631T)</p>	<p>CO-1. To demonstrate knowledge of ethical principles and professional codes (e.g., APA Ethics Code).</p> <p>CO-2. To identify ethical dilemmas in psychological practice and research.</p> <p>CO-3. To develop self-awareness regarding professional strengths, limitations, and biases.</p> <p>CO-4. To communicate effectively with clients, peers, and colleagues respecting confidentiality and cultural sensitivity.</p> <p>CO-5. To apply culturally sensitive approaches to assessment, intervention, and research.</p> <p>CO-6. To analyze complex psychological problems using evidence-based approaches.</p> <p>CO-7. To integrate theoretical knowledge with practical decision-making in professional contexts.</p> <p>CO-8. To identify career paths and professional opportunities in psychology.</p> <p>CO-9. To develop skills for lifelong learning, supervision, and continuing professional growth.</p> <p>CO-10. To prepare professional documents (CVs, reports, case notes) adhering to disciplinary standards.</p>

<p>Major Mandatory Core Course DSC-2 Psychopathology-1 (PY-MJ-632T)</p>	<p>CO-1. To describe the definition, symptoms, classification, etiology and treatment of abnormal behaviour.</p> <p>CO-2. To formulate an understanding of psychopathology which includes an integration of biology, psychology & social contexts?</p> <p>CO-3. Recognizing culture and social context affect our understanding of psychopathology.</p> <p>CO-4. To demonstrate a thorough understanding of major psychiatric disorders, including their diagnostic criteria, etiology, and prevalence.</p> <p>CO-5. To Analyze the historical development and theoretical frameworks of psychopathology, including psychodynamic, cognitive-behavioral, biological, and socio-cultural models.</p> <p>CO-6. To apply standardized classification systems (DSM-5, ICD-11) to identify and differentiate mental disorders accurately.</p> <p>CO-7. To conduct comprehensive psychological assessments using interviews, observations, and standardized tools to evaluate psychopathology.</p> <p>CO-8. To Develop case formulations integrating biological, psychological, and social factors for understanding individual presentations.</p> <p>CO-9. To Understand evidence-based interventions for major mental disorders and their theoretical rationale</p> <p>CO-10. To Critically evaluate research and clinical literature related to mental disorders, including current trends and controversies.</p>
<p>Major Mandatory Core Course Psycho-diagnostics (PY-MJ-633T)</p>	<p>CO-1. To explain what is psychodiagnostics and its basics.</p> <p>CO-2. To enables to discuss and assess the behavioural and clinical problems of the clients and making diagnosis and estimating prognosis.</p> <p>CO-3. To enable oneself in writing psychological report.</p> <p>CO-4. To demonstrate knowledge of the fundamental principles, history, and theories underlying psychological testing and assessment.</p> <p>CO-5. To identify and select appropriate psychological tests for different purposes, including cognitive, personality, aptitude, and clinical assessments.</p> <p>CO-6. To administer psychological assessments accurately and ethically, following standardized procedures.</p>

	<p>CO-7. To develop comprehensive case formulations combining test data, interviews, and behavioral observations.</p> <p>CO-8. To apply ethical principles, maintain confidentiality, and ensure informed consent in psychological assessment.</p> <p>CO-9. To consider sociocultural, linguistic, and environmental factors to ensure fair and unbiased assessment.</p> <p>CO-10. To prepare clear, professional, and accurate assessment reports for clients, educators, and other professionals.</p>
<p>Major Mandatory Core Course Indian Psychology (PY-MJ-634T)</p>	<p>CO-1. To understand concepts in psychology explained in the Indian knowledge system</p> <p>CO-2. To explain the concept personality as narrated in different Indian schools.</p> <p>CO-3. To demonstrate understanding of the philosophical and historical foundations of Indian psychology, including its roots in Vedic, Upanishad, and classical texts.</p> <p>CO-4. To analyze core concepts such as consciousness, mind, self (atman), cognition, emotion, and personality from Indian psychological perspectives.</p> <p>CO-5. To compare and integrate principles of Indian psychology with contemporary psychological theories and practices.</p> <p>CO-6. To apply Indian psychological concepts and techniques (e.g., meditation, yoga, mindfulness) for mental health, stress management, and personal development.</p> <p>CO-7. To critically evaluate research and literature in Indian psychology and explore its relevance to modern psychological practice and interventions.</p>
<p>Major Elective Core Course Health Psychology (PY-ME-635T)</p>	<p>CO-1. To demonstrate understanding of the key principles, theories, and historical development of health psychology.</p> <p>CO-2. To explain the interaction of biological, psychological, and social factors in health, illness, and wellness.</p> <p>CO-3. To analyze the role of stress, coping strategies, and resilience in physical and mental health outcomes</p> <p>CO-4. To examine psychological factors that influence health-related behaviors, lifestyle choices, and adherence to medical advice.</p> <p>CO-5. To apply psychological assessment tools and methods to evaluate health behaviors, quality of life, and risk factors.</p>

	<p>CO-6. To design and implement evidence-based interventions to promote health, prevent illness, and manage chronic conditions.</p> <p>CO-7. To demonstrate effective communication and professional behavior in interactions with clients and healthcare teams.</p>
<p>Research Project (PY -RP-637P)</p>	<p>CO-1. To understand the process of conducting a literature review.</p> <p>CO-2. To complete research proposal.</p> <p>CO-3. To conduct a pilot study on the basic of the research proposal.</p> <p>CO-4. To conduct a systematic review of relevant literature, critically analyzing existing research to contextualize the study.</p> <p>CO-5. To select and justify appropriate research designs, methods, and tools for addressing the research question.</p> <p>CO-6. To Implement ethical and systematic procedures for data collection, including surveys, experiments, interviews, or observations.</p> <p>CO-7. To apply statistical or qualitative analysis techniques to interpret research data accurately and meaningfully.</p> <p>CO-8. To evaluate research findings critically, considering limitations, validity, reliability, and potential biases.</p> <p>CO-9. To draw meaningful conclusions and discuss implications of the research for theory, practice, and future studies.</p>
<p>M.A (Part – II) Semester IV</p>	
<p>Major Mandatory Core Course Community Psychology (PY-MJ-641T)</p>	<p>CO-1. To get comprehensive overview of the community psychology discipline.</p> <p>CO-2. To know about the aims of community research.</p> <p>CO-3. To know about emerging trends in community psychology.</p> <p>CO-4.To. Define and explain the core values of community psychology.</p> <p>CO-5. To. Demonstrate understanding of the principles, history, and theoretical frameworks of community psychology.</p> <p>CO-6. To apply ecological and systems perspectives to understand individual, group, and community interactions.</p> <p>CO-7. To conduct assessments to identify community needs, resources, and strengths using participatory approaches.</p> <p>CO-8. To design, implement, and evaluate community-based interventions and programs effectively.</p> <p>CO-9. To develop strategies for health promotion, mental health prevention, and social well-being at the community level.</p> <p>CO-10. To facilitate community empowerment and advocate for</p>

	<p>marginalized or vulnerable populations.</p>
<p>Major Mandatory Core Course Psychopathology 2 (PY-MJ-642T)</p>	<p>CO-1. To demonstrate in-depth knowledge of complex psychiatric disorders, including mood disorders, anxiety disorders, psychotic disorders, and personality disorders.</p> <p>CO-2. To understand the ethology, diagnosis, and clinical features of neurodevelopmental disorders (e.g., autism, ADHD) and neurocognitive disorders (e.g., dementia).</p> <p>CO-3. To apply advanced diagnostic criteria (DSM-5, ICD-11) to differentiate and classify complex psychiatric conditions.</p> <p>CO-4. To develop comprehensive case formulations integrating biological, psychological, and social factors.</p> <p>CO-5. To analyze genetic, neurobiological, environmental, and psychosocial contributors to mental disorders.</p> <p>CO-6. To understand and evaluate therapeutic approaches and interventions appropriate for complex psychiatric conditions.</p> <p>CO-7. To critically appraise contemporary research and literature in psychopathology, including epidemiology and treatment studies.</p> <p>CO-8. To apply ethical principles and legal frameworks in the assessment, treatment, and reporting of severe mental disorders.</p> <p>CO-9. To recognize cultural, social, and contextual factors affecting the expression, diagnosis, and management of psychiatric disorders.</p> <p>CO-10. To prepare professional case reports, assessments, and presentations of complex psychiatric cases for academic or clinical purposes.</p>
<p>Major Mandatory Core Course Psychotherapies (PY-MJ-643T)</p>	<p>CO-1. To demonstrate understanding of the historical development, principles, and goals of major psychotherapeutic approaches.</p> <p>CO-2. To compare and contrast different schools of therapy such as psychodynamic, cognitive-behavioral, humanistic, behavioral, and integrative approaches.</p> <p>CO-3. To Develop case formulations based on different therapeutic models.</p> <p>CO-4. To Identify and apply basic techniques used in various psychotherapies (e.g., cognitive restructuring, free association, behavioral modification, client-cantered techniques).</p> <p>CO-5. To understand the importance of rapport, empathy, transference, countertransference, and therapeutic alliance in the counselling process.</p>

