

**Program Outcomes, Program Specific
Outcomes and Course Outcomes**



**GOVERNMENT PATALESHWAR COLLEGE,
MASTURI, BILASPUR (C. G.) 495551**

AFFILIATED TO ATAL BIHARI VAJPAYEE UNIVERSITY, BILASPUR (C.G)

NAAC Accredited “B” Grade

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PO, PSO, & CO of UG Courses

Program Outcomes

- PO1** : Apply the knowledge and principles of science, arts and commerce to the solution of complex problems.
- PO2** : Devise solutions for intricate problems and plan system components or processes that meet the specified needs with appropriate consideration for the society, health, safety, cultural, societal and environmental considerations.
- PO3** : Use innovation-based knowledge and creative methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- PO4** : Create, select, and apply appropriate techniques, resources, and modern IT tools including prediction and modeling to complex activities with an understanding of the limitations.
- PO5** : Comprehend the influence of the proficient clarifications in societal and environmental context for sustainable development.
- PO6** : Pertain ethical principles and entrust to professional ethics and responsibilities.
- PO7** : Function effectively as an individual, and in assorted teams.
- PO8** : Communicate effectively on various activities and make effective presentations.
- PO9** : Exhibit comprehension and understanding of the programmes and apply them in a multidisciplinary environment.
- PO10** : Be familiar with the need for and have the training and skill to engage in self-regulating and life-long learning in the broadest perspective of hi-tech change.

Program Specific Outcomes & Course Outcome

B. Sc.	
Program Specific Outcome	<ul style="list-style-type: none">➤ PSO-1. Gain the knowledge of science through theory and practicals.➤ PSO-2. Demonstrate, solve and an understanding of major concepts in all disciplines of science.➤ PSO-3. Solve the problem and also think methodically, independently and draw a logical conclusion.➤ PSO-4. Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of practicals.➤ PSO-5. Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community.➤ PSO-6. To inculcate the scientific temperament in the students and outside the scientific community.➤ PSO-7. Understand good laboratory practices and safety.➤ PSO-8. Develop research oriented skills.➤ PSO-9. make aware and handle the sophisticated instruments/equipments.

Course Outcome	
Course	Outcome: After Completion of these courses students should be able to
B. Sc. –I Year	
Chemistry	
<i>Inorganic Chemistry Paper I</i>	<ul style="list-style-type: none"> ➤ Know the structure of atom ➤ Knowledge of periodic properties ➤ Understand the nature of ionic and covalent bond. ➤ Study of concept of group relationship and properties of s and p block elements. ➤ Understand the chemistry of noble gases. ➤ Theoretical and practical knowledge of qualitative analysis of inorganic salts.
<i>Organic Chemistry Paper II</i>	<ul style="list-style-type: none"> ➤ Knowledge of basic concepts of organic chemistry. ➤ Study of optical isomerism. Difference between geometrical and optical isomerism. ➤ Study of conformational analysis of alkanes. ➤ Chemistry of aliphatic hydrocarbons. Understanding of nature of C-C σ and π bonding. ➤ Concept of aromaticity.
<i>Physical Chemistry Paper III</i>	<ul style="list-style-type: none"> ➤ Understanding of mathematical concepts for chemist. ➤ Study of gaseous state. ➤ Study of liquid state. ➤ Study of colloids and surface chemistry. ➤ Study of solid state. ➤ Knowledge of chemical kinetics, rate of reactions. ➤ Concept of homogeneous and heterogeneous catalysis.
B. Sc. II Year	
Chemistry	
<i>Inorganic Chemistry (Paper Code - 0845) Paper I</i>	<ul style="list-style-type: none"> ➤ Understanding of chemistry of elements of first transition series. ➤ Study of chemistry of elements of second & third transition series. ➤ Knowledge of oxidation and reduction. Use of redox potential data analysis of redox cycle. Principles involved in extraction of the elements. ➤ To know the Werner's coordination theory and its experimental verification, chelates, nomenclature, isomerism in coordination compounds, valence bond theory of transition metal complexes. Crystal field theory, Crystal field splitting and stabilization energy, measurement of $10 Dq$ (Δ_o), CFSE in weak and strong fields, pairing energies, factors affecting the magnitude of $10 Dq$ (Δ_o, Δ_t). Octahedral vs. tetrahedral coordination. ➤ Chemistry of lanthanide and actinides. ➤ Arrhenius, Bronsted-Lowry, the Lux-flood, solvent system and Lewis concepts of acids and bases. ➤ Physical properties, types and general characteristics of non-aqueous solvents.
<i>Organic Chemistry (Paper Code - 0846) Paper II</i>	<ul style="list-style-type: none"> ➤ Understanding of preparation, nucleophilic substitution reactions – SN_1, SN_2 and SN_i mechanisms of alkyl halides aryl halides.; nucleophilic substitution, elimination reactions, diazonium salts, Benzyne mechanism. Relative reactivity of alkyl, allyl/benzyl, vinyl and aryl halides towards nucleophilic substitution reactions. ➤ Knowledge of nomenclature, methods of formation, chemical

	<p>reactions of Dihydric and Trihydric alcohols.</p> <ul style="list-style-type: none"> ➤ Understanding of structure, bonding, physical and chemical properties and acidic character of phenols. ➤ Nomenclature, Structure and properties of the carbonyls group. Synthesis of aldehydes and ketones. ➤ Structure and bonding, Physical properties, acidity of carboxylic acids, effects of substituents on acid strength. Hydroxy and Halo-substituted Acids. Structure of acid chlorides, esters, amides and acid anhydrides. ➤ Preparation and Chemical properties of nitroalkanes and nitroarenes. of nitroalkanes. ➤ Reactivity, Structure and nomenclature of amines, physical properties. Stereo- chemistry of amines. Separation of mixture of primary, secondary and tertiary amines.
<p><i>Physical Chemistry(Paper Code - 0847) Paper III</i></p>	<ul style="list-style-type: none"> ➤ Knowledge of fundamental of thermodynamics system, surroundings etc. Zeroth law of thermodynamics. , First Law of Thermodynamics limitation of first law. Relation between heat capacities, calculations of q, w, U and H for reversible, irreversible and free expansion of gases under isothermal and adiabatic conditions. Joule-Thompson expansion, inversion temperature of gases, expansion of ideal gases under isothermal and adiabatic condition ➤ Concept of thermochemistry, Laws of Thermochemistry, Heats of reactions, standard states; enthalpy of formation of molecules and ions and enthalpy of combustion and its applications; calculation of bond energy, bond dissociation energy and resonance energy from thermochemical data, effect of temperature (Kirchhoff's equations) and pressure on enthalpy of reactions, Adiabatic flame temperature, explosion temperature. ➤ To know the second Law of Thermodynamics, Concept of entropy, Gibbs and Helmholtz free energy variation of G and A with pressure, volume temperature, Gibbs Helmholtz equation. Maxwell relations, Elementary idea of Third law of Thermodynamics, concept of residual entropy, calculation of absolute entropy of molecule. ➤ Understanding of criteria of thermodynamic equilibrium, degree of advancement of reaction, chemical equilibria in ideal gases. Concept of Fugacity, Thermodynamic derivation of relation between Gibbs free energy of reaction and reaction quotient. Coupling of exergonic and endergonic reactions. Equilibrium constants and their quantitative dependence on temperature, pressure and concentration. Thermodynamic derivation of relations between the various equilibrium constants K_p, K_c and K_x. Le Chatelier principle (quantitative treatment). Equilibrium between ideal gas and a pure condensed phase. ➤ Knowledge of ionization of weak acids and bases, pH scale, common ion effect; dissociation constants of mono protic acids (exact treatment). Salt hydrolysis-calculation of hydrolysis constant, degree of hydrolysis and pH for different salts. Buffer solutions; derivation of Henderson equation and its applications. Solubility and solubility product of sparingly soluble salts – applications of solubility product principle.

	<ul style="list-style-type: none"> ➤ Gibbs Phase rule Application of phase rule to two component systems and Three component systems, Nerst distribution law, Henry's law, application, solvent extraction. ➤ Characteristics of electromagnetic radiation, Interaction of radiation with matter, difference between thermal and photochemical processes, Lambert-Beer's law and its limitations, physical significance of absorption coefficients. Laws of photochemistry: Grothus-Drapper law, StarkEinstein law, quantum yield, actinometry, examples of low and high quantum yields, Photochemical equilibrium and the differential rate of photochemical reactions, Quenching, Role of photochemical reaction in biochemical process. Jablonski diagram depicting various process occurring in the excited state, qualitative description of fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing), photosensitized reactions, energy transfer processes {simple examples), photostationary states, Chemiluminescence.
B. Sc. III Year	Chemistry
<i>Inorganic Chemistry(Paper Code-0895) Paper I</i>	<ul style="list-style-type: none"> ➤ Knowledge of metal-ligand bonding in transition metal complexes, an elementary idea of crystal field theory. ➤ Study of thermodynamic and kinetic aspects of metal complexes. A brief outline of thermodynamic stability of metal complexes, substitution reactions of square planar complexes. ➤ Knowledge of magnetic properties of transition metal complexes. spin only formula, L-S coupling, correlation of μ_s and μ_{eff}. ➤ Understanding the electronic spectra of Transition Metal Complexes. Orgel-energy level diagram for d1 and d2 states. ➤ To know the definition, nomenclature and classification of organo metallic compounds. Preparation, properties, bonding and applications of alkyls and aryls of Li, Al, Hg, Sn, & Ti. mononuclear carbonyls and nature of bonding in metal carbonyls. ➤ Study of essential and trace elements in biological processes, metalloporphyrins with special reference to hemoglobin and myoglobin. ➤ Classification of acids and bases as hard and soft. Pearson's HSAB concept. ➤ Silicons and phosphazenes as examples of inorganic polymers, nature of bonding in triphosphazenes.
<i>Organic Chemistry(Paper Code-0896) Paper II</i>	<ul style="list-style-type: none"> ➤ Study of Organometallic Compounds Organometallic compounds. ➤ Nomenclature, structural features, methods of formation and chemical reactions of thiols, thioethers, sulphonic acids, sulphonamides and sulphaguanidine. ➤ Knowledge of monosaccharides, disaccharides (maltose, sucrose and lactose) and polysaccharides (starch and cellulose). ➤ Study of Proteins and Nucleic acids. ➤ Knowledge of Synthetic Polymers. ➤ Knowledge of Synthetic Dyes. ➤ Basic understanding of Mass spectroscopy, InfraRed Spectroscopy, UV-Visible Spectroscopy and NMR Spectroscopy.
<i>Physical</i>	<ul style="list-style-type: none"> ➤ Basic understanding of quantum mechanics, DeBroglie's idea of

<p><i>Chemistry(Paper Code-0897)</i> <i>Paper III</i></p>	<p>matter waves, experimental verification Heisenberg's uncertainty principle, Sinoidal wave equation, Operators : Hamiltonian operator, angular momentum operator, laplacian operators postulate of quantum mechanics Eigen values, Eigen function.</p> <ul style="list-style-type: none"> ➤ Quantum mechanical approach of molecular orbit theory; basic idea criteria for forming M.O and A.O, LCAO approximation, calculation of energy levels from wave functions bonding and antibonding wave functions concept of σ, π and orbitals and their characteristics. ➤ Understanding the basic principle of rotational spectra, Vibrational spectra, Raman Spectra and electronic Spectra. ➤ Study of photo-chemistry, fluorescence, phosphorescence, non-radiative processes (internal conversion, intersystem crossing), quantum yield photosensitized reactions energy transfer processes. ➤ To know the third law of thermodynamics. Physical properties and molecular structure. Dipole moment, Magnetic Properties
	➤
<i>B.Sc. I</i>	<i>Botany Paper -I</i>
<ul style="list-style-type: none"> ➤ <i>Unit –I-</i> 	<ul style="list-style-type: none"> ➤ Unit –I- Viruses: General characteristics, types of viruses based on structure and genetic material. Multiplication of viruses (General account), Lytic and Lysogenic cycle. Economic importance. Bacteriophages. General account of Viroids, Virusoids, Prions, and Cyanophages. Mycorrhiza-Types and Significance. <ul style="list-style-type: none"> ➤ Students will be known better 'importance of virology is clearly linked to the fact that we know more and more viruses, understand their links to certain diseases better and that epidemiology looks at certain viral infections in new ways: all of a sudden we recognise viruses where we did not see them before and also know better role of bacteriology and Mycorrhiza in field of agriculture.
<ul style="list-style-type: none"> ➤ <i>Unit II -</i> 	<ul style="list-style-type: none"> ➤ Unit II -General characteristics and classification (on the basis of morphology), fine structure of bacterial cell, Gram positive and Gram negative bacteria, mode of nutrition and reproduction vegetative, asexual and recombination (Conjugation, transformation and transduction), Economic importance. Microbial Biotechnology, Rhizobium, Azotobacter, Anabaena. <ul style="list-style-type: none"> ➤ Student will be understand structure of Bacteria and role of Bacteria in Agriculture ,Industries,source of antibiotics
<ul style="list-style-type: none"> ➤ <i>Unit III -</i> 	<ul style="list-style-type: none"> ➤ Unit III -General account of habit and habitat, structure (range of thallus organization), cell wall composition, nutrition and reproduction in fungi. Heterothallism and Parasexuality. Outlines of classification of fungi. Economic importance of fungi. Life cycles of Saprolegnia, Albugo, Aspergillus, Peziza, Agaricus, Ustilago, Puccinia, Alternaria and Cercospora. <ul style="list-style-type: none"> ➤ These unit helps to students understand diversity of fungi and role of fungus in plant pathology. Economic importance of fungi.
<ul style="list-style-type: none"> ➤ <i>Unit –IV-</i> 	<p>Unit –IV Algae: General characters, range of thallus organization, Gaidukov phenomenon, reproduction, life cycle patterns</p>

	<p>Economic importance of algae. Structure and life cycle of following genera : Nostoc, Gloeocapsa, Volvox, Oedogonium, Vaucheria, Chara, Ectocarpus, Polysiphonia.</p> <p>➤ These unit helps to understand diversity of algae.</p>
➤ <i>Unit-V-</i>	<p>➤ <i>Unit-V-</i> General account, types, structure, nutrition, reproduction and economic importance. Mycoplasma: Structure and importance. Blue Green Algae (BGA) in nitrogen economy of soil and reclamation of Ushar land. Mushroom Biotechnology</p> <p>➤ These unit helps to understand Lichene, Mycoplasma, BGA role in agariculture. Mushroom Biotechnology helps to mushroom cultivation.</p>
<p>Paper outcome:- 1. Paper helps to understand Diversity of virus, Bacteria, Fungi, Algae, Lichen and mycoplasma, BGA. 2. Paper useful for students Research field Agariculture Field.</p>	
<i>B.Sc. I</i>	<i>Botany Paper -II</i>
➤ <i>Unit I-</i>	<p>➤ Unit I- General characteristics, affinities, range of thallus organization, general classification and economic & ecological importance, Systematic position, occurrence, morphology anatomy and reproductive structure in Riccia, Marchantia, Peltia, Anthoceros, Funaria. Vegetative reproduction in Bryophytes, Evolution of sporophytes.</p> <p>➤ These unit helps to Students will be understand General characteristics, affinities, range of thallus organization, general classification and economic & ecological importance, Systematic position, occurrence, morphology anatomy and reproductive structure in Riccia, Marchantia, Peltia, Anthoceros, Funaria.</p>
➤ <i>Unit II-</i>	<p>➤ General characteristics, affinities, economic importance and classification, Heterospory and seed habit, stellar system in Pteridophytes, Aposory and apogamy Telome theory, Azolla as Biofertilizer.</p> <p>➤ Students understand General characteristics, affinities, economic importance and classification, Heterospory and seed habit, stellar system in Pteridophytes, Aposory and apogamy Telome theory Azolla as Biofertilizer.</p>
➤ <i>Unit III-</i>	<p>➤ Unit II- Heterospory and seed habit, stellar system in Pteridophytes, Aposory and apogamy, Telome theory, Azolla as Biofertilizer. Systematic position, occurrence. Morphology, anatomy and reproductive structure of Psilotum, Lycopodium, Selaginella, Equisetum, Marsilea.</p> <p>➤ Students will analyse the Morphology, anatomy and reproductive structure of Psilotum, Lycopodium, Selaginella, Equisetum, Marsilea.</p>
➤ <i>Unit III-</i>	<p>➤ <i>Unit III-</i> Gymnosperm: General characteristics, affinities, Morphology, anatomy and reproduction in Cycas, Pinus and Ephedra.</p> <p>➤ These unit helps to understand Gymnosperm: General characteristics, affinities, economic importance of Gymnosperm. Morphology, anatomy and reproduction in Cycas, Pinus and Ephedra.</p>

➤ <i>Unit IV-</i>	➤ <i>Unit IV-Morphology, anatomy and reproduction in Cycas, Pinus and Ephedra. Rhynia, study of some fossil gymnosperms. Lygenopteris</i> ➤ These unit helps to understand geological time scale and fossils plants
Paper outcome1.Paper helps to understand Diversity of Bryophyta ,Predidophyta ,Gymnosperm,and fossils plant. 2,Paperusefull for students Research field,	
<i>B.Sc.II</i>	➤ <i>Botany Ppaper -I</i>
➤ <i>Unit -I</i>	➤ Unit -I Bentham and Hooker system of classification. Binomial Nomenclature, International Code of Nomenclature for Algae, Fungi, and plants (IUCN), Typification, numerical Taxonomy and chemotaxonomy. Binomial Nomenclature, International Code of Nomenclature for Algae, Fungi, and plants (IUCN), Typification, numerical Taxonomy and chemotaxonomy. Important botanical gardens and herbaria of India, Kew Botanical garden, England. ➤ These unit helps to understand Bentham and Hooker system of classification.Binomial Nomenclature, International Code of Nomenclature for Algae, Fungi, and plants (IUCN), Typification, numerical Taxonomy and chemotaxonomy.Binomial Nomenclature, International Code of Nomenclature for Algae, Fungi, and plants (IUCN), Typification, numerical Taxonomy and chemotaxonomy. Students will be Known.Important botanical gardens and herbaria of India, Wor
➤ <i>Unit -II-</i>	➤ Unit -II-Systematic position, distinguishing characters and economic importance of the following families, Ranunculaceae, Magnoliaceae, Brassicaceae, Rosaceae, Papaveraceae, Caryophyllaceae, Rutaceae, Cucurbitaceae, Apiaceae, Rubiaceae, Apocynaceae, Asclepiadaceae, Solanaceae, Malvaceae, Convolvulaceae, Orchidaceae, Acanthaceae, verbenaceae, Lamiaceae, Asteraceae, Fabaceae, Euphorbiaceae, Poaceae and Liliaceae. ➤ These unit helps to understand taxonomy and diversity of Families ,Ranunculaceae, Magnoliaceae, Brassicaceae, Rosaceae, Papaveraceae, Caryophyllaceae, Rutaceae, Cucurbitaceae, Apiaceae, Rubiaceae, Apocynaceae, Asclepiadaceae, Solanaceae, Malvaceae, Convolvulaceae, Orchidaceae, Acanthaceae, verbenaceae, Lamiaceae, Asteraceae, Fabaceae, Euphorbiaceae, Poaceae and Liliaceae.
➤ <i>Unit -III</i>	➤ Unit -III fiber yielding plants; Cotton, jute, sun, hemp, coir. Timber yielding plants: Sal, Teak, Shisham and Pine. Medicinal plants: Kalmegh, Ashwagandha, Ghritkumari, Giloy, Brahmi, sargandha, of medicinal plants of C.G. C.C.GFood plants: Pearl millet, Buck of wheat, Sorghum, Soyabean, gram, Ground nut, Sugarcane and Potato Fruit plants: Pear, Peach, Litchi. Spices: Cinnamon, Turmeric, Ginger, Asafoetida and Cumin. Beverages. Beverages : Tea, Coffee Rubber. Cultivation of important flowers: Chrysanthemum, Dahelia, Biodiesel plants Jatropha, Pongamia. Ethnobotany in context of Chhattisgarh ➤ These unit helps to Understaand Importance