	<p>CO-6. To design appropriate treatment plans based on diagnosis, client needs, and evidence-based practices.</p> <p>CO-7. To critically evaluate the effectiveness and limitations of different psychotherapy approaches using research evidence.</p> <p>CO-8. To integrate cultural, social, and ethical considerations into psychotherapeutic practice.</p> <p>CO-9. To apply ethical principles, confidentiality, informed consent, and professional boundaries in therapeutic settings.</p> <p>CO-10. To demonstrate basic counselling and therapeutic skills through role-plays, case discussions, or supervised practice.</p>
<p>Major Elective Core Course Practicum –Clinical Based (PY-ME-644T)</p>	<p>CO-1. To apply theoretical concepts of clinical psychology to real or simulated clinical settings.</p> <p>CO-2. To conduct structured and semi-structured clinical interviews and behavioral observations competently.</p> <p>CO-3. To administer, score, and interpret basic clinical psychological tests under supervision.</p> <p>CO-4. To collect and document detailed case histories, including psychosocial and medical information.</p> <p>CO-5. To develop comprehensive case formulations integrating biological, psychological, and social factors.</p> <p>CO-6. To identify and classify mental health conditions using standardized diagnostic criteria (DSM/ICD).</p> <p>CO-7. To demonstrate foundational counselling and therapeutic techniques appropriate to client needs.</p> <p>CO-8. To prepare structured clinical reports, progress notes, and assessment summaries professionally.</p>
<p>Research Project (PY-RP-646P)</p>	<p>CO-1. To formulate a clear, researchable problem statement based on gaps identified in existing literature.</p> <p>CO-2. To conduct a comprehensive and critical review of relevant theoretical and empirical studies.</p> <p>CO-3. To select and justify appropriate research designs (quantitative, qualitative, or mixed methods).</p> <p>CO-4. To develop or select valid and reliable research instruments suitable for the study.</p> <p>CO-5. To apply ethical principles including informed consent, confidentiality, and responsible data handling.</p>

	<p>CO-6. To implement systematic and accurate procedures for collecting research data.</p> <p>CO-7. To analyze data using appropriate statistical techniques or qualitative analysis methods.</p> <p>CO-8. To interpret research results logically in relation to hypotheses, objectives, and existing literature.</p> <p>CO-9. To prepare a structured research dissertation/report following academic writing and citation standards (e.g., APA format).</p>
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DEPARTMENT OF MARATHI

Programme Outcomes: B. A. Marathi

Department of Marathi	After successful completion of three-year degree program in Marathi a student is able to:
Programme Outcomes	<p>PO-1. विद्यार्थी मराठी कथा, एकांकिका यांसारख्या साहित्यप्रकारांचे स्वरूप, वैशिष्ट्ये आणि सामाजिक-सांस्कृतिक संदर्भ समजून घेतील.</p> <p>PO-2. विद्यार्थी भाषिक कौशल्य विकास आणि मराठी व्याकरण, शब्दसंपदा व शैली आत्मसात करतील.</p> <p>PO-3. विद्यार्थी साहित्य वाचनातून वाङ्मयीन अभिरुची आणि विश्लेषण क्षमता विकसित करतील.</p> <p>PO-4. विद्यार्थी स्पर्धा परीक्षा भाग १ व २ अभ्यासून मराठी भाषेतील व्यावसायिक व शैक्षणिक तयारीसाठी आवश्यक कौशल्य आत्मसात करतील.</p> <p>PO-5. विद्यार्थी कार्यक्रम संयोजन व भाषिक कौशल्य अभ्यासून सार्वजनिक संवाद, वक्तृत्व व सर्जनशील अभिव्यक्तीमध्ये प्रावीण्य प्राप्त करतील.</p> <p>PO-6. विद्यार्थी साहित्याचे विश्लेषण, समीक्षा आणि मूल्यमापन करण्याची क्षमता विकसित करतील.</p> <p>PO-7. विद्यार्थी वाचन, लेखन, संवाद व प्रस्तुतीकरण कौशल्यांचा व्यावहारिक वापर करू शकतील.</p> <p>PO-8. विद्यार्थ्यांमध्ये मराठी भाषेच्या अध्ययनातून वैचारिक समज, सामाजिक जाणीव व सांस्कृतिक दृष्टिकोन विकसित होईल.</p> <p>PO-9. विद्यार्थी साहित्य, भाषा आणि कार्यक्रम संयोजन यांमधील संबंध समजून घेतील व त्याचे व्यावहारिक उपयोजन करू शकतील.</p> <p>PO-10. विद्यार्थ्यांमध्ये सर्जनशीलता, व्यक्तिमत्व विकास आणि भाषिक आत्मविश्वास निर्माण होईल.</p>

Programme Specific Outcomes: B. A. Marathi

Department of Marathi	After successful completion of three-year degree program in Marathi a student is able to:
FYUG PROGRAM SPECIFIC OUTCOMES:	<p>PSO-1. मराठी साहित्यासंबंधी रुची निर्माण होईल.</p> <p>PSO-2. कथेच्या आधारे सर्जक भाषिक क्षमता विकसित होईल.</p> <p>PSO-3. कथेचा आस्वाद आणि रचना समजण्यास मदत होईल.</p> <p>PSO-4. कथा हा साहित्यप्रकार समजून घेता येईल.</p> <p>PSO-5. कथातील व्यक्तिचित्रण, प्रसंगवर्णन, वातावरण निर्मिती यांचे विशेष आकलन होईल.</p> <p>PSO-6. विद्यार्थ्यांच्या वाङ्मयीन अभिरुचीचा विकास करता येईल.</p> <p>PSO-7. मराठी कथेची वाटचाल आणि तिच्यातील ठळक टप्पे जाणून घेता येतील.</p> <p>PSO-8. विद्यार्थ्यांनी मराठी व्याकरणाची ओळख करून घेता येईल.</p> <p>PSO-9. विद्यार्थ्यांमध्ये विविध व्याकरण कौशल्य विकसित होईल.</p> <p>PSO-10. विद्यार्थ्यांमध्ये मराठी भाषेची शब्दनिष्ठ सर्जनशीलता विकसित करता येईल.</p> <p>PSO-11. विद्यार्थ्यांनी विविध क्षेत्रातील भाषा उपयोजनाची कौशल्य विकसित करण्यास मदत</p>

	<p>होईल.</p> <p>PSO-12. विद्यार्थ्यांचे मराठी वाचन आणि भाषिक आकलन समृद्ध होईल.</p> <p>PSO-13. विद्यार्थ्यांमध्ये लेखन कौशल्य विकसित होईल.</p> <p>PSO-14. विद्यार्थ्यांमध्ये अर्जलेखनाचे कौशल्य विकसित करता येईल.</p> <p>PSO-15. विद्यार्थ्यांना विविध कार्यक्रमांचे स्वरूप समजावून देता येईल.</p> <p>PSO-16. विद्यार्थ्यांना विविध कार्यक्रमांचे प्रकाराचे आकलनास मदत होईल.</p> <p>PSO-17. विद्यार्थ्यांमध्ये कार्यक्रम संयोजनातील भाषिक कौशल्य विकसित करता येईल.</p> <p>PSO-18. विद्यार्थ्यांना कार्यक्रम संयोजनविषयक विविध बाबींची ओळख करून देता येईल.</p> <p>PSO-19. विद्यार्थ्यांना कार्यक्रम संयोजनातील भाषेचे महत्व जाणता येईल.</p> <p>PSO-20. विद्यार्थ्यांमध्ये साहित्यविषयक अभिरुची विकसित होईल.</p> <p>PSO-21. एकांकिका या साहित्यप्रकाराची ओळख होईल.</p> <p>PSO-22. एकांकिकाया साहित्यप्रकाराची वाटचाल व विकास यांचे आकलन होईल.</p> <p>PSO-23. निवडक एकांकिकांमधील व्यक्तिचित्रण, प्रसंगवर्णन व वातावरणनिर्मिती यांचे विशेष लक्षात येईल.</p> <p>PSO-24. निवडक एकांकिकांची वाङ्मयीन गुणवैशिष्ट्ये जाणून घेता येतील.</p> <p>PSO-25. एकांकिकांचे आकलन, आस्वाद व मूल्यमापन करण्याची क्षमता विकसित होण्यास मदत होईल.</p> <p>PSO-26. मुलाखत कौशल्याची ओळख होईल.</p> <p>PSO-27. विद्यार्थ्यांना मुलाखतीचे तंत्र आत्मसात करता येईल.</p> <p>PSO-28. मुलाखतीची पूर्वतयारी करून घेत विद्यार्थ्यांमध्ये मुलाखत कौशल्य विकसित करता येईल.</p> <p>PSO-29. मराठीतील प्रसिद्ध साहित्यिक व त्यांच्या साहित्याची ओळख होईल.</p> <p>PSO-30. साहित्यसंस्था व त्यांच्या कार्याची ओळख होईल.</p> <p>PSO-31. साहित्यसंस्था व समाज यांच्यातील सहसंबंधाची जाणीव होईल.</p> <p>PSO-32. अखिल भारतीय मराठी साहित्य संमेलनांविषयीची थोडक्यात माहिती होईल.</p> <p>PSO-33. प्राचीन मराठी साहित्यातील ठळक घडामोडींचा परिचय होईल.</p> <p>PSO-34. कार्यक्रम संयोजनातील लेखन कौशल्य संपादन करता येईल.</p> <p>PSO-35. कार्यक्रम संयोजनातील भाषिक कौशल्य आत्मसात होतील.</p> <p>PSO-36. विविध कार्यक्रमांच्या संयोजनासाठी विद्यार्थ्यांना प्रोत्साहन मिळेल.</p>
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Course Outcomes: B. A. Marathi