	Fibers, Timber, Medicinal, Food plants, and other important.
➤ <i>Unit -IV</i>	<ul style="list-style-type: none"> ➤ Unit IV-Root and shoot apical meristems theories of root and shoot apex organization, permanent tissues. anatomy of root, stem and leaf of dicot and monocot, secondary growth in root and stem, , Anatomical anomalies in the primary structure of stems (Nyctanthes, Boerhaavia, Casuarina), Anamolous secondary growth in Dracaena, Bignonia, Laptadenia. ➤ These unit helps to students anatomy of Angiospermiceplants, secondary growth of dicot, monocot plants and anamolous structure of some plants ,anamoulous secondary growth
➤ <i>Unit -V</i>	<ul style="list-style-type: none"> ➤ Unit V-Flower as a reproductive organ, anther, microsporogenesis, types of ovules, megasporogenesis, development of male and female gametophyte, pollination, mechanisms, self incompatibility, fertilization, endosperm, embryo, polyembryonoy, apomixes and parthenocarp. ➤ These unit helps to understand embryology of higher plants
<p>Paper outcome 1. Paper -helps to understand Diversity of Angiospermice plants, Nomenclature system of Plants, Anatomy of higher plants and econiceimporatance of plants.</p> <p>2. Paper -useful for students Research field, and better understand to agricultural field</p>	
<i>B.Sc.II</i>	➤ <i>Botany Ppaper -II</i>
➤ <i>Unit -I</i>	<ul style="list-style-type: none"> ➤ Introduction and scope of ecology, environmental and ecological factors, Soil formation and soil profile, Liebig's law of minimum, Shelford's law of tolerance, morphological and anatomical adapataions in hydrophytes, xerophytes and epiphytes. ➤ These unit helps to understand the Environment and ecological factors and adaptation of plants.
➤ <i>Unit -II</i>	<ul style="list-style-type: none"> ➤ Unit -II- Population and community characteristics, Raunkiaer's life forms, population interactions (e.g. Symbiosis, Amensalism etc.), succession, ecotone and edge effect, ecological niches, ecotypes, ecads, keystone species Concept of ecosystem, trophic levels, flow of energy in ecosystem, food chain and food web, concept of ecological pyramids. Biogeochemical cycles: carbon cycle, nitrogen cycle and phosphorus cycle ➤ These unit helps to students better understand Population and Community ecology, Ecosystem. Ecosystem development, and Biogeochemical cycle.
➤ <i>Unit -III</i>	<ul style="list-style-type: none"> ➤ <i>Unit-III</i>- Plant water relations: Diffusion, permeability, osmosis, imbibitions, plasmolysis, osmotic potential and water potential. Types of soil water, water holding capacity, wilting, Absorption of water, theories of Ascent of sap, Mineral nutrition and absorption, Deficiency symptoms, Transpiration, stomatal movement, significance of transpiration, Factors affecting transpiration, guttation. ➤ These unit helps to students understand Plant Water Relationship
➤ <i>Unit -IV</i>	➤ Unit-IV - Photosynthesis: Photosynthetic apparatus and pigments,

	<p>light reaction mechanism of ATP synthesis. C3, C4 CAM pathway of carbon reduction, photorespiration, factors affecting photosynthesis. Respiration: Aerobic and anaerobic respiration, Glycolysis, Krebs's cycle, factors affecting respiration, R.Q.</p> <p>➤ These unit helps to students understand Metabolism of plants</p>
➤ <i>Unit-IV</i>	<p>➤ Unit-IV- Plant growth hormones: Auxin, Gibberellin, Cytokinin, Ethylene and Abscissic acid. Physiology of flowering, Florigen concept, Photoperiodism and Vernalization. Seed dormancy and germination, plant movement</p> <p>➤ These unit helps to students understand Plant growth regulators, Role of light and temperature for plant growth and how is developed seed dormancy.</p>
<p>Paper outcome1.Paper - helps to understand Ecology and environment, Plant water relationship ,Plant growth regulators and metabolic process of plants 2.Paper -useful for students Research field, and also useful for to agricultural field</p>	
B.Sc. III	➤ Botany Paper -I
<i>Paper -I</i>	<p>➤ Plant-water relations :Importance of water to plant life ; physical properties of water; diffusion and osmosis; absorption, transport of water and transpiration ; physiology of stomata.</p> <p>➤ Mineral nutrition : Essential macro and micro-elements and their role ; mineral uptake; deficiency and toxicity symptoms.</p> <p>➤ Transport of organic substances : Mechanism of phloem transport ; source-sink relationship ; factors affecting translocation.</p> <p>➤ Basic of enzymology : Discovery and nomenclature ; characteristics of enzymes ; concept of holoenzyme apoenzyme, coenzyme and cofactors ; regulation of enzyme activity, mechanizm of action.</p> <p>➤ Photosynthesis : Significance ; historical aspects ; photosynthetic pigments ; action spectra and enhancement effects ; concept of two photosystems; Z-scheme ; photophosphorylation ; Calvin cycle ; C4 pathway ; CAM plants ; photorespiration.</p> <p>➤ Respiration : ATP - the biological energy currency ; aerobic and anaerobic respiration; Krebs's cycle, electron transport mechanism (chemi-osmotic theory) ; redox potential; oxidative phosphorylation ; pentose phosphate pathway.</p> <p>➤ Nitrogen and lipid metabolism : Biology of nitrogen fixation ;importance of nitrate reductase and its regulations ; ammonium assimilation ; structure and function of lipids; fatty acid biosynthesis ; Beta-oxidation ; saturated and unsaturated fatty acids; storage and mobilization of fatty acids.</p> <p>➤ Growth and development : Definitions ; phases of growth and development ; kinetics of growth, seed dormancy, seed germination and factors of their regulation. plant movements. the concept of photoperiodism ; physiology of flowering ; florigen concept; biological clocks ; physiology of senescence, fruit ripening</p> <p>➤ plant hormones auxins, gibberellins, cytokinins, abscisic acid and ethylene, history of their discovery, biosynthesis and mechanism of action; photomorphogenesis ; phytochromes and cryptochromes, their discovery, physiological role and mechanism of action.</p>

	<ul style="list-style-type: none"> ➤ Genetic engineering : Tools and techniques of recombinant DNA technology ; cloning vectors ; genomic and cDNA library ; transposable elements ; techniques of gene mapping and chromosome walking. ➤ Biotechnology : Functional definition ; basic aspects of plant tissue culture ; cellular totipotency, differentiation and morphogenesis ; biology of Agrobacterium ; vectors for gene delivery and marker genes ; salient achievements in crop biotechnology.
<i>Paper II</i>	<ul style="list-style-type: none"> ➤ Plants and environment : Atmosphere (gaseous composition), water (properties of water cycle), light (global radiation, photosynthetically active radiation), temperature, soil (development, soil profiles, physico-chemical properties), and biota. ➤ Morphological, anatomical and physiological responses of plants to water (hydrophytes and xerophytes), temperature (thermoperiodicity), light (photoperiodism, heliophytes and sciophytes) and salinity. ➤ Community Ecology : Community characteristics, frequency, density, cover, life forms biological spectrum ; ecological succession. ➤ Ecosystems : Structure, abiotic and biotic components ; food chain, food web, ecological pyramids, energy flow ; biogeochemical cycles of carbon, nitrogen and phosphorus ➤ Population ecology : Growth curves ; ecotypes ; ecads. Biogeographical regions of India. Vegetation types of India : Forests and grasslands. ➤ Utilization of Plants Food plants : Rice, wheat, maize, potato, sugercane. Fibres : Cotton and jute. ➤ Vegetable oils : Groundnut, mustard and coconut. General account of sources of firewood, timber and bamboos. Spices : General account. Medicinal plants : General account. Beverages : Tea and coffee. Rubber.
<i>Zoology</i>	After successfully completing B.Sc.I Programme students will be able to:
<i>Programe Specific outcomes</i>	<ul style="list-style-type: none"> ➤ Understand the economic importance of insect ,arthropoda , mollusca and other invertebrates. ➤ Understand parasitic life cycle of invertebrates and its pathogenesis. ➤ Origin of vertebrates and basic character and affinities to other animal and phylum. ➤ Understand the origin of Birds. ➤ Understand about Cancer cell and its different types , causes , diagnosis and treatment
<i>Paper -I</i>	Cell biology and non chordata
Course outcomes (CO)	<ul style="list-style-type: none"> ➤ They able to understand general taxonomic rules on animal classification. ➤ Understand Pathogenic nature of invertebrates and their morphology and physiology activity. ➤ Differentiate prokaryotic and Eukaryotic cells.

	<ul style="list-style-type: none"> ➤ Understand the structural organization of animals phylum from protozoa to hemichordate. ➤ Classify Phylum Platyhelminthes to Annelida phylum using examples from parasitic adaptation and vermin composting. ➤ Understand the role of immune system in response to foreign particles. ➤ Able to handle tools used in cell biology. ➤ Understand the origin and evolutionary relationship of different phyla from protozoa to hemichordata. ➤ Prepare stained slides of mitosis
Paper -II	Chordate and Embryology
Course outcomes	<ul style="list-style-type: none"> ➤ Understand the cause of migration and parental care in fishes and also parental care in Amphibia. ➤ Understand the evolutionary process with the help of early developmental process. ➤ Differentiate between vertebrates and invertebrates animals. ➤ Understand the early embryonic development in different vertebrates. ➤ Describe general taxonomic rules and classify Protochordata to Mammalia with taxonomic keys. ➤ Understand the origin and evolutionary relationship of different phyla from Prochordata to mammalian. ➤ Understand the general characteristics of animals belonging to Fishes to Mammalian. ➤ To understand the body organization of Chordata. ➤ Describe the key events in early embryonic development starting from the formation of gametes upto gastrulation and formation of primary germ layers.
After successfully completing B.Sc.II Programme students will be able to:	
Programme Specific outcomes (PSO)	<ul style="list-style-type: none"> ➤ Understand the important about Dietary component . ➤ Understand about the cardiac cycle and ECG. ➤ Understand Social organization in insects and primates . ➤ Understand the hormonal control and disorders in human.
After successfully completing B.Sc.II course students will be able to:	
Paper-II	Title of the paper - Anatomy and Physiology
Course outcomes (CO) –	<ul style="list-style-type: none"> ➤ They able to understand physiology of different organ and system of vertebrates. ➤ Understand the physiology of heart and Cardiac cycle. ➤ Understand the blood coagulation process and theories. ➤ Understand the structure and function of Ear and eye.

	<ul style="list-style-type: none"> ➤ Describe the evolution of heart and aortic arches. ➤ Understand the derivatives of integument. ➤ Familiarize students with reproductive, renal physiology and muscleconstriction.
Paper-I	Vertebrates Endocrinology , Reproductive biology Behaviour , Evolution and Applied Zoology
After successfully completing B.Sc.II (Zoology) course students will be able to	
Course outcomes (CO) –	<ul style="list-style-type: none"> ➤ Understand the application of biological sciences in Apiculture ,Aquaculture and Sericulture . ➤ Understand the pattern of behavior . ➤ Understand the cause and type of mutation and variation. ➤ Explain the tools and techniques used in aquaculture and agriculturalpractices. ➤ Categorize economically important fish species. ➤ Understand the economically important species of <i>Apis</i>forunifloralandmultifloral honey production. ➤ Describe the concept of origin of life and theories of organicevolution. ➤ Illustrate the reproductive cycles with hormonal control and endocrine disorders. ➤ The concept of hormonal regulation of physiology, metabolism and reproduction in animals.
B.Sc.III (Zoology) Programme students will be able to:	
ProgrameSpecific outcomes (PSO)	<ul style="list-style-type: none"> ➤ Understand interaction between organisms and their environment. ➤ Understand about the toxic agents and their interactions. ➤ Understand the deviation of Mendel’s Law and Gene expression . ➤ Handle various tools in biology. ➤ Understand the role of vector insects. ➤ Understand principle of microscopy.
After successfully completing B.Sc.III (Zoology) course students will be able to:	
Paper - I	Ecology , Environmental biology , Toxicology , Microbiology and Medical Zoology
Course outcomes (CO)	<ul style="list-style-type: none"> ➤ They able to understand about the life history of pathogenicity of some pathogen. ➤ They able to understand about micro-organism their usefulness and harmfulness. ➤ Fundamental concept of bioenergetics in cellular processes and energy flow. ➤ Explain the mechanism of Toxicityand classification of Toxic

	<p>Substances.</p> <ul style="list-style-type: none"> ➤ Describe the specific responses of Toxicity: Mutagenesis ➤ Describe the important of microbiology in industries. ➤ Understand the diversity of microbes and their use and harm.
After successfully completing B.Sc.III course students will be able to:	
Paper - II	Cell physiology , Biochemistry , Biotechnology and Biotechniques
Course outcomes (CO)	<ul style="list-style-type: none"> ➤ Perform procedures as per laboratory standard in the area of biochemistry , biotechnology. ➤ Understand Varieties of gene expression. ➤ Know about diseases associated to genetics. ➤ Explain the principle of separation techniques. ➤ Explain the structure, functions and reactions of the various biomolecules. ➤ Calculate pH and pOH of buffer solution. ➤ Understand the applications of Biotechnology in the fields of industry and agriculture.
Course outcomes (CO) –	<ul style="list-style-type: none"> ➤ Students will be able to understand basic concept of classification of invertebrates. ➤ Describe different physiological body processes of invertebrates. ➤ Describe larval forms of invertebrates. ➤ Understand Pathogenic nature of invertebrates and their morphology and physiology activity. ➤ Describe characteristics and significance of Minor Phyla.
B.Sc . Physics	Department of Physics
<i>Programms Specific Outcome</i>	<ul style="list-style-type: none"> ➤ The modern world would be a very different place. The study of physics has brought underlies so many pivotal discoveries of the 20th century including the laser, ➤ TV, radio, computer technology, DNA and nuclear weapons for instance and has played a vital role in the development of quantum theory. ➤ Understand the theory of relativity, the big bang theory, and the splitting of the atom. ➤ The main objective of the department is to discover the talented young people, introducing awareness in them, educating them in the most advanced manner through special programs and producing women physicist and educationalist. ➤ To understand the practical and theoretical physics.
<i>Course Outcome</i>	<ul style="list-style-type: none"> ➤ The students are to learn the basic principles and concepts of Heat and Thermodynamics. ➤ They get ability to understand and solving conduction, convection and radiation process. ➤ To design and analyze the performance of heat exchangers and evaporators.

	<ul style="list-style-type: none"> ➤ To design and analyze reactor heating and cooling system. ➤ They get knowledge about kinetic theory of gases. ➤ They understand the thermodynamic laws. ➤ To study about the concepts of entropy.
<i>B.Sc.I</i>	Physics
<p>Mechanics, Oscillations And Properties Of Matter (Paper code 0793)</p>	<ul style="list-style-type: none"> ➤ Cartesian, Cylindrical and Spherical coordinate system, Inertial and non-inertial frames of reference, uniformly rotating frame, Coriolis force and its applications. Motion under a central force, Kepler's laws. Effect of Centrifugal and Coriolis forces due to earth's rotation, Center of mass (C.M.), Lab and C.M. frame of reference, motion of C.M. of system of particles subject to external forces, elastic, and inelastic collisions in one and two dimensions, Scattering angle in the laboratory frame of reference, Conservation of linear and angular momentum, Conservation of energy. ➤ Rigid body motion, rotational motion, moments of inertia and their products, principal moments & axes, introductory idea of Euler's equations. Potential well and Periodic Oscillations, case of harmonic small oscillations, differential equation and its solution, kinetic and potential energy, examples of simple harmonic oscillations: spring and mass system, simple and compound pendulum, torsional pendulum. ➤ Bifilar oscillations, Helmholtz resonator, LC circuit, vibrations of a magnet, oscillations of two masses connected by a spring. Superposition of two simple harmonic motions of the same frequency, Lissajous figures, damped harmonic oscillator, case of different frequencies. Power dissipation, quality factor, examples, driven (forced) harmonic oscillator, transient and steady states, power absorption, resonance. ➤ E as an accelerating field, electron gun, case of discharge tube, linear accelerator, E as deflecting field- CRO sensitivity, Transverse B field, 180° deflection, mass spectrograph, curvatures of tracks for energy determination, principle of a cyclotron. Mutually perpendicular E and B fields: velocity selector, its resolution. Parallel E and B fields, positive ray parabolas, discovery of isotopes, elements of mass spectrography, principle of magnetic focusing lens. ➤ Elasticity: Strain and stress, elastic limit, Hooke's law, Modulus of rigidity, Poisson's ratio, Bulk modulus, relation connecting different elastic- constants, twisting couple of a cylinder (solid and hollow), Bending moment, Cantilever, Young modulus by bending of beam. Viscosity: Poiseuille's equation of liquid flow through a narrow tube, equations of continuity. Euler's equation, Bernoulli's theorem, viscous fluids, streamline and turbulent flow. Poiseuille's law, Coefficient of viscosity, Stoke's law, Surface tension and molecular interpretation of surface tension, Surface energy, Angle of contact, wetting.
<p>Electricity, Magnetism And Electromagnetic Theory</p>	<ul style="list-style-type: none"> ➤ Repeated integrals of a function of more than one variable, definition of a double and triple integral. Gradient of a scalar field and its geometrical interpretation, divergence and curl of a vector field, and their geometrical interpretation, line, surface and volume integrals, flux of a vector field. Gauss's divergence theorem, Green's theorem and Stoke's theorem and their physical significance.

	<p>Kirchoff's law, Ideal Constant-voltage and Constant-current Sources. Thevenin theorem, Norton theorem, Superposition theorem, Reciprocity theorem and Maximum Power Transfer theorem.</p> <ul style="list-style-type: none"> ➤ Coulomb's law in vacuum expressed in Vector forms, calculations of E for simple distributions of charges at rest, dipole and quadrupole fields. Work done on a charge in a electrostatic field expressed as a line integral, conservative nature of the electrostatic field. Relation between Electric potential and Electric field, torque on a dipole in a uniform electric field and its energy, flux of the electric field. Gauss's law and its application: E due to (1) an Infinite Line of Charge, (2) a Charged Cylindrical Conductor, (3) an Infinite Sheet of Charge and Two Parallel Charged Sheets, capacitors, electrostatic field energy, force per unit area of the surface of a conductor in an electric field, conducting sphere in a uniform electric field. ➤ Dielectric constant, Polar and Non Polar dielectrics, Dielectrics and Gauss's Law, Dielectric Polarization, Electric Polarization vector P, Electric displacement vector D. Relation between three electric vectors, Dielectric susceptibility and permittivity, Polarizability and mechanism of Polarization, Lorentz local field, Clausius Mossotti equation, Debye equation, Ferroelectric and Paraelectric dielectrics, Steady current, current density J, non-steady currents and continuity equation, rise and decay of current in LR, CR and LCR circuits, decay constants, AC circuits, complex numbers and their applications in solving AC circuit problems, complex impedance and reactance, series and parallel resonance, Q factor, power consumed by an a AC circuit, power factor. ➤ Magnetization Current and magnetization vector M, three magnetic vectors and their relationship, Magnetic permeability and susceptibility, Diamagnetic, paramagnetic and ferromagnetic substances. B.H. Curve, cycle of magnetization and hysteresis, Hysteresis loss Biot-Savart's Law and its applications: B due to (1) a Straight Current Carrying Conductor and (2) Current Loop. Current Loop as a Magnetic Dipole and its Dipole Moment (Analogy with Electric Dipole). Ampere's Circuital law (Integral and Differential Forms). ➤ Electromagnetic induction, Faraday's law, electromotive force, integral and differential forms of Faraday's law Mutual and self inductance, Transformers, energy in a static magnetic field. Maxwell's displacement current, Maxwell's equations, electromagnetic field energy density. The wave equation satisfied by E and B, plane electromagnetic waves in vacuum, Poynting's vector.
B.Sc.II	Physics
<i>(1st Paper Code - 0843)</i>	<ul style="list-style-type: none"> ➤ Unit-I The laws of thermodynamics : The Zeroth law, first law of thermodynamics, internal energy as a state function, reversible and irreversible change, Carrot's cycle, carnot theorem, second law of thermodynamics. Claussius theorem inequality. Entropy, Change of entropy in simple cases (i) Isothermal expansion of an ideal gas (ii) Reversible isochoric process (iii) Free adiabatic expansion of an ideal gas. Concept of entropy, Entropy of the universe. Entropy change in reversible and irreversible processes, Entropy of Ideal gas,

	<p>Entropy as a thermodynamic variable, S-T diagram, Principle of increase of entropy. The thermodynamic scale of temperature, Third law of thermodynamics, Concept of negative temperature.</p> <ul style="list-style-type: none"> ➤ Thermodynamic functions, Internal energy, Enthalpy, Helmholtz function and Gibb's free energy, Maxwell's thermodynamical equations and their applications, TdS equations, Energy and heat capacity equations Application of Maxwell's equation in Joule-Thomson cooling, adiabatic cooling of a system, Van der Waals gas, Clausius-Clapeyron heat equation. Blackbody spectrum, Stefan-Boltzmann law, Wien's displacement law, Rayleigh-Jean's law, Planck's quantum theory of radiation. ➤ Maxwellian distribution of speeds in an ideal gas: Distribution of speeds and velocities, experimental verification, distinction between mean, rms and most probable speed values. Doppler broadening of spectral lines. Transport phenomena in gases: Molecular collisions mean free path and collision cross sections. Estimates of molecular diameter and mean free path. Transport of mass, momentum and energy and interrelationship, dependence on temperature and pressure. Behaviour of Real Gases: Deviations from the Ideal Gas Equation. The Vidal Equation. Andrew's Experiments on CO₂ Gas. Critical Constants. ➤ The statistical basis of thermodynamics: Probability and thermodynamic probability, principle of equal a priori probabilities, statistical postulates. Concept of Gibb's ensemble, accessible and inaccessible states. Concept of phase space, γ phase space and Π phase space. Equilibrium between two systems in thermal contact, probability and entropy, Boltzmann entropy relation. Boltzmann canonical distribution law and its applications, law of equipartition of energy. Transition to quantum statistics: 'h' as a natural constant and its implications, cases of particle in a one-dimensional box and one-dimensional harmonic oscillator. ➤ Indistinguishability of particles and its consequences, Bose-Einstein & Fermi-Dirac conditions, Concept of partition function, Derivation of Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac Statistics, Limits of B-E and F-D statistics to M-B statistics.
<p>(II nd Paper Code - 0844)</p>	<ul style="list-style-type: none"> ➤ Waves in media: Speed of transverse waves on uniform string, speed of longitudinal waves in a fluid, energy density and energy transmission in waves. Waves over liquid surface: gravity waves and ripples. Group velocity and phase velocity and relationship between them. Production and detection of ultrasonic and infrasonic waves and applications. Reflection, refraction and diffraction of sound : Acoustic impedance of a medium, percentage reflection & refraction at a boundary, impedance matching for transducers, diffraction of sound, principle of a sonar system, sound ranging. ➤ Fermat's Principle of extremum path, the aplanatic points of a sphere and other applications. Cardinal points of an optical system, thick lens and lens combinations. Lagrange equation of magnification, telescopic combinations, telephoto lenses. Monochromatic aberrations and their reductions; aspherical mirrors and Schmidt corrector plates, aplanatic points, oil immersion objectives, meniscus lens. Optical instruments: Entrance and exit pupils, need for a multiple lens eyepiece, common types of eyepieces. (Ramsdon

	<p>and Hygen's eyepieces).</p> <ul style="list-style-type: none"> ➤ Interference of light: The principle of superpositions, two slit interference, coherence requirement for the sources, optical path retardations, Conditions for sustained interference, Theory of interference, Thin films. Newton's rings and Michelson interferometer and their applications its application for precision determinations of wavelength, wavelength difference and the width of spectral lines. Multiple beam interference in parallel film and Fabry-Perot interferometer. Rayleigh refractometer, Twyman-Green interferometer and its uses. ➤ Diffraction, Types of Diffraction, Fresnel's diffraction, half-period zones, phasor diagram and integral calculus methods, the intensity distribution, Zone plates, diffraction due to straight edge, Fraunhofer diffraction due to a single slit and double slit, Diffraction at N-Parallel slit, Plane Diffraction grating, Rayleigh criterion, resolving power of grating , Prism, telescope.Polarized light and its mathematical representation, Production of polarized light by reflection, refraction and scattering. Polarization by double refraction and Huygen's theory, Nicol prism, Retardation plates, Production and analysis of circularly and elliptically polarized light. Optical activity and Fresnel's theory, Biquartz polarimeter. ➤ Laser system: Basic properties of Lasers, coherence length and coherence time, spatial coherence of a source, Einstein's A and B coefficients, Spontaneous and induced emissions, conditions for laser action, population inversion, Types of Laser : Ruby and, He-Ne laser and. Applications of laser : Application in communication, Holography and Basics of non linear optics and Generation of Harmonic.
B.Sc.III	Physics
<p><i>Paper - I (Paper Code-0893) Relativity, Quantum Mechanics, Atomic Molecular And Nuclear Physics.</i></p>	<ul style="list-style-type: none"> ➤ Reference systems, inertial frames, Galilean invariance and conservation laws, propogation of light, Michelson-Morley experiment, search for ether. Postulates for the special theory of ralativity, Lorentz tranformations, length contraction,time dilation, velocity additon theorem, variation of mass with velocity, mass-energy equivalence, particle with zero rest mass, Compton effect. ➤ Origin of the quantum theory : Failure of classical physics to explain the phenomena such as black-body spectrum, photoelectric effect. Wave-particle duality and uncertainty principle : de Broglie's hypothesis for matter waves : the concept of wave and group velocities, evidence for diffraction & interference of particles, experimental demonstration of mater waves. Davisson and Germer's experiment. Consequence of deBroglie's concepts, quantisation in hydrogen atom, energies of a particle in a box, wave packets. Consequence of the uncertainty relation : gamma ray microscope, diffraction at a slit. ➤ Quantum Mechanics : Schrodinger's equation. Postulatory basis of quantum mechanics, operators, expectation values, transition probabilities, applications to particle in a oneand three dimensional boxes, harmonic oscillator in one dimension, reflection at a step potential, transmission across a potential barrier. Hydrogen atom : natural occurrence of n, l and m quatum numbers, the related physical quantities.

	<ul style="list-style-type: none"> ➤ Spectra of hydrogen, deuterium and alkali atoms spectral terms, doublet fine structure, screening constants for alkali spectra for s, p, d and f states, selection rules. Discrete set of electronic energies of molecules, quantisation of vibrational and rotational energies, determination of internuclear distance, pure rotational and rotation vibration spectra. Dissociation limit for the ground and other electronic states, transition rules for pure vibration and electronic vibration spectra. Raman effect, Stokes and anti-Stokes lines, complimentary character of Raman and infrared spectra, experimental arrangements for Raman spectroscopy. ➤ Interaction of charged particles and neutrons with matter, working of nuclear detectors, G-M counter, proportional counter and scintillation counter, cloud chambers, spark chamber, emulsions. Structure of nuclei, basic properties (r_1, μ, Q and binding energy), deuteron binding energy, p-p and n-p scattering and general concepts of nuclear forces, Beta decay, range of alpha particle Geiger-Nuttall law. Gamow's explanation of beta decay, alpha decay and continuous and discrete spectra. Nuclear reactions, channels, compound nucleus, direct reaction (concepts). Shell model & liquid drop model, fission and fusion (concepts), energy production in stars by p-p and carbon cycles (concepts).
<p><i>Paper-II (Paper Code-0894) Solid State Physics, Solid State Devices And Electronics</i></p>	<ul style="list-style-type: none"> ➤ Amorphous and crystalline solids, Elements of symmetry, seven crystal systems, Cubic lattices, Crystal planes, Miller indices, Laue's equation for X-ray diffraction, Bragg's Law. Bonding in solids, classification. Cohesive energy of solid. Madelung constant, evaluation of Parameters. Specific heat of solids, classical theory (Dulong-Petit's law). Einstein and Debye theories. Vibrational modes of one dimensional monoatomic lattice, Dispersion relation, Brillouin Zone. ➤ Free electron model of a metal, Solution of one dimensional Schrodinger equation in a constant potential. Density of states. Fermi Energy, Energy bands in a solid (KronigPenny model without mathematical details). Metals, Insulator and Semiconductors. Hall effect. Dia, Para and Ferromagnetism. Langevin's theory of dia and para-magnetism. CurieWeiss's Law. Qualitative description of Ferromagnetism (Magnetic domains), B-H. curve and Hysteresis loss. ➤ Intrinsic semiconductors, carrier concentration in thermal equilibrium, Fermi level, Impurity semiconductor, donor and acceptor levels, Diode equation, junctions, junction breakdown, Depletion width and junction capacitance, abrupt junction, Tunnel diode, Zener diode. Light emitting diode, solar cell, Bipolar transistors, pnp and npn transistors, characteristics of transistors, different configurations, current amplification factor, FET. ➤ Half and full wave rectifier, rectifier efficiency ripple factor, Bridge rectifier, Filters, Inductor filter, T and N filters, Zener diode, regulated power supply. Applications of transistors. Bipolar Transistor as amplifier. Single stage and CE small signal amplifiers, Emitter followers, Transistor as power amplifier, Transistor as oscillator, Wein-Bridge Oscillator and Hartley oscillator. ➤ Introduction to computer organisation, time sharing and multi programming systems, window based word processing packages,

	MS Word. Introduction to C programming and application to simple problems of arranging numbers in ascending / descending orders : sorting a given data in an array, solution of simultaneous equation.
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B.Sc. Mathematics	➤ Department of Mathematics
programmspecific Outcome	<ul style="list-style-type: none"> ➤ PSO-1. Gain the knowledge of Mathematics through theory and graphically approach . ➤ PSO-2. Demonstrate, solve and an understanding of major concepts in all disciplines of mathematics. ➤ PSO-3. Solve the problem and also think methodically, independently and draw a logical conclusion. ➤ PSO-4. Create an awareness of the impact of chemistry on the environment, society, and development outside the scientific community. ➤ PSO-6. To inculcate the scientific temperament in the students and outside the scientific community. ➤ PSO-7. Understand use of mathematics in real life ..
B.Sc. I	➤ Course Outcome (Mathematics)
<i>Algebra And Trigonometry Paper -I</i>	<ul style="list-style-type: none"> ➤ Understanding of Elementary operations on matrices, Inverse of a matrix. ➤ Application of matrices to a system of linear (both homogeneous and nonhomogeneous) equations. ➤ Mappings, Equivalence relations and partitions. Congruence modulo n. Definition of a group with examples and simple properties. ➤ Study of Homomorphism and Isomorphism of groups. ➤ To know the De-Moivre's theorem and its applications.
<i>Calculus Paper -II</i>	<ul style="list-style-type: none"> ➤ To understand the definition of the limit of a function. Basic properties of limits. Continuous functions and classification of discontinuities. ➤ Study of asymptotes. Curvature. Tests for concavity and convexity. ➤ Understanding of Integration of transcendental functions. ➤ Knowledge of degree and order of a differential equation. ➤ To know the Linear differential equations of second order.
<i>Vector Analysis And Geometry Paper -III</i>	<ul style="list-style-type: none"> ➤ To understand the scalar and vector product of three vectors. ➤ Study of Vector integration. ➤ General equation of second degree. ➤ Sphere. Cone. Cylinder. ➤ Central Conicoids. Paraboloids. Plane sections of conicoids.
B.Sc. II	➤ Mathematics
<i>Advanced Calculus (Paper Code – 0848) Paper -I</i>	<ul style="list-style-type: none"> ➤ Study of definition of a sequence. Theorems on limits of sequences. Bounded and monotonic sequences. ➤ Understanding of continuity, Sequential continuity, Properties of continuous functions, Uniform continuity, Chain rule of differentiability, Mean value theorems and their geometrical interpretations. ➤ To know the limit and continuity of functions of two variables, Partial differentiation Change of variables, ➤ Envelopes, Evolutes, Maxima, minima and saddle points of functions, two variables, Lagrange's multiplier method. ➤ Knowledge of beta and Gamma functions, Double and triple integrals, Dirichet's integrals, Change of order of intergration in

	double integrals.
<i>Differential Equations (Paper Code - 0849) Paper -II</i>	<ul style="list-style-type: none"> ➤ Understanding of series solutions of differential equations- Power series method, Bessel and Legendre, Functions and their properties- convergence, recurrence and generating relations, Orthogonality of functions, Sturm-Liouville problem, Orthogonality of eigen-functions.. ➤ To know the Laplace Transformation . ➤ Knowledge of partial differential equations of the first order, ➤ Study of partial differential equations of second and higher orders, ➤ To understand calculus of Variations .
<i>Mechanics (Paper Code - 0850) Paper -III</i>	<ul style="list-style-type: none"> ➤ Study of analytical conditions of Equilibrium, Stable and unstable equilibrium, virtual work, Catenary. ➤ Knowledge of forces in three dimensions, Poincot's central axis, Null lines and planes, Dynamics. ➤ Simple harmonic motion, Elastic strings, velocities and accelerations along radial and transverse directions, Projectile, Central orbits. ➤ Kepler's laws of motion, velocities and acceleration in tangential and normal directions, motion on smooth and rough plane curves. ➤ Motion in a resisting medium, motion of particles of varying mass, motion of a particle in three dimensions, acceleration in terms of different co-ordinate systems.
B.Sc. III	➤ Mathematics
<i>Analysis (Paper Code-0898) Paper - I</i>	<ul style="list-style-type: none"> ➤ Learns various field axioms, the Archimedean property, triangle and Cauchy Schwartz inequality. ➤ Extend the idea to Set theory, Functions, Countable and Uncountable sets. ➤ Relate functions to point set Topology ➤ Investigates the properties of Covering theorems, compactness in metric spaces. ➤ Examine the convergence of any sequences in a metric space
<i>Abstract Algebra (Paper Code-0899) Paper - II</i>	<ul style="list-style-type: none"> ➤ Analyse mapping groups, abelian groups, symmetric groups and their properties ➤ Develop aspects of Subgroups, normal subgroups and quotient groups. ➤ Distinguish the concept of Homeomorphisms and Automorphisms ➤ Gains knowledge in Ring theory . ➤ Exposed to the concepts of Ideals Quotient Rings and Fields.
<i>Programming In C And Numerical Analysis (Theory & Practical) (Paper Code-0903) Paper - III</i>	<ul style="list-style-type: none"> ➤ Programmer's model of a computer. Algorithms. Flow Charts. Data Types. Arithmetic and input/output instructions. Decisions control structures. Decision statements. Logical and Conditional operators. Loop. Case control structures. Functions. Recursions. Preprocessors. Arrays. Puppeting of strings. Structures. Pointers. File formatting. Numerical Analysis. ➤ Solution of Equations : Bisection, Secant, Regula Falsi, Newton's Method, Roots of Polynomials : Interpolation : Lagrange and Hermite Interpolation, Divided Differences, Difference Schemes, Interpolation Formulas using Differences. Numerical Differentiation. Numerical Quadrature : Newton-Cote's Formulas. Gauss Quadrature Formulas, Chebychev's Formulas. ➤ Linear Equations : Direct Methods for Solving. Systems of Linear Equations (Guass Elimination, LU Decomposition, Cholesky Decomposition), Iterative Methods (Jacobi, Gauss Seidel, Relaxation

	<p>Methods). The Algebraic Eigenvalue problem : Jacobi's Method, Givens' Method, Householder's Method, Power Method, QR Method, Lanezos' Method.</p> <ul style="list-style-type: none"> ➤ Ordinary Differential Equations : Euler Method, Single-step Methods, Runge-Kutta's Method, Multi-step Methods, Milne-Simpson Method, Methods Based on Numerical. Integration, Methods Based on Numerical Differentiation, Boundary Value Problems, Eigenvalue Problems. Approximation : Different Types of Approximation, Least Square Polynomial Approximation, Polynomial Approximation using Orthogonal Polynomials, Approximation with Trigonometric Functions, Exponential Functions, Chebychev Polynomials, Rational Functions. ➤ Monte Carlo Methods Random number generation, congruential generators, statistical tests of pseudo-random numbers. Random variate generation, inverse transform method, composition method, acceptance-rejection method, generation of exponential, normal variates, binomial and Poisson variates. Monte Carlo integration, hit or miss Monte Carlo integration, Monte Carlo integration for improper integrals, error analysis for Monte Carlo integration.
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B.A. Group	Program Outcome: Arts
	After completing Bachelor program in Arts, a student will be able to develop:
<i>Programme Outcome</i>	<p>PO1:Critical Thinking: Ability to identify, construct and evaluate arguments, ability to engage in reflective and independent thinking, integrates diverse sources of knowledge in solving problems.</p> <p>PO2:Communication Skills: Develop oral and written skill for effective Communication, active participation in group activities will improve active learning skills and expressive skills and self-confidence.</p> <p>PO3:Social Adoptability Skills: Ability to communicate and share our thoughts & feeling with others, develop social interactions and become socially responsible individual (human being).</p> <p>PO4:Ethical Value: Inculcate ethical, moral and human values, framing the base to deal with various problems in life with courage and humanity.</p> <p>PO5:Environmental Awareness: Border understands of the local, national and global environment issues.</p> <p>PO6: Employability: Preparing students for job prospect in organized sector.</p> <p>PO7: Skill outcomes: Carry out surveying and learn the art of map making and prepare maps for the areas with the help of surveying techniques. Gain knowledge of quantitative methods and their ability to use statistical and cartographical methods to solve geographical problems.</p> <p>PO8: The program empowers the graduates to appear for various competitive examinations or choose the post graduate program of their choice.</p> <p>PO9: The students will be ignited enough to think and act over for the solution of various issues prevailed in the human life to make this world better than ever.</p> <p>PO10: Program provides the base to be the responsible citizen.</p>

Geography	B.A. Group
<i>Programme Specific Outcomes</i>	<ol style="list-style-type: none"> 1. Arts department of this college consists of Geography, Political Science, Hindi & English. Each subject has its own unique identity. 2. Having education makes a human knowledgeable in a true sense. These subjects are like an ocean of knowledge, one just needs to take a dive to have them all. 3. This program provides solutions to social, economical, geographical and political issues. By knowing these subjects one can be more attentive towards them 4. On observing the data since independence majority of students opting to go for administrative services belonged to this field. Hence this program is beneficial to students going forward in this direction. 5. As this program is mostly related to Environmental & Social Sciences, it encourages peoples toward it. 6. As all studies related in this program revolves around humans and their activities, studying them could provide a benefit towards prosperous living. 7. Students studying in the Arts department are more encouraged towards going for research in near future. We have Research facilities for Sociology & Hindi and Our libraries are equipped with research and reference materials as well which would help in its smooth facilitation.
Geography	B. A. 1st year
<i>Course Outcome</i>	➤ Outcomes: After completion of these courses students should be able to
Physical Geography (Paper 1 Code-0117)	<ul style="list-style-type: none"> ➤ Know the origin of the Earth, Geological Time Scale, Earth's Interior, Continental Drift Theory (Wegner), Plate Tectonics, Isostasy. also the Elements of Weather and Climate, Composition and Structure of the Atmosphere & Earth movements. ➤ Demonstrate knowledge of physical condition of atmosphere and oceans and general problems of climatic conditions.
Human Geography (Paper 2 Code-0118)	<ul style="list-style-type: none"> ➤ Know the Definition and Scope of Human Geography. Man - environment relationship, classification of Human Races – their Characteristics and Distribution. ➤ Understand the Growth, Density and Distribution of World Population and factors influencing spatial distribution. ➤ Gain the knowledge of Urban & Rural settlements.
Practical Geography (Paper 3 Code-119)	➤ Understand the Cartography & Statistical method which includes scale, Contour, Graph & Diagram and statistical technique as well as Chain & Tape survey.
Geography	B. A 2nd year
<i>Economic and Resources Geography (Paper 1 Code-0187)</i>	<ul style="list-style-type: none"> ➤ Know the meaning, scope & approaches to Economic Geography, concept & classification of resources. ➤ Understand the agricultural & Industrial regions of the world, world transportation & effect of globalization on the developing countries. ➤ Gain the knowledge about conservation of resources, policy making & substantial development.
<i>Geography Of India</i>	➤ Gain knowledge about physical features (structure, relief, Climate, Physiographic regions, Drainage, Mechanism of monsoon, Regional

(Paper 2 Code-0188)	<p>& seasonal variations & Cultural features (population growth density & distribution and agricultural regions) as well.</p> <ul style="list-style-type: none"> ➤ Know about Industrial localization, detailed study of Kashmir valley, North-East region, The desert Islands of India.
Practical Geography (paper 3)	<ul style="list-style-type: none"> ➤ Know about Distribution maps, Map projections, Interpretation of weather maps by using meteorological instruments & also the statistical methods & surveying which will help the students to acquire skill for everyday living as well as it creates a foundation for careers such as in field research.
Geography	B.A 3rd Year
Resources and Environment (Paper 1 Code-0248)	<ul style="list-style-type: none"> ➤ Understand the meaning, nature classification & components of Resources and Environment, distribution & utilization of water mineral & energy resources, types and distribution of forests & fisheries and soil. ➤ Gain knowledge about their economic, Environmental significance & conservation. ➤ Understand the problems of soil erosion, population pressure & resource utilization, exploitation of natural resources & Environmental hazards, so that students will be able to know the emerging environmental issues and will provide solutions to them as well.
Geography of India (With special referenceto Chhattisgarh) (Paper 2 Code-0249)	<ul style="list-style-type: none"> ➤ Understand the physical features of Chhattisgarh which includes Structure, Physiography, Drainage, Climate, Soils, Natural vegetation, water resources, mineral & power resources as well as cultural features which includes Agriculture, Industries, Population, literacy & sex –ratio, Urbanization, Major tribes, Transport & Tourism.
Practical Geography (Paper 3 Code-	<ul style="list-style-type: none"> ➤ Get knowledge about Map projection, Band graph, Hythergraph&Climograph, so that they will be able to interpret Indian topographical sheets with respect to physical & cultural features. ➤ Understand the process of surveying & basic principle of table surveying which will help the students in field work in Geography also in economic survey of a micro-region.
B.A.Political Science	➤
Programme Outcome	<ul style="list-style-type: none"> ➤ After completing their Graduation with Political Science as a stream, the student will be able to understand main concepts and principals of Political Science. ➤ The student will be able to understand his or her Political environment. ➤ The student will have a better understanding of our Democracy, its strength and weakness, and threats to our political system. ➤ The student will know thoughts of great political thinkers from India and abroad. ➤ The student will be able to understand the political behavior of common men and Political leaders of local and national/ international level.
Programme	<ul style="list-style-type: none"> ➤ The student will be able to understand the past and present political condition of our country. ➤ Will have a better knowledge of other leading constitutions like America, China etc.