Course	Outcomes
	After completion of these courses' students should be able to;
	Semester-I
BA-MR-111T मराठी साहित्य : कथा आणि भाषिक कौशल्यविकास	<p>CO-1. मराठी साहित्यासंबंधी रुची निर्माण करणे.</p> <p>CO-2. विद्यार्थ्यांच्या वाङ्मयीन अभिरुचीचा विकास करणे.</p> <p>CO-3. कथा हा साहित्यप्रकार समजून घेणे.</p> <p>CO-4. मराठी कथेची वाटचाल व तिच्यातील ठळक टप्पे जाणून घेणे.</p> <p>CO-5. निवडक कथांतील व्यक्तिचित्रण, प्रसंगवर्णन व वातावरणनिर्मिती यांचे विशेष निरीक्षण करणे.</p> <p>CO-6. निवडक कथांच्या आधारे विविध जीवनप्रवाह जाणून घेणे.</p>

	CO-7. सर्जनशील लेखन व भाषिक वापर क्षमता यांचा विकास करणे.
OE-MR-01 मराठी भाषा आणि स्पर्धा परीक्षा भाग : १	CO-1. विद्यार्थ्यांना मराठी व्याकरणाची ओळख करून देणे. CO-2. विद्यार्थ्यांमध्ये विविध व्याकरण कौशल्ये विकसित करणे. CO-3. विद्यार्थ्यांमध्ये मराठी भाषेची शब्दनिष्ठ सर्जनशीलता विकसित करणे. CO-4. विद्यार्थ्यांमध्ये विविध क्षेत्रांतील भाषा-उपयोजनाची कौशल्ये विकसित करणे. CO-5. विद्यार्थ्यांमध्ये मराठी वाचन व ERTA भाषिक आकलन समृद्ध करणे. CO-6. विद्यार्थ्यांमध्ये लेखन कौशल्य विकसित करणे. CO-7. विद्यार्थ्यांमध्ये अर्जलेखनाचे कौशल्य विकसित करणे.
SEC-MR-112 T कार्यक्रम संयोजन आणि भाषिक कौशल्य भाग -१	CO-1. विद्यार्थ्यांना विविध कार्यक्रमांचे स्वरूप समजावून देणे. CO-2. विद्यार्थ्यांना विविध कार्यक्रमांचे प्रकार समजावून सांगणे. CO-3. विद्यार्थ्यांमध्ये कार्यक्रम संयोजनातील भाषिक कौशल्ये विकसित करणे. CO-4. विद्यार्थ्यांना कार्यक्रम संयोजनविषयक विविध बाबींची ओळख करून देणे. CO-5. विद्यार्थ्यांना कार्यक्रम संयोजनातील भाषेचे महत्त्व समजावून देणे.
SEMESTER-II	
BA-MR-121T मराठी साहित्य: एकांकिका आणि भाषिक कौशल्यविकास	CO-1. विद्यार्थ्यांमध्ये साहित्यविषयक अभिरुची विकसित करणे. CO-2. एकांकिका या साहित्यप्रकाराची ओळख करून देणे. CO-3. एकांकिका या साहित्यप्रकाराची वाटचाल व विकास जाणून घेणे. CO-4. निवडक एकांकिकांमधील व्यक्तिचित्रण, dg प्रसंगवर्णन व वातावरणनिर्मिती यांचे विशेष लक्षात घेणे. CO-5. निवडक एकांकिकांची वाङ्मयीन गुणवैशिष्ट्ये जाणून घेणे. CO-6. एकांकिकांचे आकलन, आस्वाद व मूल्यमापन करण्याची क्षमता विकसित करणे. CO-7. विद्यार्थ्यांचा भाषिक कौशल्यविकास करणे.
OE-MR-02 मराठी भाषा आणि स्पर्धा परीक्षा भाग : २	CO-1. मुलाखत कौशल्याची ओळख करून देणे. CO-2. विद्यार्थ्यांना मुलाखतीचे तंत्र समजावून सांगणे. CO-3. मुलाखतीची पूर्वतयारी करून विद्यार्थ्यांमध्ये मुलाखत कौशल्य विकसित करणे. CO-4. मराठीतील प्रसिद्ध साहित्यिक व त्यांच्या साहित्याची ओळख करून देणे. CO-5. साहित्यसंस्था व त्यांच्या कार्याचा परिचय करून देणे. CO-6. साहित्यसंस्था व समाज यांच्यातील सहसंबंधाची जाणीव करून देणे. CO-7. अखिल भारतीय मराठी साहित्य संमेलनांविषयी थोडक्यात माहिती देणे. CO-8. प्राचीन मराठी साहित्यातील ठळक घडामोडींचा परिचय करून देणे.
SEC-MR-122 T कार्यक्रम संयोजन आणि भाषिक कौशल्य भाग -२	CO-1. कार्यक्रम संयोजनातील लेखन कौशल्य संपादन करणे. CO-2. कार्यक्रम संयोजनातील भाषिक कौशल्य आत्मसात करणे. CO-3. विविध कार्यक्रमांच्या संयोजनासाठी विद्यार्थ्यांना प्रोत्साहित करणे.
SYUG SEM III	
MR-MJ-231T आधुनिक मराठी साहित्यप्रकार: प्रकाशवाटा (आत्मचरित्र)	CO-1. आत्मचरित्र या साहित्यप्रकाराचे स्वरूप व संकल्पना समजावून घेणे. CO-2. आत्मचरित्र या साहित्यप्रकाराच्या प्रेरणा आणि वाटचालीची ओळख करून घेणे. CO-3. ललितगद्यातील इतर साहित्यप्रकारांच्या तुलनेत आत्मचरित्राचे वेगळेपण समजावून घेणे.

	CO-4. नेमलेल्या आत्मचरित्राचे आकलन, आस्वाद व विश्लेषण करणे.
MR-MJ-232T साहित्यविचार भाग – १	CO-1. भारतीय आणि पाश्चात्य साहित्यविचारांच्या आधारे साहित्याची संकल्पना, स्वरूप आणि प्रयोजनविचार समजावून घेणे. CO-2. साहित्याची निर्मितीप्रक्रिया समजावून घेणे. CO-3. साहित्याची भाषा आणि शैलीविषयक विचार समजावून घेणे.
MR-OE-201T स्पर्धा परीक्षा आणि मराठी भाषा भाग : ३	CO-1. विद्यार्थ्यांना अलंकार संकल्पना समजावून देणे. CO-2. विद्यार्थ्यांना मराठी व्याकरणाची ओळख करून देणे. CO-3. विद्यार्थ्यांमध्ये विविध व्याकरण कौशल्ये विकसित करणे. CO-4. विद्यार्थ्यांमध्ये मराठी भाषेची शब्दनिष्ठ सर्जनशीलता विकसित करणे. CO-5. विद्यार्थ्यांमध्ये विविध क्षेत्रांतील भाषा-उपयोजनाची कौशल्ये विकसित करणे. CO-6. विद्यार्थ्यांमध्ये मुद्रितशोधन कौशल्य विकसित करणे. CO-7. विद्यार्थ्यांमध्ये पत्रलेखन व अहवाललेखन कौशल्य विकसित करणे.
MR-VSC-233T संपादन प्रक्रिया	CO-1. विद्यार्थ्यांना संपादन प्रक्रियेचे स्वरूप समजावून देणे. CO-2. संपादन प्रक्रियेचा हेतू उद्दिष्टे आणि प्रकार यांची माहिती देणे. CO-3. संपादन प्रक्रियेतील आशय व भाषिक संपादन स्पष्ट करणे. CO-4. विद्यार्थ्यांना संपादन क्षेत्रातील रोजगारविषयक संधींची माहिती देणे.
MR-AEC-03T वक्तृत्व कला कौशल्य	CO-1. विद्यार्थ्यांमध्ये वक्तृत्व गुण विकसित करणे. CO-2. विद्यार्थ्यांचे वक्तृत्व कौशल्य समृद्ध होण्यासाठी त्यांना प्रोत्साहन देणे. CO-3. विद्यार्थ्यांना भाषिक कौशल्यांची ओळख करून देणे. CO-4. विद्यार्थ्यांमध्ये वक्तृत्वकलेविषयी अभिरुची निर्माण करणे. CO-5. वक्तृत्व कौशल्यातून विद्यार्थ्यांचा व्यक्तिमत्त्व विकास घडविणे.
MR-MN-235T भाषिक कौशल्य विकास आणि आधुनिक मराठी साहित्यप्रकार : कादंबरी	CO-1. विद्यार्थ्यांना कादंबरी या साहित्यप्रकाराचे स्वरूप, घटक, प्रकार व वाटचाल समजावून देणे. CO-2. नेमलेल्या कादंबरीचे आकलन, आस्वाद व विश्लेषण करणे. CO-3. विद्यार्थ्यांना जीवनमूल्ये आणि वाङ्मयीन मूल्ये समजावून सांगणे. CO-4. विद्यार्थ्यांमध्ये कादंबरी लेखनाची सर्जनशीलता विकसित करणे. CO-5. विद्यार्थ्यांचा भाषिक कौशल्यविकास साधणे.
SYUG SEM IV	
MR-MJ-241T मध्ययुगीन मराठी गद्य-पद्य	CO-1. विद्यार्थ्यांना मध्ययुगीन कालखंडातील गद्य-पद्य साहित्यप्रकारांची ओळख करून देणे. CO-2. नेमलेल्या अभ्यासपुस्तकातील मध्ययुगीन गद्य-पद्याचे आकलन, आस्वाद व विश्लेषण करणे. CO-3. नेमलेल्या पाठ्यपुस्तकाच्या आधारे ओवी, अभंग, लावणी, बखर आदी गद्य-पद्य प्रकारांच्या निर्मितीची सर्जनशीलता विद्यार्थ्यांमध्ये निर्माण करणे. CO-4. मध्ययुगीन मराठी गद्य-पद्याचे भाषिक कौशल्य व मूल्यमापनाची क्षमता निर्माण करणे. CO-5. मध्ययुगीन मराठी गद्य-पद्यांची मूल्यसंस्कार विद्यार्थ्यांवर बिंबवणे.