Specific Outcomes	<ul style="list-style-type: none"> ➤ The student will have a general understanding of public administration. ➤ The student will know power and responsibilities of our key functionaries as President, Prime Minister, and Parliamentary procedures. ➤ The student will have a basic understanding of our judiciary system. ➤ The student will have a general understanding of State and union Governments
<i>B.A. I Year</i>	<i>Course Outcome</i>
<i>Political Theory</i>	<ul style="list-style-type: none"> ➤ Meaning and Definition of Political Science (with modern concept), Politics as a specific human behavior, Power, Authority, and Influence meaning, features and kinds, Method of study to Political Science: Traditional, Behaviouralism and Post Behaviouralism. ➤ State and its essential elements, Various theories of the origin of the State, Marxist theory, Organismic theory. ➤ Sovereignty and its pluralistic criticism, Rights: meaning, kinds and theories, Duties, liberty meaning, kinds, safeguards, Equality: meaning, kinds and relations with Liberty, Democracy: meaning, comprehensive meaning, challenges, conditions for its success, merits and demerits, Direct Democracy. ➤ Kinds of Governments: Unitary and Federal, Parliamentary and Presidential, Dictatorship, Organs of Government, Executive Legislature and Judiciary, theory of Separation of Powers and Checks and Balances, Constitution: meaning and kinds, Theories of representation and Electoral Process. ➤ Public Welfare State, Party System: Meaning, kinds and technique, Social Change: meaning, Characteristics.
<i>After Successful Completion of the Course, the Student will be able to</i>	
<i>Outcome</i>	<ul style="list-style-type: none"> ➤ Understand the basics of Political Science. ➤ Understand the basics of the State and its Elements. ➤ Understand the types of Government. ➤ Understand the functions of Government.
<i>Indian Government and Politics</i>	<ul style="list-style-type: none"> ➤ Indian National Movement: First Independence Movement 1856, Non Cooperation Movement, Civil Disobedience Movement and Quit India Movement, Constitutional Development of India: Govt. of India Act of 1858, 1919 and 1935. ➤ Constitution of India: Characteristics, Preamble, Sources, Federal System, Fundamental Rights and Duties, Directive Principles of State Policy, Constitution Amendment Process. ➤ Union Executive: President, Vice President, Council of Ministers and Prime Minister, Union Legislature: Parliament: Lok Sabha, Rajya Sabha, Parliamentary Procedure. ➤ Union Judiciary: Supreme Court: Organisation, Jurisdictions, Judicial Review, Judicial Activism, State Executive: Governor, Council of Ministers and Chief Minister. ➤ State Legislature, Legislative Assembly and Legislative Council, Election Commission and Election Reforms, National and Regional Parties, Major issues of Indian Politics, Caste, Religion, Language and Region, Panchayati Raj System.
<i>After Successful completion of the course, Students will know</i>	
<i>Outcome</i>	<ul style="list-style-type: none"> ➤ Details regarding our Unique Freedom Fight. ➤ Our Constitutional Development.

	<ul style="list-style-type: none"> ➤ Our Political System, Judiciary and State Legislative System. ➤ Recent Developments in our Political Scenario.
<i>B.A. II Year</i>	Political Science
<i>Political Thought</i>	<ul style="list-style-type: none"> ➤ Plato: Ideal State: Justice, Education, Communism, Philosopher King. Aristotle: State, Slavery, Citizenship, Revolution. ➤ Machiavelli: Child of his times, Religion and Morality, Duties and Conduct of King, Hobbs: Social Contract Theory; Leviathan, Locke: Social Contract Theory, Rousseau; Social Contract Theory and General Will. ➤ Bentham: Utilitarianism, Mill: Amendment in Utilitarianism, Liberty and Representative Government, Green: Political Thoughts, Marx: Political Thoughts. ➤ Idealism, Individualism, Liberalism, Socialism, Fascism: Features and Criticism. ➤ Manu and Kautilya : Saptang Theory, King and Kingship, v Administrative System, Rajyamandal. Gandhi: Truth, Non violence, Satyagrah, and Political thoughts. Ambedkar: Political and Social Thoughts. Deen Dayal Upadhyay: Akatmamanavvad.
	After Successful completion of the syllabus, Student will be able to
<i>Outcome</i>	<ul style="list-style-type: none"> ➤ Identify and understand Great Political Thinkers- both national and international. ➤ Understand the Political Thought Process ➤ Understand the power of Non violence ➤ Understand the Development of the Political Thought in our Country and Foreign countries.
<i>Comparative Government and Politics</i>	<ul style="list-style-type: none"> ➤ Unit 1- British Constitution: Evolution, Silent Features, Executive, Legislature and Judiciary. ➤ Constitution of United States of America: Silent Features, Executive, Legislature and Judiciary, Theory of Separation of Power and checks and balances. ➤ Constitution of Switzerland: Silent Features, Executive, Legislature and Judiciary, Direct Democracy. ➤ Constitution of China: Silent Features, Executive, Legislature and Judiciary, Communist Party. ➤ Comparative Politics: meaning, Definition, System Theory of David Easton, Structural- functional Approach of Almond, Concept of Political Development, Political Socialisation, Political Culture
	After successfully completing the syllabus, the student will be able to
<i>Outcome</i>	<ul style="list-style-type: none"> ➤ Understand the main features of all the Leading Constitution of the World. ➤ Identify the Merits and Demerits of Our and Others Constitutions. ➤ Have a basic idea of Comparative Politics.
<i>B .A. III Year</i>	Political Science
<i>International Politics</i>	<ul style="list-style-type: none"> ➤ International Politics: Meaning, Nature and Scope. Approaches to the Study of International Politics. ➤ Diverse Theories of International Politics. Morgenthau's Theory of Political Realism. Elements of National Power. International Politics: Struggle for Power, Retaining Power, Increasing Power and Demonstrating Power ➤ The Concept of Balance of Power. The Concept of Collective Security. ➤ Diplomacy: Definitions, Kinds and Functions. Disarmament:

	<p>Meaning, Definitions and Development.</p> <ul style="list-style-type: none"> ➤ Environmentalism, Globalisation, Human Rights.
<p>Students, who completed their bachelor's degree with Political Science will be able to</p>	
<i>Outcome</i>	<ul style="list-style-type: none"> ➤ Understand the issues of International Politics. ➤ Have a better idea of Current World Situation. ➤ Have a better idea of issues who will affect the World in Present Scenario and in Longer Run.
<i>Public Administration</i>	<ul style="list-style-type: none"> ➤ Public Administration: Meaning and Scope. Significance of the Study of Public Administration. Nature of Public Administration Art or Science. Evolution of the Study of Public Administration as a Discipline. Public Administration and Private Administration. ➤ Methods and Approaches of Public Administration, New Public Administration. ➤ Politics and Administration, Leadership, Decision Making in Administration, Communication, Accountability. ➤ Concept of Bureaucracy, Concept of Budget, Budgetary Process. Public Administration in the Age of Globalisation and Liberalisation. ➤ Control over Administration – Legislative and Judicial.
<p>Students, who completed their bachelor's degree in Political Science with Public Administration will be able to</p>	
<i>Outcome</i>	<ul style="list-style-type: none"> ➤ Understand the Main Features of Public Administration. ➤ See the Differences between Public and Private Administration. ➤ Have a Workable Knowledge of Budget. ➤ Basic knowledge of Bureaucracy.
<ul style="list-style-type: none"> ➤ 	
<i>B.A.Sociology</i>	<ul style="list-style-type: none"> ➤ Department of Sociology
<i>Programme Outcome</i>	<ul style="list-style-type: none"> ➤ Understand basic concepts and theoretical perspectives in sociology and how they are used in sociological explanation of social behaviour ➤ Understand how to collect, analyze and interpret empirical evidence in sociological research. ➤ Gain Familiarity with and develop an understanding of core substantive areas of sociological inquiry . ➤ Express sociological ideas clearly and coherently both in writing and oral presentations.
<i>Course Outcome</i>	<ul style="list-style-type: none"> ➤ Major areas that will be covered under UG(Sociology) program :-
<i>B.A.I</i>	<ul style="list-style-type: none"> ➤ Introduction to sociology ➤ Contemporary Indian Society
<i>B.A.II</i>	<ul style="list-style-type: none"> ➤ Sociology of tribal society ➤ Crime and Society
<i>B.A.III</i>	<ul style="list-style-type: none"> ➤ Sociology of tribal society ➤ Methods of Social research
<i>B.A.I</i>	<ul style="list-style-type: none"> ➤
<i>Introduction to sociology Paper I</i>	<ul style="list-style-type: none"> ➤ Students will gain insight into the emergence of sociology as an independence subject of ensuing as well as the basic concepts of sociology , social institutions ,social process, and social system They also get to know the social mobility and social change .
<i>Contemporary Indian Society</i>	<ul style="list-style-type: none"> ➤ In this paper students will dive deep into the core of indian society .They will understand about the ancient concepts like varna ashram ,

Paper 2	system theory of karma etc. They will also learn about the cultural diversity prevalent in Indian, social institution related with different regions and tribes Basic , institution of Indian society, Family problems and social problems.
B.A.II	➤
<i>Sociology of tribal society</i> Paper 1	➤ One of the important component of Indian society is the tribalsociety students get to know about the concept, classification , culture ,belief ,religion ,customs institutions as well as social problems ,changes and mobility prevalent among the aboriginals and the schemes of tribal development .They would also learn about some important tribal communication of Chhattisgarh.
<i>Crime and Society</i> Paper 2	➤ This paper will develop and understanding of the concept of crime ,law and criminal justice system .Student will be able to understand crime rates ,pattern and types of crime and punishment . They know about social disorganization and the correctional process too.
B.A.III	➤
<i>Sociology of tribal society</i> Paper 1	➤ One of the important component of Indian society is the tribal society students get to know about the concept, classification , culture ,belief ,religion ,customs institutions as well as social problems ,changes and mobility prevalent among the aboriginals and the schemes of tribal development .They would also learn about some important tribal communication of Chhattisgarh.
<i>Methods of Social research</i> Paper 2	➤ Students will understand the meaning , scope and importance of social research scientific method and its logic they will gain knowledge about the types of research techniques of data collection ,meaning and significance of statistics and meaning of centre tendency .
	➤
B.A. Economics	➤ Economics
	➤ After graduation the student will be able to learn
<i>Programmes Specific Outcome</i>	<ul style="list-style-type: none"> ➤ The behavioural patterns of different economic agents, advance theoretical issues and their applications. ➤ Understand the basic concept of microeconomics. ➤ Acquaint with some basic statistical methods to be applied in economics. ➤ Acquaint with some basic mathematical methods to be applied in economics. ➤ Acquaint with some basic theoretical concept of public finance. PSO 7: Acquaint with the measurement of development with the help of theories along with the conceptual issues of poverty and inequalities with Indian perspectives. ➤ Delineate the fiscal policies designed for developed and developing economics. ➤ Facilitate the historical developments in the economic thoughts propounded by different schools. ➤ Learn the basic concept of monetary analysis and financial marketing in Indian financial markets. ➤ Learn the development issues of Indian economy. ➤ Acquaint with some basic concept of environmental economics along with the solution of the environmental problems. ➤ Learn the real and monetary sides of International economics..

B.A.I	➤ Ecomincs
<p><i>Course Outcome</i></p> <p><i>Micro Economics,</i> <i>(Code: 0111)</i> <i>Paper-I</i></p>	<ul style="list-style-type: none"> ➤ Introduction - Definitions Nature and scope of Economics, Methodology in Economics, Utility - Cardinal and Ordinal approaches, Indifference curve, Consumer's equilibrium, Giffin goods, Demand - Law of Demand, Elasticity of demand Consumer's surplus ➤ Theory of production and cost, Production decision, Production function, Iso-quant, Factor substitution, Law of variable proportions, Returns to scale, Economies of scale, Different concepts of cost and their interrelation, Equilibrium of the firm. ➤ Market structure-perfect and imperfect markets, Equilibrium of a firm-Perfect competition, Monopoly and price discrimination, Monopolistic competition, Duopoly, Oligopoly, controlled and administered prices ➤ Factor pricing-Marginal productivity theory of distribution, Euler's theorem, Theories of wage determination, wages and collective bargaining, wage differentials, Rent - Scarcity Rent, differential rent, Quasi rent, Modern Rent Theory, Interest Classical and Keynesian Theories, Modern Theory, Profits - Innovation, Risk bearing and uncertainty theories ➤ Welfare economics: , What welfare economics is about ?, Role of value judgments in welfare economics, Pigou's contribution in the field of welfare economics, Concept and condition of Pareto optimality, New welfare economics: Kaldor-Hicks welfare criterion, Scitovsky paradox, Social welfare function and social choice: Bergson-Samuelson social welfare function, Prof. Amartya Sen's critique, Arrow impossibility theorem
<p><i>Indian Economy</i> <i>(Code: 0112)</i> <i>Paper-II</i></p>	<ul style="list-style-type: none"> ➤ Pre and post independent Indian economy: A short introduction of economic policies of British India, State of economy at the time of independence, Planning exercise in India-Planning in India through different five Year Plans, The planning commission and NITI Aayog, Growth and development in prereform period, New Economic Reforms: Liberalization, Privatization and Globalization, Growth, development and structural change in post-reform period. ➤ Population and human development: Demographic trends and issues of education, health, malnutrition and migration. Growth and distribution: Trends and policies in poverty, inequality, unemployment and occupational distribution, International comparison in human development and poverty reduction ➤ Agriculture: Nature and importance, Trends in agriculture production and productivity, factors determining productivity, Land reforms, new agriculture strategies and green revolution, rural credit, Agricultural marketing, natural resources and infra-structure development: Performance, problems and policies, MUDRA yojana. ➤ Industry: Growth and productivity, Industrial policy and reforms, Growth and problems of small and cottage scale industries, Role of public sector enterprises in India's industrialization. Trends and performance in services. ➤ External Sector - Role of foreign trade, Trends in exports and imports, Composition and direction of India's foreign trade, Export promotion measures and the new trade policies, Recent macroeconomic scenario: National Income, investment, saving and

	inflation, Current macroeconomic policies and their impact, fiscal policies and monetary policy.
B.A.II	➤ Ecominics
<i>Macro Economics, (Code: 0181) Paper-I</i>	<ul style="list-style-type: none"> ➤ National income: Concept and measurement of national income, Economic welfare and national income, Social accounting. Circular flow of income, National income accounting, Green accounting Classical theory of employment, Say's law of market Keynesian theory of employment. ➤ Consumption Function - Average and marginal propensity to consume, Keynes's psychological law of consumption. Determinants of the consumption function. The saving function. The investments multiplier and its effectiveness, The investment Function - marginal efficiency of capital, Autonomous and induced investment. Saving and investment equality. ➤ Nature and Characteristics of trade cycle, Theories of trade cycle: Hawtrey's monetary theory, Hayek's over investment theory, Keynes's view on trade cycles, Schumpeter's theory of innovation, Samuelson and Hicks multiplier accelerator model, Control of trade cycle. ➤ International Trade - Inter-regional and international trade, Comparative advantage cost theory, Opportunity cost theory and Heckscher Ohlin theory, International trade and economic development, Tariffs & import quotas, Concept of optimum tariff. Balance of trade & balance of payment., Concept & components of BOP, Equilibrium & disequilibrium in BOP, Relative merits & demerits of devaluation, Foreign trade multiplier. ➤ Functions and objectives of international monetary fund, World Bank and World Trade Organization, International monetary reforms and india, Foreign trade in India recent change in the composition and direction of foreign trade, India's balance of payment, Export promotionand import substitution in india. Multinational Corporation and india.
<i>Money, Banking and Public Finance (Code: 0182) Paper-II</i>	<ul style="list-style-type: none"> ➤ Basic concepts : Money - meaning and functions, Gresham's law; Quantity theory of moneyCash transaction and cash balance approaches; Value of Money, Inflation, deflation and reflation, types, causes and effects on different sectors of the economy; Demand pull and cost push inflation; Measures to control inflation. Phillips curve, Concept of demonetization. ➤ Commercial banking- meaning and types; Functions of commercial banks, The process of credit creation, purpose and limitations; Liabilities and assets of banks; Evolution of commercial banking in India after independence; A critical appraisal of the progress of commercial banking after Nationalization, Functions of a central bank; Quantitative and qualitative methods of credit control; Bank rate policy; Open market operations; Variable reserve ratio and selective methods. Role and functions of the Reserve bank of India; Objectives and limitations of monetary policy with special reference to India. ➤ Meaning and scope of public finance; Distinction between private and public finance; public goods v/s private goods; The Principle of maximum social advantage; Role of the government in economic activities ; Public expenditure - Meaning, classification and

	<p>principles of public expenditure; Trends in public expenditure and causes of growth of public expenditure in India.</p> <ul style="list-style-type: none"> ➤ Sources of Public revenue; taxation - Meaning, Canons and classification of taxes; Division of tax burden. The benefit and ability to pay approaches; Impact and incidence of taxes; Taxable capacity; Effects of taxation; Characteristics of a good tax system; Equity and Justice in Taxation, Major trends in tax revenue of the Central and State Government in India. ➤ Public debt and financial administration: Sources of public borrowing, Effects of public debt. Methods of debt redemption. The public budget- Kinds of budget, Economic and functional classification of the budget; Preparation and passing of budget in India.
<i>B.A.III</i>	<ul style="list-style-type: none"> ➤ Ecomincs
<p><i>Development And Envirnmental Economics (Paper Code-0242) Paper - I</i></p>	<ul style="list-style-type: none"> ➤ Economic Growth and Development - Factors affecting economic growth, Capital and Technology Development & under development, Population of Under-developed Countries, Poverty - Absolut & Relative, Measuring development and Undevelopment, gap per capita income, inequity of income and wealth. Human Delopment index GDI, GEM, Poverty Index of development & Quality of life. ➤ Population problem and growth, pattern of population. Theory of demographic trasion. Population poverty & Environment. Theory of Social Change Immutable laws of Capital Development - Crisis in capitalism. Karl Marx - Theory of Development, Mahalonobis four sectoral Model. Schumpeter's development in Capitalistic economy, Big-Push Balance and unbalanced Growth, Critical Minimum Effort thesis, Low Income Equilibrium Trap-Dualism : Technical, Behavioural & Social. ➤ Harrod and Domar Growth Model, Neo Classical models, So low, Meade & Mrs. Joan Robinson's Growth model, Unlimited supply of Labour. ➤ Environment and Ecology : Economic linkage, Environment as a necessary and luxury, Population environment linkage, Environmental use & environmental disruption as an allocation problem. Market failure for environmental goods, environment as a public good, the Common problem. Property Human right approach to environmental problem, valuation of environmental damages-land, water, air & forest Pollution Control Prevention. Control and asbtment of pollution Choice of policy instruments in developing Countries, Environmental legislation Indicators of Sustainable Development, environmental accounting. ➤ Concept of Intellectual Capital - Food Security, Education Helath&Nutrition, Efficiency & Productivity in Agriculture New Technology & Sustainable Agriculture, Globalization & Agriculture growth, the Choice of Technique & appropriate technology & employment. Role of Monetary& Fiscal policies in developing Countries.
	<ul style="list-style-type: none"> ➤ Statistical Methods Statistes - Definition Statistical Data, Statistical Methods, ➤ Functions of Statistics. Importance of Statistics, Limitations of Statistics. Statistical Survey & Report writing. Collection of Data,

<p><i>Statistical Methods</i> (Paper Code-0243) <i>Paper - II</i></p>	<p>Primary & Secondary Data, Sampling & Sampling Designs. Sampling Errors, Frequency Distribution, Diagrammatic & Graphic Presentation.</p> <ul style="list-style-type: none"> ➤ Central Tendency. Measurement of Mean, Median, Mode, Geometric Mean & Harmonic Mean and their uses. ➤ Dispersion : Meaning of Dispersion, Properties good measure of Variation - Methods B.A.-Part-III (22) of Dispersion Range, Quartiles Deviation - Mean Deviation, Standard Deviation, Coefficient of Variation, Lorenz Curve, Skewness & Kurtosis. ➤ Coefficient of Correlation - Karl Pearson's Method, Probable Error, Spearman's Rank Correlation Coefficient. ➤ Index Number - Construction of Index Numbers Simple & weighted index Number's Fisher's ideal index Number & Reversal Test. Consumer Price Index Numbers and Time Series Analysis - components of Time-Series. Measurement of Trend - Graphic Method, Semi Average Method. Moving averages, Least Square Method, Measuring Trend by logarithms
<p><i>B.A. /B. Sc./B. Com- I</i></p>	<p>➤ ENGLISH LANGUAGE</p>
<p><i>Course Outcome</i></p>	<p>➤ On studying this paper, the student will be able to:</p> <ul style="list-style-type: none"> ➤ Development of comprehensive ability. ➤ Improvement of vocabulary. ➤ Effective communication skills. ➤ Inculcation of moral and human values. ➤ Acquire knowledge of Indian culture and tradition. ➤ Write effectively and coherently
<p><i>English Language</i> (Paper Code-0230)</p>	<ul style="list-style-type: none"> ➤ Basic Language skills: Grammar and Usage. Grammar and vocabulary based on the prescribed text. To be assessed by objective/multiple choice tests. Grammar ➤ Comprehension of an unseen passage. This should simply not only (a) an understanding of the passage in Question, but also (b) a grasp of general language skills and issues With reference to words and usage within the passage and (c) the Power of short independent composition based on themes and issues Raised in the passage. To be assessed by both objective multiple choice and short answer type tests. ➤ Composition: Paragraph writing ➤ Letter writing (The formal and Informal) letters to be attempted of each. One formal and one Informal. ➤ Short prose pieces (Fiction and not fiction) short poems, the pieces should cover a range of authors, subjects and contexts. With poetry if may sometimes be advisable to include pieces from earlier periods, which are often simpler than modern examples. In all cases, the language should be accessible (with a minimum of explanation and reference to standard dictionaries) to the general body of students schooled in the medium of an Indian language. Students should be able to grasp the contents of each piece; explain specific words, phrases and allusions; and comment on general points of narrative or argument. Formal Principles of Literary criticism should not be taken up at this stage. To be assessed by five short answers of three marks each
<p><i>B.A. /B. Sc./B. Com- II</i></p>	<p>➤ ENGLISH LANGUAGE</p>

<i>Course Outcome</i>	➤ On studying this paper, the student will be able to:
	<ul style="list-style-type: none"> ➤ Ability to discuss and respond to the content of the passage. ➤ Knowledge of development of science and information technology. ➤ Develop the writing skills through exercises in grammar and composition.
<i>English Language (Paper Code-0231)</i>	<ul style="list-style-type: none"> ➤ Short answer questions to be passed by (Five short answer questions of three marks each) ➤ (a) Reading comprehension of an unseen passage (b) Vocabulary ➤ Report-Writing ➤ Expansion of an idea ➤ Grammar and Vocabulary based on the prescribed text book.
B.A. /B. Sc./B. Com-III	➤ ENGLISH LANGUAGE
<i>Course Outcome</i>	<ul style="list-style-type: none"> ➤ Familiarity with values of Indian life and social system. ➤ Development of India in the Modern context. ➤ Development of linguistic competence and communication skills. ➤ Writing skills through essay writing and comprehension.
<i>English Language (Paper Code-0232)</i>	<ul style="list-style-type: none"> ➤ Essay type answer in about 200 words. 5 essay type question to be asked three to be attempted. ➤ Essay writing ➤ Precis writing ➤ Reading comprehension of an unseen passage 05 (b) Vocabulary based on text ➤ Grammar Advanced Exercises ➤ Question on unit I and IV (b) shall be asked from the prescribed text. Which will comprise of popular create writing and the following items. Minimum needs housing and transport Geo-economic profile of M.P. communication Educate and culture. Women and Worm in Empowerment Development, management of change, physical quality of life. War and human survival, the question of human social value survival, the question of human social value, new Economic Philosophy Recent Diberlialiation Method Demorationdocontralisation with reference to constitutional Amendment.
	➤
English Literature	
<i>Programmes Specific Outcome</i>	
<i>B.A. I</i>	➤ <i>Literature In English - 1550-1750 (Paper Code-0105)</i>
	➤ <i>Literature In English – 1750 -1900 (Paper Code-0106)</i>
<i>B.A. II</i>	➤ <i>Modern Literature In English(Paper Code-0175)</i>
	➤ <i>Modern Literature In English (Paper Code-0176)</i>
<i>B.A. III</i>	➤ <i>Indian Writing Inenglish(Paper Code-0235)</i>
	➤ <i>American English(Paper Code-0236)</i>
<i>Course Outcome</i>	<ul style="list-style-type: none"> ➤ Develop an interest in literature. ➤ Acquire knowledge about history of English literature. ➤ Understand the different genre of literature. ➤ Develop linguistic competence and analytical skills. ➤ Acquire Knowledge of the different historical literary periods and their characteristics. ➤ Develop a sustained interest in language and literature.

	<ul style="list-style-type: none"> ➤ Interpret the literary work prescribed. ➤ Development of writing and analytical skills.
<p style="text-align: center;"><i>Literature In English - 1550-1750 (Paper Code-0105)</i></p>	<ul style="list-style-type: none"> ➤ ANNOTATIONS. ➤ POETRY (a) Shakespeare - Sonnet No. 1 From Fairest Creatures, Sonnet No. 154. The little Love God. ➤ Milton - How Soon Hath Time the Subtle Theif of Youth ➤ John Donne - Sweetest Love I Don't go, This is my play's Last Scene. ➤ POETRY (a) John Dryden - Portrait of Shadwell. (b) Alexander - Pope- From AnEssy on Criticism (True case in writing) and the world's Victor Stood subdned by sound. ➤ PROSE (a) Bacon Of Studies, Of Health, Of Friendship (b) Addison-Sir Roger at Home (c) Steele Of the Club. ➤ DRAMA Shake spear - The Merchant of Venice ➤ Fiction - Swift - The Battle of the Books. ➤ Historical and Literary Topics (i) The Renaissance. (ii) Humanism. (iii) Reformation. (iv) The Restoration. (v) The Earlier Drama (vi) Petrachism and the Sonnet Cycle. (vii) The Influence of Seneca and Classical Dramatic Theory (viii) The Elizabethan and Jacobean stage. (ix) Restoration Drama (x) The Rise of Periodcal Essay
<p style="text-align: center;"><i>Literature In English 1750-1900 (Paper Code-0106)</i></p>	<ul style="list-style-type: none"> ➤ ANNOTATIONS ➤ POETRY - (a) Blake - Tiger, Tiger Burning Bright. (b) Wordsworth - Daffodils and Solitary Reaper. (c) Coleridge - Frost at Midnight. ➤ POETRY- (a) Shelley - Ode to a skylark. (b) Keats - Ode to Autumn. (c) Tennyson - Crossing the Bar. (d) Browing - Prospice. ➤ PROSE (a) Lamb - Dream Children : A Reverie (b) Hazlit - On Actors and Acting ➤ Fiction Jane Austen - Pride and prejudice. ➤ Fiction Charles Dickens - David Copperfield ➤ Historical and Literary Topics. (1) The Reform Acts. (2) The Impact of Industrial ization. (3) Colonialism And Imperialism. (4) Scientific the ughts and discoveries. (5) Faith and Doubt. (6) Classical and Romantic Concepts of Imagination. (7) Varieties of Romantic and Victorian Poetry. (8) The Victorian Novel. (9) Realism and the Novel. (10) Aestlheticism.
B.A.II	➤ English Literature
<p style="text-align: center;"><i>Modern English Literatures (Paper Code-0175)</i></p>	<ul style="list-style-type: none"> ➤ Annotations ➤ (Poetry) W.B. Yeats - 'A Prayer for My Daughter, The Second Coming T.S. Eliot - 'Love Song of J. Alfred Prufrock' ➤ (Poetry) Dylan Thomas - 'Lament, 'A Refusal to Mourn the Death Larkin - 'Toads', At Grass' ➤ (Prose) Bertrand Russell - On the Value of Scepticism Oscar Wilde - Happy Prince ➤ (Drama) G.B. Shaw - Pygmalion ➤ (Fiction and short-stories) Rudyard Kipling-Kim Short-Stories Katherine mansfield - A Cup of Tea ➤ Elegy, 2. Sonnet, 3. Ode, 4. Morality & Miracle Play, 5. One Act Play, 6. Interlude
<p style="text-align: center;"><i>Modern English Literatures (Paper Code-0176)</i></p>	<ul style="list-style-type: none"> ➤ Annotation ➤ (Poetry) Sasson - At the Grove of Henry Vaughan. Owen, W.H. – Strange Meeting

	<ul style="list-style-type: none"> ➤ (Poetry) Auden - Seascape Ted Hughes - The Howling of Wolves ➤ (Prose) Robert Lynd - Forgetting H. Belloc - A conversation with A Reader ➤ (Drama) John Galsworthy - Strife , J.M. Synge - Riders of the Sea , William Golding - Lord of the Flies (Fiction) ➤ 1. Simile 2. Metaphor 3. Alliteration 4. Onomaetopoea 5. Ballad 6. Epic 7. Dramatic Monologuc.
B.A.III	➤ English Literature
<i>Indian Writing In English (Paper Code-0235)</i>	<ul style="list-style-type: none"> ➤ Annotations and short answer questions. ➤ Poetry - Toru Dutt - 'Our Casurina Tree' Tagore - Songs 1 & 103 from 'Gitanjali' Sarojini Naidu - 'The Ecstasy', 'The Lotus' ➤ Kamla Das - 'The old playhouse' Gauri Deshpandey Or ' The female of the species Jayant Mahapatra - 'Dawn at Puri' K.N. Daruwala Or 'Death by Burial' Shiv K. Kumar - 'Indian Women' ➤ Prose - NiradC.Choudhary - My Birth Place. Dr. S. Radhakrishnan - The call of the suffering. ➤ Drama - Girish Karnad - Hayavadana Or Tendulkar - Silence The Court is in session. ➤ Fiction - R.K. Narayan - Guide ➤ Lyric, 2. Subjective poetry, 3. Couplet, 4. Fable, 5. Hymn, 6. Allegory, 7. Autobiography
<i>American Literature (Paper Code-0236)</i>	<ul style="list-style-type: none"> ➤ Annotations and short answer question. ➤ Poetry - Wait whitman - O Captain My Captain, when the Lilacs Last in the Dooryard Bloomed. Carl Sandberg - 'Who Am I ? I am the People, The Mob' ➤ Emily Dickinson - 'Hope is the thing with Feather' I Felt a funeral in My Brain' E.E. Cummings - 'The Cambridge Ladies' 'As Freedom is a Breakfast food' ➤ Prose - William Faulkner - Nobel Award Acceptence Speech W. Carlos Williams - In the American Grain Walt Whitman - Preface to "Leaves of Grass' ➤ Drama - Miller - All My Sons Or Eugene O'Neill - The Hairy Ape ➤ Fiction - E. Hemingway - A Farewell to Arms Or W. Faulkner - The Sound and the Fury ➤ 1. Naturalism, 2. Realism, 3. Art ➤ for Art's sake, 4. Poetic-Drama, 5. Symbolism, 6. American Renaissance, 7. Existentialism.
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B.A. I Hindi Literature	➤ Major areas that will be covered under UG program :-
<i>Programme Specific Outcome</i>	<ul style="list-style-type: none"> ➤ हिन्दी साहित्य के विविध विधाओं से परिचित कराना ➤ साहित्यिक अभिरूचि उत्पन्न कराना ➤ मानवीय मूल्यों का विकास ➤ सामाजिक समरसता,सौहार्द्र एवं लोकमंगल की भावना का विकास करना ➤ साहित्य लेखन की ओर उन्मुख करना ➤ साहित्य इतिहास के माध्यम से समाज का अनु गीलन
<i>Course Outcome</i>	<ul style="list-style-type: none"> ➤ अन्य छात्रों के बिना किसी व्यवधान के अपना सीखने का दौर जारी रखने में सक्षम बनाता है।इस भाशा के माध्यम से वे आध्यात्मिक , सामाजिक भेदभाव और व्याकरण की तकनीकसीख सकते है । ➤ उन्हें अपने भाशा कौ ल को बढ़ाने में सक्षम बनाता है। ➤ उन्हें रचनात्मक लेखन को विकसित करने में सक्षम बनाता है।
<i>Hindi Literature</i>	<ul style="list-style-type: none"> ➤ हिन्दी कथा का विकास-एक संवाद

Paper-1	➤ आका दीप , कफन, पर्दा, ठेस , मलवे का मालिक , चीफ की दावत , बिरादारी बाहर, गदल
	➤ उपेन्द्रनाथ अ क, बाल गौरि रेड्डी, िवानी
	➤ कबीरदास ,मालिक मुहम्मद जायसी, सूरदास , तुलसीदास
	➤ घनानंद , द्रुतपाठ के कवि, विद्यापति, रसखान
Hindi Literature Paper-2	➤ निबंध —सत्य और अहिंसा—महात्मागांधी, ग्राम सेवा—विनोदा भावे, युवको का समाज में स्थान—आचार्य नरेन्द्रदेव , मातृभूमि—डॉ. वासुदेव ारण अग्रवाल , हिमालय की उत्पत्ति—डॉ. भगवत ारण उपाध्याय ,
	➤ हिन्दी भाशा और उसके विविध रूप—कार्यालयीन भाशा, मीडिय भाशा , वित एवं वाणिज्य की भाशा , म िनी भाशा
	➤ अनुवाद व्यवहार—अंग्रेजी से हिन्दी अनुवाद—हिन्दी की व्यवहारिक कोटियां , संज्ञा, सर्वनाम, वि ेशण, क्रियावि ेशण , समास , संधि,एवं संक्षिप्तियां
	➤
B.A. II Hindi Literature	➤ Major areas that will be covered under UG program :-
Course Outcome	➤ मैथिली ारण गुप्त—काव्य िक्षा , भुभकामना
	➤ सूर्यकांत निराला 'त्रिपाठी' —सखि , बसंत आया , वर दे वीणावादनी वर दे,हिन्दी के सुमन के प्रतिपत्र, तोडती पत्थर , राजे ने अपनी रखवाली की
	➤ सुमित्रानंदन पंत—बादल, परिवर्तन ,ताज, झंझा मेंनीम, भारतमाता
	➤ माखनलाल चतुर्वेदी— निः ास्त्र सेनानी (एक विरलप्र नोत्तर सृष्टि), बालपंथी से, उलाहना, सांझऔरढोलक की थापे, मै बेच रही हूँ दही
	➤ सच्चिदानंद हीरानंद वात्स्यायन हरिऔध —प्रिय प्रवास,
	➤ सुभ्रदा कुमारी चौहान—मेरा नया बचपन ,जालिया वाला बाग में बंसत, मेरा जीवन
	➤ श्रीकांत वर्मा—दो चिडियों का गान,हस्तक्षेप, कलिंग मगध
	➤ हिन्दी नाट्य साहित्य —अंधेरनगरी के विशय में, भारतेन्दुहरि ाचंद्र: परिचय,अंधेरनगरी—भारतेन्दुहरि ाचंद्र
	➤ हिन्दी एकांकीसाहित्य —डॉ. रामकुमारवर्मा :परिचय , औरंगजेब की आखिरीरात—डॉ. रामकुमारवर्मा , भुने वर : परिचय , स्ट्रुइकभुने वर ,लक्ष्मीनारायण मिश्रा : परिचय , एक दिन : लक्ष्मीनारायण मिश्राडॉ. लक्ष्मीनारायण लाल : परिचय डॉ. लक्ष्मीनारायण लाल : मम्मी टुराईन
	➤ हिन्दीनिबंध साहित्य —आचार्यरामचन्द्र भुक्ल: परिचय क्रोध : आचार्यरामचन्द्र भुक्ल ,डॉ. हजारीप्रसाद द्विवेदी : परिचय ,बंसतआगयाहै : डॉ. हजारीप्रसाद द्विवेदी ,बाबूगुलाबराय : परिचय,काव्येशुनाटकरम्यम् : गुलाबराय डॉ. विद्यानिवासमिश्र :परिचय ,उसअमराईमेंरामकहांहै : डॉ. विद्यानिवासमिश्र हरि ांकरपरसाई : परिचय ,बेईमानी की परत : हरि ांकरपरसाई
➤ द्रुतपठन —राहुलसाकुत्यायन, महादेवीवर्मा, हबीबतनवीर	
Programme Outcome	➤
B.A. III Hindi Literature	➤ Major areas that will be covered under UG program
Course Outcome	➤ भूमिका —छत्तीसगढी साहित्य की विकास यात्रा , छत्तीसगढी भाशा : एक परिचय
	➤ संत धर्मदास— संत धर्मदास के पद , लखनलाल गुप्त—सोनपान , सत्यभामा आडिल—सीख सीख के गोठ , विनय कुमार पाठक—तैं उठथस सूरुज उथे , एक किसिम के नियाव , मुकुन्दकौ ाल—छत्तीसगढी गजल
	➤ द्रुतपाठ —सुन्दरलाल भार्मा ,रामचन्द्रदे ामुख , कपिलनाथ क यप
	➤ हिन्दी भाशा का उदय और विकास—हिन्दी का उत्पत्ति, हिन्दी, हिन्दी की मूल आकार भाशाएं तथा विभिन्न के विभिन्न विभाशाओं का विकास , हिन्दी भाशा के विभिन्न रूप—बोलचाल की भाशा , रचनात्मक भाशा, राष्ट्र भाशा , राजभाशा ,सम्पर्क भाशा, संचार भाशा , हिन्दी का भाब्दभंडार—तत्सम , तद्भव , दे ाज, आगत भाब्दावली
	➤ हिन्दी साहित्य का इतिहास —आदिकाल, पूर्व मध्यकाल, उत्तर मध्यकाल, आधुनिककाल
	➤ काव्यांग —काव्य का स्वरूप और प्रयोजन , रस के अंग ,रसकेभेद , प्रमुख छंद —दोहा , सोरठा ,चौपाईकुण्डलियां , सवैया
	➤ भाब्दालंकार—अनुप्रास , यमक , भलेश ,वक्रोत्ति, पुनरुक्तिप्रका ा अर्थालंकार—उपमा , रूपक , उत्प्रेक्षा, अति योक्ति, भ्रांतिमान

<p>B.A./B.Sc./ B.Com I Hindi language</p>	<p>➤ Major areas that will be covered under UG program :-</p>
<p><i>Programme Specific Outcome</i></p>	<ul style="list-style-type: none"> ➤ सम्प्रेषण का विकास ➤ हिन्दी के विविध रूपों का अनुप्रयोगात्मक ज्ञान कराना ➤ भाब्दज्ञान में वृद्धि कराना ➤ भाशा साहित्य, संस्कृति से जोड़ना ➤ सामान्य बोध में वृद्धि करना ➤ सामाजिक परिवेा परंपरा के प्रति जागरूकता उत्पन्न करना ➤ तर्कों को पहचानने, निर्णय और मूल्यांकन करने की क्षमता, चिंतन की स्वतंत्र सोच में संलग्न होने की क्षमता समस्याओं को हल करने में ज्ञान के विविध स्रोतों को एकीकृत करती हैं ➤ प्रभावी संचार के लिए मौखिक और लिखित कौशल विकसित करना, समूह गतिविधियों में सक्रिय शिक्षण कौशल और अभिव्यंजक कौशल और आत्मविश्वास में सुधार होगा। ➤ सामाजिक अपनाने की क्षमता: हमारे विचारों और भावनाओं को दूसरों के साथ संवाद करने और साझा करने की क्षमता सामाजिक संपर्क विकसित करना और सामाजिक रूप से जिम्मेदार व्यक्ति बनाना ➤ आदर्श नागरिक: मूल्य सिद्धांत नैतिकता का सम्मान करें और नागरिक जिम्मेदारी में समाज और सामुदायिक छवि में योगदान करें और स्वयं सेवा के माध्यम से नागरिक जीवन में भाग लें ➤ नैतिक मूल्य : नैतिक और मानवीय मूल्य ➤ पर्यावरण के प्रति जागरूकता: स्थानीय राष्ट्रीय और वैश्विक पर्यावरण मुद्दों की सीमा समझ ➤ रोजगार: संगठित क्षेत्रों में नौकरी की संभावना के लिए छात्रों को तैयार करना
<p><i>Programme Outcome</i></p>	<ul style="list-style-type: none"> ➤ संस्कृति की सबसे महत्वपूर्ण ईकाई है—भाशा वह अपने आप में सही, सटीक, संदर्भ युक्त, सामाजिक सांस्कृतिक संस्थान है। भाशा मनुष्य का आंतरिक जनतंत्र है। पृथक से यह रेखांकित करने की आवश्यकता नहीं है कि भाशा के विकास के हर चरण में मनुष्य की सहायता है।
<p>B.A./B.Sc./ B.Com I Hindi language</p>	<p>➤ Major areas that will be covered under UG program :-</p>
<p><i>Course Outcome</i></p>	<ul style="list-style-type: none"> ➤ पल्लवन ➤ पत्राचार एवं अनुवाद ➤ पारिभाषिक भाब्दावली ➤ मुहावरें एवं लोकोक्तियां ➤ हिन्दी वर्तनी संबंधी अट्टियां ➤ मानक हिन्दी भाशा, वृद्धि, वाक्य भुद्धि, पर्यायवाची विलोम ➤ अनेकार्थी, समश्रुत, अनेक भाब्दों के लिए एक भाब्द ➤ देवनागरी लिपि की विशेषता ➤ मानक हिन्दी भाशा ➤ देवनागरीलिपि एवंवर्तनी का मानक रूप ➤ कम्प्युटर में हिन्दी का अनुप्रयोग ➤ हिन्दी में पदनाम ➤ हिन्दी अपठित ➤ संक्षेपण में संक्षिप्तीकरण
<p>B.A./B.Sc./ B.Com II Hindi language</p>	<p>➤ Major areas that will be covered under UG program :-</p>
<p><i>Course Outcome</i></p>	<ul style="list-style-type: none"> ➤ निम्नलिखित 5 लेखकों के पाठ शामिल होंगे— 1. महात्मागांधी—चोरी और प्रायश्चित 2. आचार्य नरेंद्रदेव—युवकों का समाज में स्थान 3. वासुदेव भारण अग्रवाल—मातृभूमि 4. हरि ठाकुर—डॉ. खबूबंद बघेल 5. पं. माधवराव सप्रे—सम्भाषण—कुशलता ➤ हिन्दी भाषा और उसके विविध रूप 1. कार्यालयीन भाषा 2. मीडिया की भाषा 3. वित्त एवं वाणिज्य की भाषा 4. मशीनी भाषा ➤ हिन्दी की व्याकरणिक काटियाँ संज्ञा, सर्वनाम, विशेषण, क्रियाविशेषण, समास, संधि एवं संक्षिप्तियाँ अनुवाद व्यवहार : अंग्रेजी से हिन्दी में अनुवाद ➤ चोरी और प्रायश्चित : महात्मागांधी / कार्यालयीनभाषा, मीडिया की भाषा