<p>MR-MN-245T भाषिक कौशल्य विकास आणि आधुनिक मराठी साहित्य प्रकार: ललितगद्य</p>	<p>CO-1. विद्यार्थ्यांना ललितगद्य या साहित्यप्रकाराचे स्वरूप, घटक, प्रकार व वाटचाल समजावून देणे. CO-2. नेमलेल्या अभ्यासपुस्तकातील ललितगद्याचे आकलन, आस्वाद व विश्लेषण करणे. CO-3. विद्यार्थ्यांचा भाषिक कौशल्यविकास साधणे. CO-4. विद्यार्थ्यांमध्ये ललितगद्य लेखनाची सर्जनशीलता निर्माण करणे. CO-5. विद्यार्थ्यांमध्ये व्यवहारिक, समीक्षात्मक व संशोधनात्मक कौशल्यांचे उपयोजन करणे.</p>
<p>MR-OE-202T स्पर्धा परीक्षा आणि मराठी भाषा भाग : ४</p>	<p>CO-1. विद्यार्थ्यांना शब्दशक्तीची ओळख करून देणे. CO-2. विद्यार्थ्यांना रस-निष्पत्ती व काव्यगुणांची माहिती देणे. CO-3. विद्यार्थ्यांना रस-निष्पत्तीचे स्वरूप, कार्य व प्रकारांची माहिती देणे. CO-4. विद्यार्थ्यांना वृत्त संकल्पना व वृत्ताचे प्रकार यांची माहिती देणे. CO-5. विद्यार्थ्यांना अर्थ संकल्पना, स्वरूप व अर्थाचे प्रकार समजावून देणे.</p>
<p>MR-AEC-04T वक्तृत्व कला कौशल्य</p>	<p>CO-1. विद्यार्थ्यांमध्ये वक्तृत्व गुण विकसित करणे. CO-2. विद्यार्थ्यांचे वक्तृत्व कौशल्य समृद्ध होण्यासाठी त्यांना प्रोत्साहन देणे. CO-3. विद्यार्थ्यांना भाषिक कौशल्यांची ओळख करून देणे. CO-4. विद्यार्थ्यांमध्ये वक्तृत्वकलेविषयी अभिरुची निर्माण करणे. CO-5. वक्तृत्व कौशल्यातून विद्यार्थ्यांचा व्यक्तिमत्त्व विकास घडविणे.</p>
<p>MR-SEC-243T कार्यालयीन मराठी भाषेचे उपयोजन</p>	<p>CO-1. संज्ञापनातील भाषेची भूमिका व विविध आविष्कारांचे ज्ञान करून देणे. CO-2. विद्यार्थ्यांमध्ये भाषिक कौशल्ये व क्षमता विकसित करणे. CO-3. कार्यालयीन व व्यावसायिक कामकाजातील मराठी भाषेच्या वापराची माहिती करून देणे. CO-4. कार्यालयीन भाषाव्यवहारासाठी आवश्यक कौशल्ये विकसित करणे. CO-5. कार्यालयीन भाषाव्यवहाराची उपयोजन कौशल्ये विकसित करणे.</p>
TYUG SEM V	
<p>DSE-1C मध्ययुगीन मराठी वाङ्मयाचा स्थूल इतिहास: प्रारंभ ते इ.स.१६००</p>	<p>CO-1. वाङ्मयेतिहासाची संकल्पना, स्वरूप, प्रेरणा व प्रवृत्ती समजून घेणे. CO-2. मध्ययुगीन कालखंडाची सामाजिक व सांस्कृतिक पार्श्वभूमी समजून घेणे. CO-3. मराठी भाषा व साहित्याचा कालखंडानुरूप इतिहास समजून घेणे.</p>
<p>DSE-2C वर्णनात्मक भाषाविज्ञान भाग-१</p>	<p>CO-1. भाषेचे स्वरूप, वैशिष्ट्ये व कार्ये समजावून घेणे. CO-2. भाषा अभ्यासाची आवश्यकता स्पष्ट करणे. CO-3. भाषा अभ्यासाच्या शाखा व विविध पद्धतींचा थोडक्यात परिचय करून घेणे.</p>
<p>CC-1E एका साहित्यप्रकाराचा अभ्यास: प्रवासवर्णन</p>	<p>CO-1. मुद्रित माध्यमांसाठी लेखन कौशल्ये आत्मसात करणे. CO-2. प्रवासवर्णन या साहित्यप्रकाराचे स्वरूप, प्रेरणा, प्रयोजने, वैशिष्ट्ये व वाटचाल समजून घेणे. CO-3. नेमलेल्या प्रवासवर्णनाचे आकलन, आस्वाद व विश्लेषण करणे.</p>
<p>SEC-2C कार्यक्रम संयोजनातील भाषिक कौशल्ये: भाग १</p>	<p>CO-1: ऐकणे, बोलणे, वाचन व लेखन या मूलभूत भाषिक कौशल्यांचा प्रभावी वापर करता येणे. CO-2: विविध संदर्भांमध्ये योग्य शब्दसंपदा, व्याकरण व वाक्यरचना यांचा अचूक उपयोग</p>

	<p>करता येणे.</p> <p>CO-3: संवाद कौशल्ये विकसित करून औपचारिक व अनौपचारिक प्रसंगांमध्ये प्रभावीपणे मांडणी करता येणे.</p> <p>CO-4: विविध प्रकारच्या साहित्यिक मजकुरांचे आकलन, विश्लेषण व समीक्षा करता येणे.</p>
TYUG SEM VI	
<p>DSE-1D मध्ययुगीन मराठी वाङ्मयाचा स्थूल इतिहास : इ.स.१६०१ ते इ.स.१८१७</p>	<p>CO-1. वाङ्मयेतिहासाची संकल्पना, स्वरूप, प्रेरणा व प्रवृत्ती समजून घेणे.</p> <p>CO-2. मध्ययुगीन कालखंडाची सामाजिक व सांस्कृतिक पार्श्वभूमी समजून घेणे.</p> <p>CO-3. मराठी भाषा व साहित्याचा कालखंडानुरूप इतिहास समजून घेणे.</p>
<p>DSE-2D वर्णनात्मक भाषाविज्ञान भाग-२</p>	<p>CO-1. रूपविन्यास व मराठीची रूपव्यवस्था समजावून घेणे.</p> <p>CO-2. वाक्यविन्यास व वाक्यव्यवस्थेचा मराठी भाषेसंदर्भात परिचय करून घेणे.</p> <p>CO-3. अर्थविन्यास या संकल्पनेचा भाषावैज्ञानिक अंगाने परिचय करून घेणे.</p> <p>CO-5. विद्यार्थ्यांना साहित्यामूल्ये व जीवनमूल्ये यांविषयी माहिती देणे.</p>
<p>CC-1F एका साहित्यप्रकाराचा अभ्यास: कविता</p>	<p>CO-1. मराठी साहित्य, भाषिक कौशल्यविकास व शासनव्यवहार यांची माहिती घेणे.</p> <p>CO-2. कविता या साहित्यप्रकाराचे स्वरूप, वाटचाल, प्रेरणा, प्रवृत्ती व वैशिष्ट्ये समजून घेणे.</p> <p>CO-3. नेमलेल्या अभ्यासपुस्तकातील निवडक कवितांचे आकलन, आस्वाद व विश्लेषण करणे.</p> <p>CO-4. कविता या साहित्यप्रकारातील विविध आविष्कार व भाषारूपांची अभ्यासपुस्तकातील कवितांच्या आधारे ओळख करून घेणे.</p>
<p>SEC-2D कार्यक्रम संयोजनातील भाषिक कौशल्ये: भाग २</p>	<p>CO-1: सर्जनशील व चिकित्सक लेखन कौशल्ये विकसित करून स्वतःचे विचार स्पष्टपणे व्यक्त करता येणे.</p> <p>CO-2: मुद्रित व डिजिटल माध्यमांसाठी योग्य शैलीत लेखन करता येणे.</p> <p>CO-3: भाषिक अचूकता व अभिव्यक्तीतील सुस्पष्टता राखून प्रभावी संवाद साधता येणे.</p> <p>CO-4: संवाद कौशल्ये विकसित करून औपचारिक व अनौपचारिक प्रसंगांमध्ये प्रभावीपणे मांडणी करता येणे.</p>

Programme Outcomes: M. A. Marathi

Department of Marathi	After successful completion of two-year degree program in Marathi a student is able to:
Programme Outcomes	<p>PO-1. विद्यार्थी प्रसारमाध्यमासाठी लेखन कौशल्य भाग १ व २ मधून लेखन क्षमता आत्मसात करतील आणि विविध माध्यमांसाठी प्रभावी लिखाण करू शकतील.</p> <p>PO-2. विद्यार्थी साहित्य समीक्षा व उपयोजित समीक्षा अभ्यासातून साहित्याचे विश्लेषण, मूल्यमापन व समीक्षात्मक दृष्टिकोन विकसित करतील.</p> <p>PO-3. विद्यार्थ्यांना नेमलेल्या आधुनिक साहित्यकृतींचा अभ्यास करून आधुनिक साहित्यप्रकारांची ओळख, वैशिष्ट्ये व सांस्कृतिक संदर्भ समजेल.</p> <p>PO-4. विद्यार्थी महानुभाव संप्रदाय आणि लोकसाहित्याच्या मूलतत्वांचा अभ्यास करून मध्ययुगीन व लोकसाहित्याची सखोल माहिती मिळवतील.</p> <p>PO-5. विद्यार्थी सौंदर्यशास्त्र अभ्यासातून कलाविषयक सिद्धांत, मूल्ये व परंपरा समजून घेतील आणि त्यांचा साहित्यतज्ञ दृष्टिकोनातून अभ्यास करतील.</p> <p>PO-6. विद्यार्थ्यांना Research Project (RP) मधून संशोधन पद्धती, प्रत्यक्ष अभ्यास, डेटाचे संकलन व विश्लेषण करण्याची क्षमता प्राप्त होईल.</p> <p>PO-7. विद्यार्थी विविध साहित्यप्रकार, त्यांची वाटचाल, प्रेरणा व सामाजिक-सांस्कृतिक पार्श्वभूमी समजून घेतील.</p> <p>PO-8. विद्यार्थी लेखन, समीक्षा, विश्लेषण आणि संशोधन कौशल्यांचा व्यावहारिक वापर करून सर्जनशीलता विकसित करतील.</p> <p>PO-9. विद्यार्थ्यांना मराठी भाषेचे व्याकरण, शब्दसंपदा व शैली आत्मसात करण्याची क्षमता प्राप्त होईल.</p> <p>PO-10. विद्यार्थी साहित्य, लोकसाहित्य, आधुनिक व वैचारिक साहित्य व प्रसारमाध्यमे यांचे ज्ञान वापरून व्यक्तिमत्व विकास, व्यावसायिक संवाद कौशल्य व सामाजिक जाणीव निर्माण करतील.</p>

Programme Specific Outcomes: M. A. Marathi

Department of Marathi	After successful completion of two-year degree program in Marathi a student is able to:
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**Programme
Specific
Outcomes**

- PSO-1. प्रसारमाध्यमांसाठी लेखन कौशल्य आत्मसात करता येईल.
- PSO-2. प्रसारमाध्यमांचे समाजातील महत्त्व स्पष्ट होईल.
- PSO-3. प्रसारमाध्यमांच्या स्वरूपाचे ज्ञान प्राप्त होण्यास मदत होईल.
- PSO-4. दृक-श्राव्य माध्यमांसाठी लेखन करण्याची क्षमता विकसित करता येईल.
- PSO-5. साहित्य समीक्षा व्यवहाराच्या क्षमता विकसित होतील.
- PSO-6. समीक्षेची संकल्पना समजावून घेता येईल.
- PSO-7. विद्यार्थ्यांना समीक्षाव्यवहारातील मूल्यकल्पनांचा परिचय करून घेता येईल.
- PSO-8. विद्यार्थ्यांना विविध समीक्षा पद्धतींमागील विचारव्यूह व दृष्टी समजावून घेता येईल.
- PSO-9. विद्यार्थी मराठी साहित्य समीक्षकांची व संशोधकांची परंपरा समजावून घेतील.
- PSO-10. विद्यार्थ्यांना आधुनिक कालखंडातील साहित्यप्रकार, संकल्पना व स्वरूप लक्षात येईल.
- PSO-11. विद्यार्थ्यांना साहित्यकृतीची वैशिष्ट्ये समजतील.
- PSO-12. साहित्यकृतीतील वाङ्मयीन मूल्ये व जीवनमूल्ये समजण्यास मदत होईल.
- PSO-13. आधुनिक साहित्यप्रकारांची वैशिष्ट्ये लक्षात येतील.
- PSO-14. कालखंड व साहित्यकृतीच्या निर्मितीचा अनुबंध शोधता येईल.
- PSO-15. विद्यार्थ्यांना मध्ययुगीन मराठी वाङ्मय इतिहासाचा परिचय करून घेता येईल.
- PSO-16. महानुभाव वाङ्मयातील गद्य-पद्य साहित्यप्रकार व त्यांचे स्वरूप इत्यादींची माहिती होईल.
- PSO-17. महानुभाव साहित्यसंदर्भात विद्यार्थ्यांची आकलन व विश्लेषण क्षमता विकसित होण्यास मदत होईल.
- PSO-18. मध्ययुगीन साहित्यनिर्मितीच्या प्रेरणांचा शोध घेता येईल.
- PSO-19. विशिष्ट कालखंडातील साहित्यनिर्मितीच्या प्रेरणा-प्रवृत्तींचा समीक्षात्मक दृष्टीकोनातून अभ्यास करता येईल.
- PSO-20. विद्यार्थ्यांना लोकसाहित्याच्या मूलतत्त्वांची ओळख होईल.
- PSO-21. मराठीतील लोकसाहित्याच्या संकलन, संशोधन व मूल्यमापनास चालना मिळेल.

PSO-22. सौंदर्यतत्वाची आकलन क्षमता विकसित होईल.
PSO-23. सौंदर्यशास्त्रातील सिद्धांत, संकल्पना आणि परंपरांचा परिचय करून घेता येईल.
PSO-24. सौंदर्यशास्त्राची उद्दिष्ट्ये आणि व्याप्ती करता येईल.
PSO-25. विविध ज्ञानशाखांतील तत्वांच्या आधारे सौंदर्यशास्त्रातील सिद्धांताची ओळख करून घेता येईल.
PSO-26. विद्यार्थ्यांना विविध साहित्य प्रकार, त्यांची संकल्पना आणि स्वरूप यांचे सखोल ज्ञान प्राप्त होईल.
PSO-27. विद्यार्थ्यांमध्ये समीक्षात्मक आणि बहुसांस्कृतिक दृष्टिकोन विकसित करण्यास मदत होईल.
PSO-28. विद्यार्थ्यांमध्ये साहित्य समीक्षा पद्धतीचे ज्ञान आणि त्याचे व्यावहारिक उपयोजन करण्याची क्षमता प्राप्त होईल.
PSO-29. विद्यार्थ्यांना आधुनिक कालखंडातील साहित्यप्रकार, त्यांची संकल्पना आणि स्वरूप यांचे ज्ञान मिळेल.
PSO-30. विद्यार्थ्यांना साहित्यकृतींची वैशिष्ट्ये समजतील.
PSO-31. विद्यार्थ्यांना साहित्यकृतीतील वाङ्मयीन आणि जीवन मूल्ये समजण्यास मदत होईल.
PSO-32. विद्यार्थ्यांना लोकसाहित्याच्या मुलतत्वांची सखोल ओळख होईल.
PSO-33. मराठी लोकसाहित्याच्या संकलन, संशोधन आणि मुल्यमापन प्रक्रियेला चालना मिळेल.
PSO-34. लोकसाहित्यातील स्वरूप, व्यापकता आणि सर्वसमावेशकता लक्षात येईल.
PSO-35. लोकसाहित्यातील विविध प्रकार, स्वरूप आणि वैशिष्ट्ये समजतील.
PSO-36. लोकसाहित्यातील सामाजिक, धार्मिक आणि सांस्कृतिक जाणीव स्पष्ट होईल.
PSO-37. लोकसाहित्याच्या अभ्यासक्षेत्राची व्याप्ती समजून घेता येईल.