	<ul style="list-style-type: none"> ➤ युवकों का समाजमैस्थान : आचार्य नरेन्द्र दवे / वित एवं वाणिज्य की भाषा, मशीनी भाषा ➤ मातृभूमि: वासुदेव रण अग्रवाल / संज्ञा सर्वनाम, विशेषण, क्रिया विशेषण ➤ डॉ. खबू चंद बघले : हरि ठाकुर/समास, संधि, ➤ सम्भाषण-कुशलता : पं. माधवराव सप.पे, / अनुवाद-अंग्रेजी से हिन्दी में अनुवाद, संक्षिप्तिया
	➤
B.A./B.Sc./ B.Com III Hindi language	➤ Major areas that will be covered under UG program :-
<i>Course Outcome</i>	➤ भारतमाता ,परशुराम की प्रतीक्षा ,बहुत बडा सवाल ,संस्कृति और राष्ट्रीय एकीकरण
	➤ कथन शैलीयां-विवरणात्मक शैली,मूल्यांकन शैली ,व्याख्यात्मक शैली, विचारात्मक शैली
	➤ विकासशील देशों की समस्याएं: मानवविकास प्रतिवेदन, विकासात्मक पुर्नविचार:-कल्याण के प्रश्न
	➤ विभिन्न संरचनाएँ-विनम्रतासूचक संरचना,विधिसूचक संरचना , निषेधपरकसूचक संरचना, कालबोधक संरचना, स्थानबोधक संरचना ,दिशाबोधक संरचना, कारणकार्यसंबंध संरचना , अनुक्रम संरचना
	➤ प्रौद्योगिकी एवं नगरीकरण, आधुनिक तकनीकी सभ्यता,पर्यावरण प्रदूषण तथा धारणीय विकास
	➤ कार्यालयीन पत्र और आलेख -परिचय, आदेश ,अधिसूचना , ज्ञापन, अनुस्मारक, पृष्ठंकन
	➤ जनसंख्या : भारत के संदर्भमें, गरीबी तथा बेरोजगारी , अनुवाद
	➤ ऊर्जा , भाक्ति मानता का अर्थशास्त्र ,घटनाओं समारोहो आदि का प्रतिवेदन, विभिन्न प्रकार के निमंत्रण पत्र
Commerce	➤ B.Com. -I Year
<i>Finanacial Accounting</i>	➤ To Impart Basic Accounting knowledge as applicable to business
<i>Business Mathematics</i>	➤ The objective of this course is to enable the student to have such minimum knowledge of mathematics as is applicable to business and Economics situation.
<i>Business Communication</i>	➤ The objective of this course is to develop effective business communication skill among the student
<i>Business regulatory Frame work</i>	➤ The objective of this course is to provide a brief idea about the frame work of Indian business law
<i>Business Environment</i>	<ul style="list-style-type: none"> ➤ This course aims at acquainting the student with the emerging ➤ issues in business at the national and international level in light of policies of liberalization and globalization
<i>Business Economics</i>	➤ This course is meant to acquaint the student with the principal of business economics as are applicable in business .
	➤ B.Com. -I I Year
<i>Corporate accounting</i>	➤ This course enable the student to develop awareness about corporate accounting in conformity with the provisions of companies acts
<i>Cost Accounting</i>	➤ This course exposes the student to basic concept and tools used in cost accounting .
<i>Principal of business management</i>	➤ This course familiarizes the student with the basic of principal of management
<i>Company Law</i>	➤ This objective of this course is to provide basic knowledge of the provisions companies act1956 along with relevant case law.
<i>Business statistics</i>	➤ It enable the student to gain understanding of statistical techniques as are applicable to business .
<i>Fundamental of entrepreneurship</i>	➤ It provides exposure of the student to entrepreneurial culture and industrial growth so as to preparing them to set up and manage their own small units.
	B.Com. - III Year
<i>Income Tax</i>	➤ It enable the student to know the basic of income Tax Act and its implications .

<i>Indirect Taxes</i>	➤ This course aims at imparting basic knowledge about major indirect taxes .
<i>Management Accounting</i>	➤ This course provide the student an understanding of the application of accounting techniques for management .
<i>Auditing</i>	➤ This course aims at imparting knowledge about the principal and methods of auditing and their .
<i>Principal of Marketing</i>	➤ The objective of this course is to help student to understand the concept of marketing and its applications.
<i>International Marketing</i>	➤ This course aims at acquainting student with the operations of marketing in international environment.
DCA	➤ Major areas that will be covered under Diploma program :-
<i>Programme Outcome Course Outcome</i>	➤ Fundamental of computer
	➤ Window & Pc Package
	➤ Print Technology and Desktop Publishing
	➤ Internet and Web Technology
	➤ Programming in C
	➤ Introduction to Operating System
<i>Course Outcome</i>	➤ Computer is a versatile device .It can be designed to do any kind of activity provided all data and instructions are made available to it in digital form .
	➤ Modern computers have incredible speed of processing It takes only few seconds for calculation that we take hours to complete .computersmake s It possible to receive , supply and process large volumes of data at high speed
	➤ Computer can ensure consistently very high degree of accuracy in computations .It Processes data according to the
	➤ sequence of instruction .Hence if input data and procedures are correct the output will be consistently accurate.
	➤ A Computer s free form tiredness , lack of concentration , fatigue etc. It can work for hours without creating any error. If millions of calculations are to be performed , a computer will perform every calculation with the same accuracy .Due to this capability it overpowers human being in routine type of work
➤ It means the capacity to perform completely different type work . You can may use your computer to prepare payroll slips .Next moment you may use it for inventory management or to prepare electric bills.	
➤ Computer is an automatic machine .It can ability to perform the given task automatically .Once a program is given to computer i.e. stored in computer memory the program and instruction can control the program execution without human interaction.	
DCA	➤
<i>Fundamental of computer paper 1</i>	<ul style="list-style-type: none"> ➤ Brief History of Development of Computers ,Computer System Concept, Computer System Characteristics ,Capabilities and Limitations, Types of Computers-.,Personal Computer (PCs) - IBM PCs, Types of PCs- Desktop, Laptop, Notebook, Palmtop, etc. ➤ Computer organization: Basic Component of Computer system - Control Unit, ALU, I/O, MemoryInputDevices :Keyboard, Mouse, Joystick, Scanners, Digital Camera, MICR, OCR, OMR, Light pen, Touch Screen, Voice Recognition, Bar Code Reader, Output

	<p>Devices Monitors - Characteristics and types of monitor, Size, Resolution, Refresh Rate, Dot Pitch, Video Standard - VGA, SVGA, XGA etc. Printers: Impact and Non Impact Printers, Daisy wheel, Dot Matrix, Inkjet, Laser.</p> <ul style="list-style-type: none"> ➤ Plotter, Sound Card and Speakers.Bytes and Addressable Memory, Memory Sizes, Types of Memory: RAM, Cache, ROM, Flash Memory, CMOS, Memory Access Times, Expansion Slots And Adapter Cards, Removable Flash Memory, Ports And Connectors: USB Ports, FireWire Ports, Buses, Storage: Characteristics of a Hard Disk, RAID, NAS, External and Removable Hard Disks, Miniature Hard Disks, USB Flash Drives, Cloud Storage, Optical Discs: CDs, DVDs.Software – Definition, ➤ Types of Software- System Software, Application Software, System Software- Operating System, Language Translator(Compiler, Interpreter), Utility Programs. Operating system- Definition, Function, Types of operating systemBatch Processing, Multiprogramming, Time Sharing ➤ Operating System, Multiuser, Multitasking, Multiprocessing Operating System. Network- Direction of Transmissions Flow-Simplex, Half Duplex Full Duplex, Types of Network-LAN, WAN, MAN etc. Topologies of LAN-Ring, Bus, Star, Mesh and Tree topologies. Computer Virus: Virus working principals, Types of viruses, Virus detection and Prevention Viruses on network, Antivirus software's.
<p><i>Window & Pc Package paper 2</i></p>	<ul style="list-style-type: none"> ➤ Disk Operating System (DOS) and MS Windows 7: Introduction, History & Versions of DOS, DOS System Files. DOS Commands: Internal and External, Executable V/s Non Executable Files in DOS; ➤ MS Windows 7: Introduction to MS Windows; Features of Windows; Various versions of Windows & its use; Working with Windows; My Computer & Recycle bin ; Desktop, Icons and Windows Explorer; Screen description & working styles of Windows; Dialog Boxes & Toolbars; Working with Files & Folders; simple operations like copy, delete, moving of files and folders from one drive to another, Shortcuts &Autostarts; Accessories and Windows Settings using Control Panel- setting common devices using control panel, modem, printers, audio, network, fonts, creating users, internet settings, Start button & Program lists; Installing and Uninstalling new Hardware & Software program on your computer. ➤ MS Word 2007: Introduction to MS Office, Introduction to MS Word, Features & area of use. Working with MS Word, , Creating a New Document, Different Page Views and layouts, Applying various Text Enhancements, Working with -Styles, Text Attributes, Paragraph and Page Formatting, Text Editing using various features ; Bullets, Numbering, Auto formatting, Printing & various print options.Advanced Features of MS-Word 2007 : Spell Check, Thesaurus, Find & Replace; Headers & Footers, Inserting - Page Numbers, Pictures, Files, Autotexts, Symbols etc., Working with Columns, Tabs & Indents, Creation & Working with Tables including conversion to and from text, Margins & Space management in Document, Adding References and Graphics, Mail Merge, Envelops & Mailing Labels. Importing and exporting to and from various formats.

	<ul style="list-style-type: none"> ➤ MS Excel 2007: Introduction and area of use, Working with MS Excel, concepts of Workbook & Worksheets, Various Data Types, Using different features with Data, Cell and Texts, Inserting, Removing & Resizing of Columns & Rows, Working with Data & Ranges, Different Views of Worksheets, Column Freezing, Labels, Hiding, Splitting etc., Using different features with Data and Text; Use of Formulas, Calculations & Functions, Cell Formatting including Borders & Shading, Working with Different Chart Types; Printing of Workbook & Worksheets with various options. ➤ MS PowerPoint 2007: Introduction & area of use, Working with MS PowerPoint, Creating a New Presentation, Working with Presentation, Using Wizards; Slides & its different views, Inserting, Deleting and Copying of Slides; Working with Notes, Handouts, Columns & Lists, Adding Graphics, Sounds and Movies to a Slide; Working with PowerPoint Objects, Designing & Presentation of a Slide Show, Printing Presentations, Notes, Handouts with print options.
<p style="text-align: center;"><i>Print Technology and Desktop Publishing paper 3</i></p>	<ul style="list-style-type: none"> ➤ Print Technology: Introductions to Printing, Types of Printers, Inkjet and DM Printer, Screen Printing, Offset Printing, Working of offset Printing, Transparent Printout, Negative & Positives for Plate were making, Laser printers - Use, Types, Advantage of laser printer in publication. Page Maker: Page Maker Icon and help, Tool Box, Styles, Menus etc., Different screen Views, Importing text/Pictures, Auto Flow, Columns, Master Pages and Stories, Story Editor, Menu Commands and short-cut commands, Spell check, Find & Replace, Import Export etc., Fonts, Points Sizes, Spacing etc., Installing Printers, Scaling (Percentages), Printer setup Use of D.T.P. in Advertisements, Books & Magazines, News Paper, Table Editor. Adobe Photoshop: Adobe Photoshop CS4: Menus and panels, Exploring the Toolbox, Working with Images: Working with Multiple Images, Rulers, Guides & Grids, Image Size Command, Adjusting Canvas Size & Canvas Rotation, Creating, Selecting, Linking & Deleting Layers, Painting with Selections, Red Eye Tool, Clone Stamp Tool, Colour creation, Quick Mask Options, Creating Straight & Curved Paths, Creating Special Effects. CorelDraw X4: CorelDraw X4 Command Bars & Tools, Drawing Area-Objects-Lines, Working with Text & Artistic Media Tool, Fills & Modifying Outlines, Drop Shadows, Importing and Editing OCR Text, Templates, Drawing and Editing Curves and Lines, Three-point Tools, Clipart, Special Characters and Creating Symbols, Working with Layers & Creating a Master Layer, Brush Tools and Adding Objects, Interactive Tools, PowerClip Feature and the Envelope Tool. Other Work in DTP: Scanning, Type of Scanner, Importing image, text from scanner, ABBY fine reader, Acrobat (PDF) to Word, and Word to PDF, PDF Editor, PDF Annotator, PDF Infix, Voice to word conversion.
<p style="text-align: center;"><i>Internet and Web Technology paper 4</i></p>	<ul style="list-style-type: none"> ➤ Applications of Internet, History of Internet, WWW, Various Services , World Wide Web (WWW) History, Working, Web Browsers, Its function Concept of Search Engines, client server architecture. ➤ Internet : Evolution, Protocols, Interface Concepts, Internet Vs Internet, Growth of Internet, ISP, Connectivity - Dial-up, Leased

	<p>line, VSAT etc., URLs, Domain names, Portals, Applications. E-Mail: Concepts, Basics of Sending & Receiving, E-mail, Free E-mail services.</p> <ul style="list-style-type: none"> ➤ Transfer Protocols, Telnet & Chatting, Client/Server Architecture Characteristic, FTP & its usages. ➤ Telnet Concept, Remote Logging, Protocols, Internet chatting - Voice chat, text chat. Searching the Web, HTTP, URLs, Web Servers, Web Protocols. ➤ Web Publishing Concepts, Domain Name Registration, HTML, Design Tools, HTML Editors, Image Editors. HTML Concepts of Hypertext, Versions of HTML, Elements of HTML Syntax, Head & Body Sections, Building HTML Documents, Inserting Texts, Images, Hyperlinks, Backgrounds And Colour Controls, Different HTML Tags, Table Layout and Presentation, Use of Font Size & Attributes, List types and its Tags.
<p style="text-align: center;"><i>Programming in C paper 5</i></p>	<ul style="list-style-type: none"> ➤ C Language – Character set, Tokens of C - tokens-constant-keywords and identifiers - variables- data types- declaration and assignment of variables defining symbolic constants.- Operators and Expressions: Types of Operators- Arithmetic, ➤ Relational and Logical Operators Assignment, increment and decrement of operators - conditional bitwise and special operators - arithmetic expression and its evaluation - hierarchy of arithmetic operations - evaluations, precedence and associativity - mathematical function. Control Branching and Decision-Making in C - If statement Switch statement - GOTO statement – ➤ The Operators. - Decision - Making and Looping, Types of Loop, nesting in a loop. Arrays in C Single Two-dimensional and Multi-dimensional arrays. Handling of Character Set: Declaration & Initialization of string variables - reading from and writing to screen -Arithmetic operations - String handling functions. ➤ Functions: Definition, Library Functions User Defined Functions, Function Prototype, Function Definition, Function Call, Types of User Defined Functions, Arrays and Functions. Structures and Unions: Definitions initialization and assigning values to members’ arrays of structures and arrays within structures structure with in structure- unions - size of structures. ➤ Declaration and initialization of pointers - pointer expression - pointer and arrays - pointer and character strings pointers and functions - pointers and structures pointer on pointers. File Maintenance in “C”: Defining, Opening and closing a file - Input/Output operations on a file- random access to file - command line arguments.
<p style="text-align: center;"><i>Introduction to Operating System paper 6</i></p>	<ul style="list-style-type: none"> ➤ Introduction to Operating System What is an Operating System, Operating Systems Architecture, Types of Operating Systems, Process Model, Process States and Transitions, System Calls. ➤ Process Management Processes: Process Scheduling, Cooperating Processes, Inter-process Communication, CPU Scheduling: Scheduling Criteria, Scheduling Algorithms, Process Synchronization: Background, Deadlocks. Memory Management Main Memory Management: Background, Logical versus Physical Address space, swapping, Contiguous allocation, Paging, Segmentation, Segmentation with Paging, Virtual Memory: Demand

	<p>Paging.</p> <ul style="list-style-type: none"> ➤ Device and Storage Management File-System Interface, Mass-Storage Structure, Device Management: Techniques for Device Management, Dedicated Devices, Shared Devices, Buffering, Multiple Paths, Secondary-Storage Structure: Disk Structure, Disk Scheduling, Disk Management. ➤ File-System Implementation A Simple File System, Logical & Physical File System, File-System Interface: Access Methods, Directory Structure, Protection, Free-Space Management, Directory Implementation.
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POs, PSOs, & COs of PG Courses

M. Sc. Courses

M.Sc. in Zoology Semester -1 st	
After successfully completing M. Sc. (Zoology) Programme students will be able to:	
Programme outcomes (PO)	<ul style="list-style-type: none"> ➤ Students acquire an in-depth knowledge in the area of Zoology and apply the knowledge of Zoology in daily life and understanding of complex of life. ➤ Identify problem, review research literature, and analyze complex situations of living forms. ➤ Understand the ethical principles and responsibilities and norms of the work/research practice. ➤ Understand and be able to objectively evaluate the role of behaviour in the protection and conservation of animals in the wild. ➤ Usage of Modern tool and techniques, resources, and ICT tools for understanding of the subject. ➤ Understand research-based knowledge and research methods ,analysis and interpretation of data, and synthesis of the information to provide valid conclusions. ➤ Understand the impact of the natural and anthropogenic activities in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. Identify a range of invertebrates and vertebrates and justify their conservation. ➤ Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. ➤ Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. ➤ This programme enable students to specialize in one of the branches of Zoology either Animal behavior , Ecology etc. that would be offered as elective courses. ➤ Widen the scope of the learners for career opportunities such as teaching, industry and research.
After successfully completing M. Sc. (Zoology) Programme students will be able to:	
	<ul style="list-style-type: none"> ➤ Producing contributors in the area of biological research, teaching and biodiversity conservation.

<p>Program Specific outcomes (PSO)</p>	<ul style="list-style-type: none"> ➤ Understand the physiological adaptations, development, reproduction and behaviour of different forms of life. ➤ Illustrate zoological science for its application in branches like medical entomology, apiculture, aquaculture and agriculture etc. ➤ Develop proficiency in the experimental techniques and methods of analysis appropriate for their area of specialization and relate concepts of comparative biology to explain evolution and success to live in varied environment. ➤ Cultivating a generation with scientific ethics and temperament. ➤ Explain how organisms function at the level of the gene, genome, cell, tissue, organ and organ-system and develop theoretical and practical knowledge in handling the animals and using them as a model organism.
<p>Invertebrate structure and function, Minor Phyla Paper -I</p>	<p>After successful completion of this course, students will have the knowledge and skills to:</p>
<p>Course outcomes (CO) –</p>	<ul style="list-style-type: none"> ➤ They able to understand basic concept of classification of invertebrates. ➤ Describe different physiological body processes of invertebrates. ➤ Describe larval forms of invertebrates. ➤ Understand Pathogenic nature of invertebrates and their morphology and physiology activity. ➤ Describe characteristics and significance of Minor Phyla.
<p>Animal Behaviour</p>	
<p>Animal Behaviour Paper II</p>	<p>After successful completion of this course, students will have the knowledge and skills to:</p>
<p>Course outcomes (CO) –</p>	<ul style="list-style-type: none"> ➤ Develop skills, concepts and experience to understand all aspects of animal Behavior. ➤ Learn a wide range of theoretical and practical techniques used to study animal behaviour. ➤ Objectively understand and evaluate information about animal behaviour and ecology. ➤ Understand and be able to objectively evaluate the role of behavior in the protection. ➤ Evaluate behavior of all animals, including humans, in the complex ecological world, including the urban environment.
<p>Title of the paper :Quantitative Biology:</p>	
<p>Quantitative Biology Paper III</p>	<p>After successful completion of this course, students will have the knowledge and skills to:</p>
<p>Course outcomes (CO)</p>	<ul style="list-style-type: none"> ➤ Demonstrate a deep understanding of the mathematical reasoning underlying specific biological techniques. ➤ Demonstrate accurate and efficient use of specific mathematical tools in the analysis of biological data. ➤ Demonstrate capacity for original mathematical reasoning in

	<p>abroader biological context.</p> <ul style="list-style-type: none"> ➤ Effectively communicate complex quantitative biology concepts to their peers and academic staff, through carefully written technical reports.
	Ecology and environment physiology
<i>Ecology and environment physiology Paper -IV</i>	After successful completion of this course, students will have the knowledge and skills to:
<i>Course outcomes (CO)</i>	<ul style="list-style-type: none"> ➤ Understand what makes the scientific study of animal ecology a crucial and exciting Endeavour. ➤ Engage in field-based research activities to understand well the theoretical aspects taught besides learning techniques for gathering data in the field. ➤ Analyse a biological problem, derive testable hypotheses and then design experiments and put the tests into practice. ➤ Solve the environmental problems involving interaction of humans and natural systems at local or global level. ➤ The student knows the principles of living species environmental physiology (how the living organism obtains and maintains the homeostasis at molecular, cellular and tissue levels, in the context of changes in the surrounding environment; ➤ Cognitive and emotional interaction between the subject and the environment. ➤ Know the evolutionary and functional basis of animal ecology.
	➤ M.Sc. in Zoology Semester -II
<i>Program Specific outcomes (PSO)</i>	<p>PSO1. Producing contributors in the area of biological research, teaching and biodiversity conservation.</p> <p>PSO2. Understand the physiological adaptations, development, reproduction and behaviour of different forms of life.</p> <p>PSO3. Illustrate zoological science for its application in branches like medical entomology, apiculture, aquaculture and agriculture etc.</p> <p>PSO4. Develop proficiency in the experimental techniques and methods of analysis appropriate for their area of specialization and relate concepts of comparative biology to explain evolution and success to live in varied environment.</p> <p>PSO 5. Cultivating a generation with scientific ethics and temperament.</p> <p>PSO 6. Explain how organisms' function at the level of the gene, genome, cell, tissue, organ and organ-system and develop theoretical and practical knowledge in handling the animals and using them as model organism.</p>
<i>Course Outcomes (CO)</i>	
<i>Paper I : General Endocrinology</i>	<p>After successful completion of this course, students will have the knowledge and skills to:</p> <p>CO1. Discuss the principles of endocrine system, hormonal</p>

	<p>communication, and neuroendocrine mechanism in animals.</p> <p>CO2. Describe different physiological body processes of invertebrates.</p> <p>CO3. Describe larval forms of invertebrates.</p> <p>CO4. Understand Pathogenic nature of invertebrates and their morphology and physiology activity.</p> <p>CO5. Describe characteristics and significance of Minor Phyla.</p>
Paper II: Animal Behaviour :	<p>After successful completion of this course, students will have the knowledge and skills to:</p> <p>CO1. Develop skills, concepts and experience to understand all aspects of animal Behavior.</p> <p>CO2. Learn a wide range of theoretical and practical techniques used to study animal behaviour.</p> <p>CO3. Objectively understand and evaluate information about animal behaviour and ecology.</p> <p>CO4. Understand and be able to objectively evaluate the role of behavior in the protection.</p> <p>CO5. Evaluate behavior of all animals, including humans, in the complex ecological world, including the urban environment.</p>
Paper III : Quantitative Biology:	<p>After successful completion of this course, students will have the knowledge and skills to:</p> <p>CO1. Demonstrate a deep understanding of the mathematical reasoning underlying specific biological techniques.</p> <p>CO2. Demonstrate accurate and efficient use of specific mathematical tools in the analysis of biological data.</p> <p>CO3. Demonstrate capacity for original mathematical reasoning in a broader biological context.</p> <p>CO4. Effectively communicate complex quantitative biology concepts to their peers and academic staff, through carefully written technical reports.</p>
Paper IV : Ecology and environment physiology:	<p>After successful completion of this course, students will have the knowledge and skills to:</p> <p>CO1. Understand what makes the scientific study of animal ecology a crucial and exciting Endeavour.</p> <p>CO2. Engage in field-based research activities to understand well the theoretical aspects taught besides learning techniques for gathering data in the field.</p> <p>CO2. Analyse a biological problem, derive testable hypotheses and then design experiments and put the tests into practice.</p> <p>CO4. Solve the environmental problems involving interaction of humans and natural systems at local or global level.</p> <p>CO5. The student knows the principles of living species environmental physiology (how the living organism obtains and maintains the homeostasis at molecular, cellular and tissue levels, in the context of</p>

	<p>changes in the surrounding environment.</p> <p>CO6. Cognitive and emotional interaction between the subject and the environment.</p> <p>CO7. Know the evolutionary and functional basis of animal ecology.</p>
<p align="center">M.Sc. in Zoology Semester -III</p>	
<p><i>Course outcomes (CO)</i></p>	
<p><i>Paper I : Comparative anatomy of vertebrates</i></p>	<p>After successful completion of this course, students will have the knowledge and skills to:</p> <p>CO1: To understand the respiration, circulation, excretion, and nervous system in vertebrates</p> <p>CO2: Describe the mechanism of thermoregulation in both poikilotherms and homeotherms.</p> <p>CO3: Describe the comparative account of different organ/system in vertebrates.</p> <p>CO4: Understood the origin and evolution of horse and human.</p> <p>CO5: Identify various types of natural resources, human impact on these resources, and common resource management practices.</p> <p>CO6: Explain the structure and impact of biogeochemical cycles, ecosystems and energy transformation across trophic levels.</p> <p>CO7: Comment on the structure and functions of various sense organs</p>
<p><i>Paper II :Biostatistic, taxonomy & biodiversity :</i></p>	<p>After successful completion of this course, students will have the knowledge and skills to:</p> <p>CO1. Came to know the data collection, tabulation and presentation..</p> <p>CO2. Graphically represent the given data.</p> <p>CO3. Described Student ‘t’ test and probability.</p> <p>CO4. Apply computer software for statistical analysis.</p> <p>CO5. Solve the statistical problems based on Central Tendency, Dispersion, Correlation and regression.</p> <p>CO6: Construct frequency distribution chart.</p> <p>CO7: Described the mean, median, mode and SD.</p> <p>CO8: Solve numerical problems on test of hypothesis using biological data</p> <p>CO9. Demonstrate a deep understanding of the mathematical reasoning underlying specific biological techniques.</p> <p>CO10. Demonstrate accurate and efficient use of specific mathematical tools in the analysis of biological data.</p> <p>CO11. Demonstrate capacity for original mathematical reasoning in a broader biological context.</p> <p>CO12. Effectively communicate complex quantitative biology concepts to their peers and academic staff, through carefully written technical</p>

	reports.
<i>Paper III : Immunology and developmental biology:</i>	<p>After successful completion of this course, students will have the knowledge and skills to:</p> <p>CO1. Explain the principle and application of the common techniques used in Immunology.</p> <p>CO2. Described the Infectious diseases, hypersensitivity, autoimmune disorders, immunodeficiency diseases</p> <p>CO3. Demonstrate capacity for original mathematical reasoning in a broader biological context.</p> <p>CO4. Effectively communicate complex quantitative biology concepts to their peers and academic staff, through carefully written technical reports.</p> <p>CO5. Understood and mastered on the basic concepts of developmental biology.</p> <p>CO6. Understood how fertilization, cleavage and gastrulating occur.</p> <p>CO7: Explain the theories of antibody synthesis and generation of antibody diversity.</p> <p>CO8: Explain the principle and application of the common techniques used in Immunology.</p> <p>CO9: Compare the MHC molecules and diseases associated with HLA.</p> <p>CO10: Differentiate between active and passive immunization.</p>
<i>Paper IV : Population genetics and evolution:</i>	<p>After successful completion of this course, students will have the knowledge and skills to:</p> <p>CO1. Explain the principles of Population genetics.</p> <p>CO2. To understand quantitative genetics</p> <p>CO3. Identify genetic disorders based on Karyotypes and traits.</p> <p>CO4. Justify the inheritance of qualitative and quantitative traits</p> <p>CO5. Explain the concept of Mendelian genetics, gene, gene regulation and multiple alleles.</p> <p>CO6. Solve the problems based on gene frequency</p> <p>CO4: Explain the principles of Population genetics.</p>
M.Sc. in Zoology Semester -IV	
<i>Paper I : General physiology and neurophysiology</i>	<ul style="list-style-type: none"> • After successful completion of this course, students will have the knowledge and skills to: • Identified the five classes of polymeric biomolecules and their monomeric building blocks. • Explained the specificity of enzymes (biochemical catalysts), and the chemistry involved in enzyme action. • Understood types, Structure, biochemical properties and functions of vitamins. • Explained how the metabolism of organic compounds leads ultimately to the generation of large quantities of ATP. • Described the structure and classification of hormones. • Biological chemistry and its importance in physiology by testing

<p>Paper II : Biochemistry and metabolic regulation and cell function :</p>	<p>After successful completion of this course, students will have the knowledge and skills to:</p> <ul style="list-style-type: none"> • CO1: Define basic terms in biochemistry and biochemical techniques. • CO2: Explain the applications of the various biochemical techniques. • CO3: Explain the importance and applications of techniques in biochemistry. • CO4: Explain the principle and applications of various chromatographic techniques with examples. • CO5: Explain the structure and functions of various biomolecules. • CO4: Explain the importance of tools and techniques in biology. • CO6: Explain the principle, working, materials used and applications of electrophoresis. • CO7: Describe the concept of light, electromagnetic • CO1: Define basic terminologies of metabolic pathways. • CO2: Explain the laws of thermodynamics, concept of free energy and ATP as currency molecule. • CO3: Describe the Concepts and regulation of metabolism. • CO4: Discuss the oxidation of fatty acids and its significance. • CO5: Illustrate the electron transport chain and oxidative phosphorylation. • CO6: Illustrate the reactions, energetics and regulation of glycolysis, glycogen biosynthesis, TCA cycle, Purine and Pyrimidine metabolism • CO7: Write the general reactions of various metabolic pathways. • CO8: Justify the role of enzymes in metabolism • Familiar with the structure, classification, and metabolism of biomolecules. • Familiar with enzymes, hormones and their functions. • Familiar with the laws of thermodynamics. • Familiar with radiation and its impacts on biological system. • Familiar with the principles and applications of various microscopes and • Spectroscopies • Calculation of normality, molarity, and percentage. • Determination of pH of water samples. • Quantitative estimation of protein. • Quantitative estimation of total carbohydrate. • Quantitative estimation of lipids. • Beer and Lambert's law verification.
<p>Paper III :Cell biology:</p>	<p>After successful completion of this course, students will have the knowledge and skills to:</p> <ul style="list-style-type: none"> • Described the ultra-structure and functions of cell organelles. • Understood DNA replication, RNA and protein synthesis and came to know protein • synthesis can be controlled at the level of transcription and translation.

	<ul style="list-style-type: none"> • Understood cell signaling and cellular communication. • Described the oncogenes. • Understood the types and applications of stem cells. • Performed and understood the anatomy and physiology of animals by dissection. • Performed by experiments to analyze the macromolecules in animals. • Understood the principles and types of PCR demonstration. • Described the fine structure and functions of cell organelles. • Performed a variety of molecular and cellular biology techniques. • Define the terms in cell biology. • Describe the composition, structure and functions of the plasma membrane. • Explain the structure and functions of the nucleus and its components. • Describe the three primary components of the cell's cytoskeleton and how they affect cell shape, function, and movement. • Diagrammatically represent the phases of division of somatic and gametic cells. • Differentiate between prokaryotes and eukaryotes. • Differentiate between rough and smooth endoplasmic reticulum both in structure and function.
<p><i>Paper IV :Cellular organization and molecular organization:</i></p>	<ul style="list-style-type: none"> • Recognize and describe the structural and functional organization of cell organelles. • Described the composition of prokaryotic and eukaryotic cells. • Differentiate prokaryotic and Eukaryotic cells. • Explain the principles of staining. • Describe the structure and functions of cell organelles. • Label the various cell parts and Cell organelles. • Explain the cell division process and its significance. • Explain Mendel's principle, its extension and chromosomal basis and determination • of gene action from genotype to phenotype and concepts of inheritance. • Define the terminologies in genetics. • Describe the chromosome anomalies and associated diseases
<p><i>M.Sc.Mathematics</i></p>	<p style="text-align: center;">➤ <i>Department of Mathematics</i></p>
<p><i>Programm Outcome</i></p>	<p style="text-align: center;">➤ apply the knowledge and concept of mathemathic to solve the life problems</p>
	<ul style="list-style-type: none"> ➤ PO1. Critical Thinking : Take informed actions after indetifying the assumption that frame our thinking and actions, checking out the dregee to which these assumption are accurarate and valid and lokking at our ideas and decision unfellectual organization and personal) from different perspective . ➤ Po2 Effective Communication :speak , read write and listen clealy in person and through electronic media in English of the world by commecting people ,ideas books, media and technology .

	<ul style="list-style-type: none"> ➤ PO3. Social Interaction :Elicit views of other mediate disagreement and help reach conclusion in group setting . ➤ PO4.Effective Citizenship:Demonstrate empathetic social concern and equity centred national development and the ability to act with an informed awareness of issues and participate in civic life through volunteering . ➤ PO5. Modern Tool Usage : Create ,select and apply appropriate techniques resources and modern engineering and IT tools including and modelling to complex engineering activities with understanding of the limitations. ➤ PO6.Environment and sustainability :Understand the impact.of the professional engineering solution in societal and environmental contexts and demonstrate the knowledge of and need for sustainable development . ➤ PO7. Individual and Team work :Function effectively as an individual and as a member or leader in diverse teams and in multidisciplinary setting .Personality development
Programme specific Outcome	<ul style="list-style-type: none"> ➤ PSO-1. Gain the knowledge of Mathematics through theory and graphically approach . ➤ PSO-2. Demonstrate, solve and an understanding of major concepts in all disciplines of mathematics. ➤ PSO-3. Solve the problem and also think methodically, independently and draw a logical conclusion. ➤ PSO-4. Create an awareness of the impact of chemistry on the environment,society, and development outside the scientific community. ➤ PSO-6. To inculcate the scientific temperament in the students and outside the scientific community. ➤ PSO-7. Understand use of mathematics in real life ..
	➤ M.Sc. Mathematics
Course Outcome Semester-I	<ul style="list-style-type: none"> ➤ Advanced Abstract Algebra ➤ Real Analysis ➤ Topology ➤ Complex Analysis ➤ Advanced Discrete Mathematics
Advanced Abstract Algebra Paper- I	<ul style="list-style-type: none"> ➤ Analyse mapping groups, abelian groups, symmetric groups and their properties ➤ Develop aspects of Subgroups, normal subgroups and quotient groups. ➤ Distinguish the concept of Homeomorphisms and Automorphisms ➤ Gains knowledge in Ring theory . ➤ Exposed to the concepts of Ideals Quotient Rings and Fields.
Real Analysis Paper-II	<ul style="list-style-type: none"> ➤ Learns various field axioms, the Archimedean property, triangle and Cauchy Schwartz inequality. ➤ Extend the idea to Set theory, Functions, Countable and Uncountable sets. ➤ Relate functions to point set Topology ➤ Investigates the properties of Covering theorems, compactness in metric spaces. ➤ Examine the convergence of any sequences in a metric space.
Topology Paper-III	<ul style="list-style-type: none"> ➤ Topology uses to analyze complex networks Ex: Social networks, Biological networks, Internet etc.

	<ul style="list-style-type: none"> ➤ It applies Differential Topology to probability to identify multivariate interactions. This was used in neuro science recently to deduce how neurons are interacting. ➤ This paper discusses using cell phones to actually map out the topology of indoor spaces. ➤ Another cool application is in the world of chemistry where one can discuss the shape of molecules by an analysis of the topology of a related graph. ➤ There is also an application for medical imaging software and technology
<i>Complex Analysis Paper- IV</i>	<ul style="list-style-type: none"> ➤ Learns about the basics of complex number system, Stereographic Projections Implemented in photography and study of Astronomy ➤ Define the concept of differentiation of complex functions. ➤ Apply the knowledge of convergence and divergence in power series. ➤ Investigate the concept of mapping, implemented in designing ➤ Evaluate Complex Integration using Cauchy's theorem.
<i>Advanced Discrete Mathematics Paper-V</i>	<ul style="list-style-type: none"> ➤ Understand the concepts of Mathematical logic such as Connections, Concepts of Tautology etc. ➤ Study the concepts of Relations and Functions . ➤ Gains knowledge in Formal languages and Automata. ➤ Classify the concept of Lattices and Boolean Algebra. ➤ Create structural designs using patterns of graphs in graph theory.
<i>Course Outcome Semester-II</i>	➤ Advanced Abstract Algebra-II
	➤ Real Analysis II
	➤ Topology II
	➤ Complex Analysis II
	➤ Advanced Discrete Mathematics II
<i>Advanced Abstract Algebra-II Paper- I</i>	<ul style="list-style-type: none"> ➤ Modules and Vector Space - Definition and examples of submodules, Quotient modules, Direct sum, \mathbb{Z}-modules generated by a set R, Homomorphism of modules, Isomorphism Theorem, exact sequence of modules, short exact sequence Cyclic \mathbb{Z}-modules, Semi Simple \mathbb{Z}-modules, Simple \mathbb{Z}-modules, Schure's Lemma. Free \mathbb{Z}-modules, Representation of Linear mapping, Rank of Linear mapping, Rank Nullity Theorem. ➤ Field Theory - Extension field, Algebraic and transcendental extensions, Separable and inseparable extensions, Normal extension, Perfect fields, Finite fields, Primitive element, algebraically closed fields, Automorphisms of extensions, Galois extensions, fundamental theorem of Galois Theory. ➤ Noetherian and Artinian modules and rings, Hilbert basis theorem, Wedderburn - Artin theorem
<i>Real Analysis-II Paper-II</i>	<ul style="list-style-type: none"> ➤ Measurable sets-Lebesgue outer measure, Lebesgue measure, Properties of measurable sets, Borel sets and their measurability characterization of measurable sets, Non measurable set I ➤ Measurable functions- Definition and properties, Simple. Step and characteristic function, Continuous function, sets of measure Zero, Sequence of functions, Egoroff's Convergence in measure, Riesz theorem. ➤ Lebesgue Integral- Lebesgue integral of a bounded function, Comparison of Riemann integral and Lebesgue integral, Bounded