Course Outcomes: M. A. Marathi

Course	Outcomes
	After completion of these courses students should be able to;

Semester-I	
CO-1: MR-MJ-511T – भाषा व्यवहार व भाषिक कौशल्य (भाग-१)	<p>CO-1: विद्यार्थ्यांमध्ये भाषिक कौशल्याची जाणीव निर्माण होईल.</p> <p>CO-2: विद्यार्थ्यांना ग्रंथ प्रकाशनाचे स्वरूप ध्यानात येईल.</p> <p>CO-3: विद्यार्थ्यांना भाषाव्यवहार आणि भाषिक कौशल्यातील सहसंबंध लक्षात येण्यास मदत होईल.</p> <p>CO-4: विद्यार्थ्यांना साहित्य संस्थांच्या वाङ्मयीन कार्याची ओळख होईल.</p> <p>CO-5: विद्यार्थ्यांच्या वाङ्मयीन व जीवनविषयक जाणीवांचा विकास होण्यास मदत होईल.</p> <p>CO-6: भाषाविषयक कौशल्यांतून विद्यार्थ्यांना रोजगारक्षम बनविण्यास मदत होईल.</p>
CO-2: MR-MJ-512T – आधुनिक मराठी साहित्याचा इतिहास (इ.स. १८१८ ते १९२०)	<p>CO-1: विद्यार्थ्यांना आधुनिक मराठी साहित्य इतिहासाचा परिचय होण्यास मदत होईल.</p> <p>CO-2: विद्यार्थ्यांना आधुनिक मराठी साहित्यप्रकार व त्यांचे स्वरूप याचे आकलन होईल.</p> <p>CO-3: विद्यार्थ्यांना आधुनिक मराठी साहित्यप्रकार व त्यांच्या घटकांची माहिती मिळेल.</p> <p>CO-4: विद्यार्थ्यांना आधुनिक साहित्याच्या निर्मितीची प्रेरणा मिळेल.</p> <p>CO-5: विद्यार्थ्यांना आधुनिक कालखंडातील साहित्य निर्मितीच्या प्रेरणा व प्रवृत्ती समजून घेतील.</p> <p>CO-6: आधुनिक साहित्याबाबत विद्यार्थ्यांची आस्वादकता व आकलन क्षमता वाढण्यास मदत होईल.</p>
CO-3: MR-MJ-513T – ऐतिहासिक भाषाविज्ञान	<p>CO-1: विद्यार्थ्यांना ऐतिहासिक भाषाविज्ञानाचे स्वरूप समजून घेता येईल.</p> <p>CO-2: विद्यार्थ्यांना ऐतिहासिक भाषाविज्ञानाचे कार्य व भाषा अभ्यास पद्धतीचे आकलन होईल.</p> <p>CO-3: भाषेच्या उत्पत्तीविषयी माहिती मिळेल.</p> <p>CO-4: मराठीची पूर्वपीठिका, निर्मितीकाल व कालिक टप्पे इत्यादींची माहिती करून घेता येईल.</p>
MR-MJ-514T – चित्रपट माध्यम आणि साहित्याचे माध्यमांतर	<p>CO-1: विद्यार्थ्यांना साहित्यकृतीचे माध्यमांतर ही संकल्पना स्पष्ट करता येईल.</p> <p>CO-2: साहित्यकृतीचे चित्रपटात माध्यमांतर करण्याची कौशल्ये अवगत होतील.</p> <p>CO-3: चित्रपट निर्मितीची कौशल्ये प्राप्त होतील.</p> <p>CO-4: मराठी चित्रपटांच्या माध्यमातून साहित्यकृतीचे माध्यमांतर ही संकल्पना अभ्यासता येईल.</p>

	<p>CO-5: कथा, पटकथा, संवाद या कौशल्यांचा वापर करता येईल.</p> <p>CO-6: चित्रपटाची निर्मिती प्रक्रिया अभ्यासता येईल.</p>
<p>MR-ME-515T – ग्रामीण साहित्य (EL)</p>	<p>CO-1: स्वातंत्र्यप्राप्तीनंतरच्या कालखंडात ग्रामीण साहित्याच्या निर्मितीची कारणपरंपरा यांचे आकलन होईल.</p> <p>CO-2: ग्रामीण साहित्याचे स्वरूप समजून घेता येईल.</p> <p>CO-3: ग्रामीण साहित्यातील विविध वाङ्मयप्रकारांचा विकास कसा होत गेला याचे मूल्यमापन करता येईल.</p> <p>CO-4: ग्रामीण साहित्याने दिलेले योगदान, त्यांचा विकासाचा वेग व दिशा यांची मीमांसा करण्यास मदत होईल.</p> <p>CO-5: ग्रामीण साहित्याचे वैशिष्ट्ये व कार्य यांचे चिकित्सक विश्लेषण करता येईल.</p> <p>CO-6: ग्रामीण साहित्याची सामाजिक बांधिलकी स्पष्ट करता येईल.</p>
<p>MR-RM-516T – संशोधन पद्धती (RM)</p>	<p>CO-1: विद्यार्थ्यांना साहित्य संशोधन व्यवहाराचा परिचय होईल.</p> <p>CO-2: विद्यार्थ्यांना विविध साहित्यप्रकार व त्यासंदर्भातील संशोधन याविषयी माहिती मिळेल.</p> <p>CO-3: विद्यार्थ्यांमध्ये संशोधन पद्धतीचे ज्ञान व उपयोजनाची क्षमता निर्माण होईल.</p> <p>CO-4: साहित्य संशोधनाविषयी विद्यार्थ्यांना प्रेरणा देऊन प्रोत्साहित करता येईल.</p> <p>CO-5: साहित्य संशोधनाच्या विविध प्रकारांची विद्यार्थ्यांना माहिती मिळेल.</p> <p>CO-6: साहित्य संशोधन व समीक्षा बाबत विद्यार्थ्यांमध्ये जाणीव व जागृती निर्माण होईल.</p> <p>CO-7: आकलन, आस्वाद, चिकित्सा, विश्लेषण, संश्लेषण, तुलना व मूल्यमापन या विविध घटकांचे आकलन होईल.</p> <p>CO-8: प्रबंध लेखनाची दृष्टी विद्यार्थ्यांमध्ये विकसित करता येईल.</p>
SEMESTER II	
<p>MR-MJ-521T – भाषा व्यवहार व भाषिक कौशल्य (भाग-२)</p>	<p>CO-1: विद्यार्थ्यांमध्ये भाषिक जाणीवा विकसित होण्यासाठी प्रोत्साहन मिळेल.</p> <p>CO-2: भाषांतराच्या प्रक्रियेतून विद्यार्थ्यांची वाङ्मयीन आकलन क्षमता वाढविण्यास मदत होईल.</p> <p>CO-3: विद्यार्थ्यांची अभिरुची प्रभावी निवेदनातून वाढीस लागेल.</p>

	<p>CO-4: विद्यार्थ्यांवर वाङ्मयीन मूल्ये व जीवनमूल्यांचा संस्कार होईल.</p> <p>CO-5: विद्यार्थ्यांना जनसंपर्काचे स्वरूप व आवश्यकता समजेल.</p> <p>CO-6: विद्यार्थ्यांना वाङ्मयीन प्रकल्प लेखनाची पद्धत व रचना समजण्यास मदत होईल.</p>
<p>MR-MJ-522T – आधुनिक मराठी साहित्याचा इतिहास (इ. स. १९२० ते २०१०)</p>	<p>CO-1: विद्यार्थ्यांना आधुनिक मराठी साहित्य इतिहासाचा परिचय होण्यास मदत होईल.</p> <p>CO-2: विद्यार्थ्यांना आधुनिक मराठी साहित्यप्रकार व त्यांचे स्वरूप याचे आकलन होईल.</p> <p>CO-3: विद्यार्थ्यांना आधुनिक मराठी साहित्यप्रकार व त्यांच्या घटकांची माहिती मिळेल.</p> <p>CO-4: विद्यार्थ्यांना आधुनिक साहित्याच्या निर्मितीची प्रेरणा मिळेल.</p> <p>CO-5: विद्यार्थी आधुनिक कालखंडातील साहित्य निर्मितीच्या प्रेरणा व प्रवृत्ती समजून घेतील.</p> <p>CO-6: आधुनिक साहित्याबाबत विद्यार्थ्यांची आस्वादकता व आकलन क्षमता वाढण्यास मदत होईल.</p>
<p>MR-MJ-523T – सामाजिक भाषाविज्ञान</p>	<p>CO-1: विद्यार्थ्यांना सामाजिक भाषाविज्ञानाचे स्वरूप व भूमिका समजेल.</p> <p>CO-2: विद्यार्थ्यांना सामाजिक भाषाविज्ञानाचे कार्य व भाषा अभ्यास पद्धतीचे आकलन होईल.</p> <p>CO-3: भाषा आणि विविध व्यवसाय क्षेत्रे यांच्यातील परस्पर संबंध स्पष्ट होईल.</p> <p>CO-4: भाषा आणि संस्कृती यांच्यातील परस्पर संबंध लक्षात घेता येईल.</p> <p>CO-5: भाषेचा लिंगसापेक्ष विचार करण्याची क्षमता प्राप्त होईल.</p> <p>CO-6: भाषेची अभिव्यक्ती पद्धती व भाषा रूपे याविषयी माहिती मिळेल.</p>
<p>MR-MJ-524T – मराठी साहित्याचे चित्रपट माध्यमांतर</p>	<p>CO-1: साहित्यकृतीचे माध्यमांतर ही संकल्पना स्पष्ट करता येईल.</p> <p>CO-2: साहित्यकृतीचे चित्रपटात माध्यमांतर करण्याची कौशल्ये अवगत होतील.</p> <p>CO-3: चित्रपट निर्मितीची कौशल्ये प्राप्त होतील.</p> <p>CO-4: मराठी चित्रपटांच्या माध्यमातून साहित्यकृतीचे माध्यमांतर ही संकल्पना अभ्यासता येईल.</p> <p>CO-5: कथा, पटकथा, संवाद या कौशल्यांचा वापर करता येईल.</p> <p>CO-6: चित्रपटाची निर्मिती प्रक्रिया अभ्यासता येईल.</p>

<p>MR-ME-525T – दलित साहित्य (EL)</p>	<p>CO-1: स्वातंत्र्यप्राप्तीनंतरच्या कालखंडात दलित साहित्याच्या निर्मितीची कारणपरंपरा यांचे आकलन होईल.</p> <p>CO-2: दलित साहित्याचे स्वरूप समजून घेता येईल.</p> <p>CO-3: दलित साहित्यातील विविध वाङ्मयप्रकारांचा विकास कसा होत गेला याचे मूल्यमापन करता येईल.</p> <p>CO-4: दलित साहित्याने दिलेले योगदान, त्यांचा विकासाचा वेग व दिशा यांची मीमांसा करण्यास मदत होईल.</p> <p>CO-5: दलित साहित्याचे वैशिष्ट्ये व कार्य यांचे चिकित्सक विश्लेषण करता येईल.</p> <p>CO-6: दलित साहित्याची सामाजिक बांधिलकी स्पष्ट करता येईल.</p>
<p>Semester-III</p>	
<p>MR-MJ-631T प्रसारमाध्यमासाठी लेखन कौशल्य भाग-१</p>	<p>CO-1. प्रसारमाध्यमांसाठी लेखन कौशल्य आत्मसात करणे</p> <p>CO-2. प्रसारमाध्यमांचे समाजातील महत्व विशद करणे.</p> <p>CO-3. प्रसारमाध्यमांच्या स्वरूपाचे ज्ञान करून देणे.</p> <p>CO-4. दृक: श्राव्य माध्यमांसाठी लेखन करण्याची क्षमता विकसित करणे.</p>
<p>MR-MJ-632T मराठी साहित्य समीक्षा</p>	<p>CO-1. साहित्य समीक्षा व्यवहाराच्या क्षमता विकसित करणे.</p> <p>CO-2. समीक्षेची संकल्पना समजावून घेणे.</p> <p>CO-3. समीक्षाव्यवहारातील मूल्यकल्पनांचा परिचय करून घेणे.</p> <p>CO-4. विविध समीक्षा पद्धतींमागील विचारव्यूह, दृष्टी समजावून घेणे.</p> <p>CO-5. मराठी साहित्य समीक्षकांची व संशोधकांची परंपरा समजावून घेणे.</p>
<p>MR-MJ-633T नेमलेल्या आधुनिक साहित्यकृतींचा अभ्यास भाग:१</p>	<p>CO-1. आधुनिक कालखंडातील साहित्यप्रकार, संकल्पना व स्वरूप लक्षात घेणे.</p> <p>CO-2. साहित्यकृतीची वैशिष्ट्ये जाणून घेणे.</p> <p>CO-3. साहित्यकृतीतील वाङ्मयीन मूल्ये आणि जीवनमूल्ये जाणून घेणे.</p> <p>CO-4. आधुनिक साहित्यप्रकारांची वैशिष्ट्ये जाणून घेणे.</p> <p>CO-5. कालखंड आणि साहित्यकृतीच्या निर्मितीचा अनुबंध शोधणे.</p>

<p>MR-MJ-634T महानुभाव संप्रदाय परिचय अभ्यास</p>	<p>CO-1. मध्ययुगीन मराठी वाङ्मय इतिहासाचा परिचय करून देणे. CO-2. महानुभाव वाङ्मयातील गद्य-पद्य साहित्यप्रकार व त्यांचे स्वरूप इत्यादींची माहिती घेणे. CO-3. महानुभाव साहित्यसंदर्भात विद्यार्थ्यांची आकलन व विश्लेषण क्षमता विकसित करणे. CO-4. मध्ययुगीन साहित्यनिर्मितीच्या प्रेरणांचा शोध घेणे. CO-5. विशिष्ट कालखंडातील साहित्यनिर्मितीच्या प्रेरणा-प्रवृत्तींचा समीक्षात्मक दृष्टीकोनातून अभ्यास करणे.</p>
<p>MR-ME-635T लोकसाहित्याची मूलतत्त्वे आणि मराठी लोकसाहित्य भाग : १</p>	<p>CO-1. लोकसाहित्याच्या मूलतत्त्वांची ओळख करून देणे. CO-2. मराठीतील लोकसाहित्याच्या संकलन, संशोधन व मूल्यमापनास चालना देणे. CO-3. लोकसाहित्याचे स्वरूप, व्यापकता व सर्वसमावेशकता लक्षात आणून देणे. CO-4. लोकसाहित्यातील विविध प्रकार, स्वरूप व वैशिष्ट्ये समजावून घेणे.</p>
<p>MR-ME-636T सौंदर्यशास्त्र</p>	<p>CO-1. सौंदर्यतत्त्वाची आकलन क्षमता विकसित करणे. CO-2. सौंदर्यशास्त्रातील सिद्धांत, संकल्पना आणि परंपरांचा परिचय करून देणे. CO-3. सौंदर्यशास्त्राची उद्दिष्टे आणि व्याप्ती स्पष्ट करून देणे. CO-4. विविध ज्ञानशाखांतील तत्त्वांच्या आधारे सौंदर्यशास्त्रातील सिद्धांतांची ओळख करून देणे.</p>
SEMESTER IV	
<p>MR-MJ-641T प्रसारमाध्यमासाठी लेखन कौशल्य भाग-२</p>	<p>CO-1. आधुनिक कालखंडातील साहित्यप्रकार, संकल्पना व स्वरूप लक्षात घेणे. CO-2. साहित्यकृतीची वैशिष्ट्ये जाणून घेणे. CO-3. साहित्यकृतीतील वाङ्मयीन मूल्ये आणि जीवनमूल्ये जाणून घेणे. CO-4. आधुनिक साहित्यप्रकारांची वैशिष्ट्ये जाणून घेणे. CO-5. कालखंड आणि साहित्यकृतीच्या निर्मितीचा अनुबंध शोधणे.</p>
<p>MR-ME-644T लोकसाहित्याची मूलतत्त्वे आणि मराठी लोकसाहित्य भाग : २</p>	<p>CO-1. लोकसाहित्याच्या मूलतत्त्वांची ओळख करून देणे. CO-2. मराठीतील लोकसाहित्याच्या संकलन, संशोधन व मूल्यमापनास चालना देणे. CO-3. लोकसाहित्याचे स्वरूप, व्यापकता व सर्वसमावेशकता लक्षात आणून देणे. CO-4. लोकसाहित्यातील विविध प्रकार, स्वरूप व वैशिष्ट्ये समजावून घेणे.</p>

	<p>CO-5. लोकसाहित्यातील सामाजिक, धार्मिक, सांस्कृतिक जाणीवा स्पष्ट करणे.</p> <p>CO-6. लोकसाहित्याच्या अभ्यासक्षेत्राची व्याप्ती समजावून घेणे.</p> <p>CO-7. लोकसाहित्याचे कलात्मक सौंदर्य व कलाविष्काराचे स्वरूप जाणून घेणे.</p> <p>CO-8. लोकसाहित्याच्या अभ्यासकांचे लोकसाहित्यातील योगदान अभ्यासणे.</p>
<p>MR-ME-645T: मराठीतील वैचारिक साहित्य</p>	<p>CO-1. वैचारिक साहित्याचे स्वरूप व संकल्पना समजावून देणे.</p> <p>CO-2. वैचारिक साहित्यामागील सामाजिक, राजकीय, धार्मिक, शैक्षणिक, सांस्कृतिक आदी पार्श्वभूमी समजावून देणे.</p> <p>CO-3. आधुनिक मराठी साहित्यातील वैचारिक साहित्याची परंपरा समजावून देणे.</p> <p>CO-4. वैचारिक साहित्याची आवश्यकता विशद करणे.</p>

DEPARTMENT DEFENCE STUDY

Course Outcomes: B. A. DEFENCE STUDY

Course	Outcomes
	After successful completion of three-year course in Defence study, student will be able to:
Semester-I	
OE-DE-101T National Security Part - I	<p>CO-1. This paper will cover military organization in India, reconstruction of armed forces after 1947, higher defense organization as well as intelligence organization in India.</p> <p>CO-2. The basic outcome of the paper is to introduce students to defence organization of India.</p> <p>CO-3. The students were introduced to the committee, regional organization and command organization in the Indian armed forces defence system.</p> <p>CO-4. A sense of national service should be created in the students.</p>
Semester-II	
OE-DE-102T National Security Part - II	<p>CO-1. The basic aim of this paper is to make aware the students about India's national security.</p> <p>CO-2. This paper covers overall picture of India's national security.</p> <p>CO-3. Which encompasses the internal, external challenges to India's national security along with its dimensions</p> <p>CO-4. The national security or safety of a country also depends on the social and economic factors of the respective country</p>
Semester-III	
DE-MN-235T Chhatrapati Shivaji Maharaj as a nation builder	<p>CO-1. The course focuses on the history of the war of the Marathas.</p> <p>CO-2. The emphasis is on the strategies and tactics used and on the approaches to war.</p> <p>CO-3. Specific battles would be used as illustrations for the study.</p>
DE-OE-201T National Security Policy I	<p>CO-1. This paper will cover military organization in India, reconstruction of armed forces after 1947, higher defense organization as well as intelligence organization in India.</p> <p>CO-2. The basic outcome of the paper is to introduce students to defence organization of India.</p> <p>CO-3. The students were introduced to the committee, regional organization and command organization in the Indian armed forces defence system.</p> <p>CO-4. A sense of national service should be created in the students.</p>

Semester-IV	
DE-MN-245T Chhatrapati Shivaji Maharaj as a nation builder	<p>CO-1. The focus is on the strategies and tactics used and on the approaches to war.</p> <p>CO-2. To gain knowledge of military history.</p> <p>CO-3. Chhatrapati Shivaji Maharaj occupied the forts of Chakan, Kondana and Purandhar</p>
DE-OE-201T National Security Policy I	<p>CO-1. This paper will cover military organization in India, reconstruction of armed forces after 1947, higher defense organization as well as intelligence organization in India.</p> <p>CO-2. The basic outcome of the paper is to introduce students to defence organization of India.</p> <p>CO-3. The students were introduced to the committee, regional organization and command organization in the Indian armed forces defence system.</p> <p>CO-4. A sense of national service should be created in the students.</p>
Semester-V	
India's national security CC-1d 35273	<p>CO-1. Internationally, aimed at to create favorable national and international conditions for the protection or extensions of national interests against existing or potential enemy threats”.</p> <p>CO-2. In this context, the aim of the paper is to make students understand ever changing different issues directly or indirectly involved in this study.</p>
Semester-VI	
India's national security CC-1d 36273	<p>CO-1. The security has an extended meaning beyond its military dimension; there is better appreciation now of its non – military and human dimensions.</p> <p>CO-2. Understand the importance of guidance and counselling in Education.</p>

DEPARTMENT EDUCATION

Course Outcomes: B. A. EDUCATION

Course	Outcomes
	After successful completion of three-year course in Education study, student will be able to:
Semester-I	
BA-ED-111T Fundamentals of Education-I	<p>CO-1. Explain the meaning, concept, characteristics and process of education.</p> <p>CO-2. Explain the educational process.</p> <p>CO-3. Explain the aims of education.</p> <p>CO-4. Explain the role of education.</p> <p>CO-5. Explains the educational thought of an Indian educational thinker.</p>
OE-ED-01T Basics in Education	<p>CO-1. Explain the meaning, concept and characteristics of the process of Education.</p> <p>CO-2. Explain the meaning, characteristics and importance of Informal, Formal and Non formal education.</p> <p>CO-3. Explain the importance of mass media in education.</p>
Semester-II	
BA-ED-121T Fundamentals of Education-II	<p>CO-1. Students explain the concept of philosophy in education with reference to aims, curriculum, methods and role of teacher.</p> <p>CO-2. Students explain the meaning, concept of Inclusive Education in India.</p> <p>CO-3. Students explain the Educational Management and Administration in Maharashtra State.</p> <p>CO-4. Students explain the role of ICT in education.</p>
OE-ED-02T Educational Guidance and Counseling	<p>CO-1. Recognize the meaning of educational guidance.</p> <p>CO-2. Explain the needs and importance of educational guidance.</p> <p>CO-3. Compare the difference between guidance and counseling.</p> <p>CO-4. Explain the various tools and techniques of counseling.</p>
Semester-III	
MN-ED-231T Psychological Foundation of Education	<p>CO-1. Apply Educational Psychology principles to real-world teaching and learning situations.</p> <p>CO-2. Students will develop a critical understanding of the learning process and its factors.</p> <p>CO-3. Demonstrate knowledge of various methods of learning and their applications.</p> <p>CO-4. Analyze the role of schools in developing personalities and individual</p>

	<p>differences.</p> <p>CO-5. Evaluate the concepts of intelligence, emotional intelligence, and their significance in education.</p>
OE-ED-03T Educational Philosophy	<p>CO-1. Define and explain the fundamental concepts of philosophy and its relevance to education.</p> <p>CO-2. Establish the relationship between education and philosophy in shaping educational theories and practices.</p> <p>CO-3. Critically assess the influence of philosophical thought on educational aims, curriculum, teaching methods, discipline, and the role of teachers.</p> <p>CO-4. Describe the various functions of education and its role in the holistic development of individuals.</p> <p>CO-5. Analyze the contribution of education in preserving and transmitting cultural heritage.</p> <p>CO-6. Identify the importance of education in skill development, value formation, and social harmony.</p> <p>CO-7. Discuss the role of education in fostering national development and societal progress.</p>
Semester-IV	
MN-ED-241T Teaching Learning Process	<p>CO-1. Explain the fundamental principles of teaching and learning.</p> <p>CO-2. Utilize appropriate teaching methods to enhance classroom engagement and effectiveness.</p> <p>CO-3. Demonstrate key teaching skills such as reinforcement, questioning, and stimulus variation for effective lesson delivery.</p> <p>CO-4. Explain the characteristics of learning and the factors influencing it, including attention and motivation.</p> <p>CO-5. Identify and implement techniques to improve memory retention and minimize forgetting in students.</p> <p>CO-6. Recognize and apply ethical standards and the code of conduct expected from teachers.</p> <p>CO-7. Understand the roles, responsibilities, and qualifications required at different educational levels.</p> <p>CO-8. Recognize the significance of ICT in education and adopt modern digital tools for teaching and learning.</p>
OE-ED-04T Educational Psychology	<p>CO-1. Demonstrate an understanding of the fundamental concepts of educational psychology.</p> <p>CO-2. Apply psychological principles to the field of education and teaching-</p>

	<p>learning processes.</p> <p>CO-3. Analyze different psychological methods used in studying human behavior and learning.</p>
Semester-V	
ED-MN-356T Teaching Learning Process	<p>CO-1. Explain the fundamental principles of teaching and learning.</p> <p>CO-2. Utilize appropriate teaching methods to enhance classroom engagement and effectiveness.</p> <p>CO-3. Demonstrate key teaching skills such as reinforcement, questioning, and stimulus variation for effective lesson delivery.</p> <p>CO-4. Explain the characteristics of learning and the factors influencing it, including attention and motivation.</p> <p>CO-5. Identify and implement techniques to improve memory retention and minimize forgetting in students.</p> <p>CO-6. Recognize and apply ethical standards and the code of conduct expected from teachers.</p> <p>CO-7. Understand the roles, responsibilities, and qualifications required at different educational levels.</p> <p>CO-8. Recognize the significance of ICT in education and adopt modern digital tools for teaching and learning.</p>
Semester-VI	
ED-MN-366T Basics in Educational Research	<p>CO-1. Define and describe research, its types, and its role in education.</p> <p>CO-2. Apply Identify and apply appropriate research methods for different educational problems.</p> <p>CO-3. Analyze Recognize challenges in educational research and develop strategies to overcome them.</p> <p>CO-4. Search, analyze, and synthesize existing literature to support research studies.</p> <p>CO-5. Develop research problems, objectives, questions, and hypotheses systematically.</p> <p>CO-6. Choose and implement appropriate data collection methods based on research needs.</p> <p>CO-7. Understand and apply sampling methods for accurate and reliable research results.</p> <p>CO-8. Differentiate between descriptive and inferential data reporting and present findings effectively.</p>

<p>ED-MN-367P Action Research</p>	<p>CO-1. Design effective data collection instruments for action research.</p> <p>CO-2. Apply qualitative and quantitative research methods for data interpretation.</p> <p>CO-3. Use research findings to make evidence-based improvements in education.</p> <p>CO-4. Communicate research results effectively through reports, presentations, and discussions.</p> <p>CO-5. Implement research-based strategies to enhance student learning and teacher effectiveness.</p>
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