	<p>Convergence Theorem, Integrals of nonnegative measurable function, Fatou's Lemma, Monotone convergence theorem, General Lebesgue integral, Lebesgue dominated convergence theorem</p> <ul style="list-style-type: none"> ➤ Differentiation and integration- Dini derivatives. Differentiation of monotone functions, Lebesgue theorem, Function of bounded variation, Differentiation of an integral, Lebesgue integral, Lebesgue sets, Absolutely Continuous Functions, Integral of the derivatives Lebesgue spaces- The classes L_p, Holder and Minkowski inequalities, L_p Banach Spaces, Convergences in the mean.
<p><i>Topology-II Paper-III</i></p>	<ul style="list-style-type: none"> ➤ Compactness - Basic properties of compactness Continuous functions and compact sets, compactness and Finite Intersection Property, Sequentially and Countably compact sets, Local compactness in Metric space Equivalence of compactness, countable compactness and sequential compactness in metric space ➤ Connected spaces, connectedness on the real line, Components, Locally connected spaces, totally disconnected spaces ➤ Nets - Topology and convergence of Nets, Hausdorffness and nets, Filters and their convergence, ultra filters. ➤ Tychonoff product topology in terms of standard sub-base and its characterization, Projection Maps ➤ Connectedness and product space, Compactness and product space (Tychonoff's theorem)
<p><i>Complex Analysis-II Paper-IV</i></p>	<ul style="list-style-type: none"> ➤ Entire Functions- Weierstrass factorization theorem Gamma function and its properties, Riemann Zeta function, Riemann's functional equation, Runge's theorem, Mittag-Leffler's theorem ➤ Analytic continuation, uniqueness of direct analytic continuation, Uniqueness of analytic continuation along curve, Power series method of analytic continuation, Schwarz's Reflection Principle ➤ Monodromy theorem and its consequences. Canonical product, Jensen's formula, Poisson- Jensen Formula, Hadamard's three circles theorem, Order of an entire function ➤ Exponent of convergence, Borel's theorem, Hadamard's factorization theorem The range of an analytic function, Bloch's theorem, Little Picard theorem. Schottky's theorem, Montel Carathéodory and the Great Picard theorem. Univalent functions, Bieberbach's conjecture (statement only) and the "114 - theorem".
<p><i>Advanced Discrete Mathematics-II Paper-V</i></p>	<ul style="list-style-type: none"> ➤ Grammar and Language- Phrase structure grammar, Rewriting Rules, Derivation, sentential forms, context-sensitive context, Free and Regular grammars and language, Notion of syntax, Analysis, Polish Notation, Conversion of Infix expression to Polish Notation, The Rename Polish Notation ➤ Introductory Computability Theory- Finite state machines and their Transition, Table diagrams, Equivalence of Finite state machines, reduced machines, Homomorphism Finite automata, and equivalence of its power to that of Deterministic finite automata, Moore and Mealy machines, Turing machines and partial recursive functions. ➤ Graph Theory- Definition of (undirected) graph, paths, Circuits Cycles & Sub graphs, Induced Sub graphs, Degree of a vertex, Connectivity, Planar Graphs and their properties, Trees, Euler's Formula for connected planar Graphs Complete and complete Bipartite graphs, Kuratowski's Theorem(statement only), and its

	use, Spanning trees. Cut sets. Fundamental cut sets and cycles, Minimal spanning trees. Matrix representation of graphs, Euler's theorem on the Existence of Eulerian Paths, and circuit, Directed Graphs, In degree and out degree of a vertex, Weighted undirected Graphs.
Course Outcome Semester-III	➤ Integration Theory and Functional Analysis-I
	➤ Partial Differential Equations, Mechanics & Gravitation-L
	➤ Program. in C with ANSI Features I
	➤ Fuzzy Sets and their Applications-I
	➤ Operations Research-I
Integration Theory and Functional Analysis-I Paper- I	➤ Signed measure, Hahn decomposition theorem, mutually singular measures, Radon-Nikodym theorem, Lebesgue decomposition, Riesz representation theorem. Extension theorem (Caratheodory) Lebesgue-Stieltjes integral, product measures, Fubini's theorem, Tonelli's theorem, Integral operator, Inner measure, Extension by set of measure zero, Caratheodory outer measure. Hausdorff measure, Differentiation and Integration, Decomposition into absolutely continuous and singular parts Baire sets, Baire measure, continuous functions with compact support, Regularity of measures on locally compact spaces.
Partial Differential Equations, Mechanics & Gravitation-I Paper-II	➤ Partial Differential Equations Laplace's Equation-Fundamental solution, Mean value formulae, Properties of Harmonic function, Green function, Energy method Heat Equation - Fundamental solution, Mean value formulae, Properties of solution, Energy method. Wave Equation - Solutions by spherical means, Homogeneous equations, Energy method. Non-linear first order PDE, complete integrals, Envelopes characteristics, Hamilton Jacobi equations (calculus of variations, Hamilton's ODE), Conservation Laws, Representation of solutions, Separation of variables Laplace and Fourier Transforms and their applications, Legendre Transform. Attraction - Attraction of rod, disc, spherical shell and sphere, spherical shell of finite thickness. Surface integral of normal attraction (Application & Gauss's theorem) Laplace and Poisson equations, work done by self-attracting system
Programming In C (With Ansi Features)- I Paper-III	➤ An overview of programming, Programming language, Classification- C Essentials Program Development Functions, Anatomy of a C Function, Variables and Constants, Expressions, Assignment Statements, Formatting Source Files, Continuation Character, The Pre-processor. Scalar Data Types- Declarations, Different Types of Integers, Different kinds of Integer Constants, Floating- Point Types, Initialization, Mixing Types, Explicit Conversions/Casts, Enumeration Types. The Void Data Type, Typedefs, Finding the Address of an object Pointers Control Flow- Conditional Branching, The Switch Statement, Looping, Nested Loops, The break and continue Statements, The goto statement. Infinite Loops. Operators and Expressions-Precedence and Associativity, Unary Plus and Minus operators, Binary arithmetic operators, Arithmetic assignment operators, Increment and Decrement Operators, Comma Operator, Relational Operators, Logical Operators, Bit Manipulation Operators, Bitwise Assignment Operators, Cast Operator, Size of Operators, Conditional Operator,

	Memory Operators
Fuzzy Sets And Their Applications-I <i>Paper- IV</i>	<ul style="list-style-type: none"> ➤ Fuzzy sets- Basic definitions α- cuts, Convex fuzzy sets, Basic operations on fuzzy sets, Types of fuzzy sets, properties of α- cuts, representation of fuzzy sets, First and Second decomposition theorem, Extension Principle for fuzzy sets, fuzzy complements, the two characterization theorems on fuzzy complement-norms and t-conorms, Algebraic product and sum, bounded difference and sum, statements of characterization for t-norms and t-conorms, combination of operators. Fuzzy Arithmetic- Fuzzy numbers, Arithmetic operations on fuzzy numbers, Lattices of fuzzy numbers, fuzzy equations. Fuzzy Relations- Fuzzy relations on fuzzy sets, fuzzy binary relations and 'fuzzy equivalence relations, Fuzzy morphism, standard composition, sup α composition, inf-α composition of fuzzy relations, Fuzzy Relations Equations- Problem partitioning, solution methods, fuzzy relation equations based upon sup α composition and inf-α composition, approximate solution
Operations Research-I <i>Paper-V</i>	<ul style="list-style-type: none"> ➤ Operations Research and its Scope, Necessity of Operations Research in Industry ,Linear Programming-graphical method of solutions, Simplex Method, Theory of the Simplex method, Two phase method, Big M method of solution to LPP, Duality in linear programming, Duality theorems, Dual Simplex method, Other Algorithms for Linear Programming-Dual Simplex Method. Parametric Linear Programming, Upper Bound Technique, Interior Point Algorithm, Linear Goal Programming, Assignment Problems, Its mathematical formulation, Solution of assignment problems, Optimality test. Transportation Problems, Formulation of transportation problems, Solutions of Transportation problems, North-West corner method, least cost method, Vogel's approximation method, Test for optimality U-V method Network Analysis-shortest Path Problem, Minimum Spanning Tree Problem, Maximum Flow Problem, Minimum Cost Flow Problem, Network simplex method. Project Planning and Control with PERT CPM
Course Outcome <i>Semester-IV</i>	<ul style="list-style-type: none"> ➤ Integration Theory and Functional Analysis-II
	<ul style="list-style-type: none"> ➤ Partial Differential Equations, Mechanics & Gravitation-II
	<ul style="list-style-type: none"> ➤ Program. in C with ANSI Features II
	<ul style="list-style-type: none"> ➤ Fuzzy Sets and their Applications-II
	<ul style="list-style-type: none"> ➤ Operations Research-II
Integration Theory And Functional Analysis-I <i>Paper- II</i>	<ul style="list-style-type: none"> ➤ Normed linear spaces, Banach space and examples, Quotient space of normed linear spaces and its completeness, equivalent norms, Riesz Lemma, basic properties of finite dimensional normed linear spaces and compactness, Weak convergence and bounded linear transformations, normed linear spaces of bounded transformations dual spaces with examples Uniform boundedness theorem and some of its consequences, Open mapping and closed graph theorems, Hahn-Banach theorem for real linear spaces, complex linear spaces and normed linear spaces, Reflexive spaces, Weak Sequential Compactness, Compact Operators, Solvability of linear equations in Banach spaces (Fredholm alternatives) The closed Range Theorem. Inner product spaces, Hilbert spaces, Ortho-normal Sets. Bessel's inequality Complete Ortho-normal sets and

	Parseval's identity, structure of Hilbert spaces. Projection theorem. Riesz representation theorem, Adjoint of an operator on a Hilbert space, Reflexivity of Hilbert spaces, Self adjoint operators, Positive, Projection, normal and unitary operators.
<p><i>Partial Differential Equations, Mechanics & Gravitation-II</i> <i>Paper-II</i></p>	<p>➤ Generalised co-ordinates, Holonomic and non-holonomic systems, Scleronomic and Rheonomic system, Generalised Potentials Lagrange's equations of first kind, Lagrange's equations of second kind. Uniqueness of solution, Energy equation for conservation fields Hamilton's variable, Hamilton canonical equations, cyclic coordinates, Routh's equations. Poisson's Bracket, Poisson's Identity, Jacobi-Poisson Theorem, Lagrange's Bracket, Motivating problems of calculus of variations, Shortest distance, Minimum surface of revolution, Brachistochrone problem, Isoperimetric problem, Geodesic, Fundamental lemma of calculus of variations, Euler's equation for one dependent function and its generalization to (i) independent functions, (ii) higher order derivatives, Conditional extremum under geometric constraints and under integral constraints Potential of rod, disc, spherical shell and sphere, spherical shell of finite thickness, Distributions for a given potential, Equipotential surfaces, Surface and solid harmonics. Surface density in terms of surface harmonics.</p>
<p><i>Programming In C (With Ansi Features)- II</i> <i>Paper-III</i></p>	<p>➤ Arrays-Declaring an Array, Array and Memory, Initializing Arrays, Encryption and Decryption Storage Classes- Fixed vs. Automatic Duration, Scope, Global variables. The Register Specifier, ANSI rules for the syntax and Semantics of the storage - class keywords Pointers- Pointer Arithmetic, Passing Pointer as Function Arguments, Accessing Array Elements through Pointers, Passing Arrays as Function Arguments, Sorting Algorithms, Strings, Multidimensional Arrays, Arrays of Pointers, Pointers to Pointers Functions-Passing Arguments, Declarations and Calls, Pointers to Functions, Recursion, The main Function, Complex Declarations, The C Preprocessor-Macro Substitution, Conditional Compilation, Include Facility, Line Control Structures and Unions- Structures, Dynamic Memory Allocation, Linked Lists, Unions, enum Declarations Input and Output- Streams, Buffering, The Header File, Error Handling, Opening and Closing a File, Reading and Writing Data, Selecting an I/O Method, Unbuffered I/O Random Access, The standard library for Input Output</p>
<p><i>Fuzzy Sets And Their Applications-II</i> <i>Paper- IV</i></p>	<p>➤ Possibility Theorem- Fuzzy measures, evidence theory, possibility theory versus probability theory Fuzzy Logic- An overview of classical logic, [Multivalued logics, Fuzzy propositions, Fuzzy quantifiers, Linguistic Hedges, Inference from conditional and qualified fuzzy proposition, the compositional rule of inference Approximate reasoning-An overview of fuzzy expert systems. Fuzzy implications and their selection, Multi conditional approximate reasoning the role of fuzzy relation equations An introduction to fuzzy control- Fuzzy controllers, Fuzzy rule base, Fuzzy inference engine, Fuzzification, Defuzzification and various Defuzzification methods (the centre of area, the centre of maxima, and the mean of maxima methods) Decision Making in Fuzzy Environment-Individual decision making, Multi person decision</p>

	making, Multi criteria decision making, Multistage decision making, Fuzzy ranking methods, Fuzzy linear programming
Operational Research-II <i>Paper-V</i>	<ul style="list-style-type: none"> ➤ Dynamic Programming- Deterministic and Probabilistic Dynamic programming Game Theory- Two-Person, Zero-Sum Games, Games with Mixed Strategies, Graphical Solution, Solution by Linear Programming. Integer Programming- Branch and Bound Technique Queueing system- Deterministic Queueing system, probability distribution in Queueing, classification of Queueing models, Poisson Queueing system ((t/N/1) (o/FIFO), (N/N/1) (/SIRO) (tV/IM/1) (N/FIFO)), Inventory control The concept of EOQ, Deterministic inventory problem with no shortages. Nonlinear Programming- One/ tMulti-Variable Unconstrained Optimization, Kuhn-Tucker Conditions for Constrained Optimization, Quadratic Programming, Separable Programming, Convex Programming, Non-convex Programming.

M. A. Courses

M.A.	➤ M.A. Geography
<i>Program Outcome</i>	<ul style="list-style-type: none"> ➤ <i>Ability of Problem Analysis:</i> Student will be able to analyse 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. ➤ <i>Conduct Social Survey Project:</i> They will be eligible for conducting social survey project, which is needed for measuring the status of development of a particular group or section of the society. ➤ <i>Individual and teamwork:</i> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. ➤ <i>Application of modern instruments:</i> Students will be able to learn the application of various modern instruments and by these; they will be able to collect primary data. ➤ <i>Application of GIS and modern Geographical Map Making Techniques:</i> They will learn how to prepare map based on GIS by using the modern geographical map-making techniques. ➤ <i>Critical Thinking:</i> 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. ➤ <i>Development of Observation Power:</i> As a student of M.A Geography Course, they will be capable to develop their observation power through field experience and in future, they will be able to identify the socio-environmental problems of a locality. ➤ <i>Development of Communication Skill and Interaction Power:</i> 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. ➤ <i>Effective Citizenship:</i> Demonstrate empathetic social concern and

	<p>equity centred national development, and the ability to act with an informed awareness of issues and participate in civic life through volunteering.</p> <ul style="list-style-type: none"> ➤ <i>Enhancement of the ability of Management:</i> Demonstrate 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. ➤ <i>Ethics:</i> Recognize different value systems including your own, understand the moral dimensions of your decisions, and accept responsibility for them. ➤ <i>Understand Environmental Ethics and Sustainability:</i> Understand the impact of the acquired knowledge in societal and environmental contexts, and demonstrate the knowledge of need for sustainable development. ➤ <i>Self-directed and Life-long Learning:</i> Acquire the ability to engage in independent and life-long learning in the broadest context social, environmental and technological changes
Program Specific Outcomes	<ul style="list-style-type: none"> ➤ Our Master's program in Geography is based on high quality research operating in some of the major fields of Geography. ➤ Students who graduate from the Master's program in Geography have strong theoretical and practical skills. ➤ The education in Geography offers a broad understanding in current Social & Environmental issues. ➤ Their ability to apply theoretical knowledge. ➤ Strong interaction skills within multidisciplinary of specialists. ➤ Their ability to communicate in writing, orally, geographically about Geographical phenomenon. ➤ Their versatile knowledge of methodology in Geography. ➤ Their ability to apply the newest methods in Geoinformatics and Cartography. ➤ The Master's program in Geography is study tracks. The study tracks offer students the opportunity to specialize in different areas of geography. ➤ Our students have been very successful in the job market after completing the program working as experts in their field.
Course Outcome	Major areas that will be covered under PG program:
Semester I	➤ Geomorphology
	➤ Climatology
	➤ Evolution of Geographical thoughts
	➤ Geography of India
Semester II	➤ Applied Geomorphology
	➤ Oceanography
	➤ Geographical Methodology
	➤ Geography of Chhattisgarh
Semester III	➤ Rural Settlement Geography
	➤ Resource Geography
	➤ Regional Planning and Development
	➤ Population Geography with special reference of world
Semester IV	➤ Population Geography with special reference of India
	➤ Urban Geography
	➤ Agricultural Geography

	➤ Resource conservation and management
Semester I	➤ Geography
Geomorphology (Paper 1)	<ul style="list-style-type: none"> ➤ Students will develop an idea about background knowledge of Geography as well as different types of fundamental concepts regarding process of erosion, deposition & resulting landforms. ➤ They also acquire the knowledge of different selected applications of Geomorphology to societal requirements & quality of Environment are dealt with.
Climatology (Paper 2)	<ul style="list-style-type: none"> ➤ Students will understand the weather as well as generation of climate phenomenon by learning of interaction between atmosphere & earth's surface. ➤ Also develop an idea about Cyclones and understand the importance of atmospheric pressure and winds.
Evolution of Geographical Thoughts (paper 3)	<ul style="list-style-type: none"> ➤ Students will built an idea about between Environmental determinism & possibilism, systematic & regionals. ➤ Students would be able to gain knowledge about the trends of Geographical thoughts.
Geography of India (paper 4)	<ul style="list-style-type: none"> ➤ Students will get to know about their own country India in context of Asia in the World, land formation, climate & natural vegetation. ➤ Students will understand the Globalization & Indian economy also the regional distribution of resources.
Semester II	➤ Geography
Applied Geomorphology (Paper 1)	<ul style="list-style-type: none"> ➤ It is basically a branch where the research outcomes provide information geomorphic landforms or processes that may be of concern to society and where relevant, provides solutions to problems of geometric context. ➤ So the students will understand the nature scope & subject matter of applied geomorphology. ➤ Also understand the concept of Erosion, agriculture planning, Urban Geomorphology, Hydro geomorphology and Environmental Geomorphology.
Oceanography (paper 2)	<ul style="list-style-type: none"> ➤ Students will get to know about various facets of Ocean such as, Evolution of Ocean, physical & Chemical properties of Sea water ➤ Students will gain knowledge about marine biological environmental & food resources of sea which helps them to explore their knowledge towards sea food resources in near future.
Geographical Methodology (Paper 3)	<ul style="list-style-type: none"> ➤ It includes Dualism in geography, positivism & its reactions, Behaviouralism, Para diagrams of Geography, Recent trends in Geography also the laws & theories of Models so that students will be able to know that how to collect primary & secondary data, questionnaire also about physical & socio-economical survey which helps the students to their research work in the future.
Geography of Chhattisgarh (Paper 4)	<ul style="list-style-type: none"> ➤ Students should be able to gain the knowledge about meso & micro region of Country. So they can understand Chhattisgarh region as a dynamic entity.
Semester III	➤ Geography
Rural Settlement Geography (paper 1)	<ul style="list-style-type: none"> ➤ Students will understand the growth & evolution of rural area by recognizing & analysing the distribution patterns, morphology & functions of rural settlements. ➤ The knowledge of this will built an idea about rural Settlement & its relationships with environment & different theories related to Settlement Geography.

	<ul style="list-style-type: none"> ➤ So they will get to know that people living in the rural areas all over the world are engaged & dependent on various primary occupations, viz, agriculture, fisheries, forestry & mining.
Geography of Resources (Paper 2)	<ul style="list-style-type: none"> ➤ Students will develop an idea about nature, scope & significance of Geography of natural resources. ➤ They will understand the concept of different types of resources as well as power resources so that they will be able to explain about resource relationships.
Regional Planning & Development (paper 3)	<ul style="list-style-type: none"> ➤ Students will be able to focus on regional geography of India like, physical relief, drainage, climate, soil, natural vegetation, their characteristics & distributions, deforestation & conservation of forests. ➤ They will understand the concept of multilevel planning, Decentralized planning process, Panchayat Raj system & Administrative structure. ➤ Students will be able to compare national planning techniques with that of developed countries like Japan and America and the advanced techniques and technologies they use in the use of resources, in planning environment, the pollution control measures they use.
Population Geography (Paper 4)	<ul style="list-style-type: none"> ➤ Students will understand the nature and composition of population like, age, sex, marital status, family economic composition & languages so they will be able to analyse the global trends & patterns of population growth in developing countries & migration patterns. ➤ So they will be able to know that how the places and spaces affect the population process.
Semester IV	➤ Geography
Population Geography special reference to India (Paper 1)	<ul style="list-style-type: none"> ➤ Students will understand the development of Population Geography in India, its relation with Demography, population distribution & density, world pattern & determinants in India. ➤ They will get to know about population composition of Tribes in India which will help the students to spread the awareness regarding population composition in India and how it affects the people's life.
Semester IV	➤ Geography
Population Geography special reference to India (Paper 1)	<ul style="list-style-type: none"> ➤ Students will understand the development of Population Geography in India, its relation with Demography, population distribution & density, world pattern & determinants in India. ➤ They will get to know about population composition of Tribes in India which will help the students to spread the awareness regarding population composition in India and how it affects the people's life.
Urban Geography (Paper 2)	<ul style="list-style-type: none"> ➤ Students will be able to explain the town & cities in India & world perspective. ➤ They will be able to gain the knowledge about history of urbanization in the developed & Developing countries. ➤ They can understand the functional difference between Rural & Urban Settlements ➤ So by gaining enough knowledge they will be able to examine the Contemporary Urban issues & to suggest new Urban Planning & Policy.
Agricultural	<ul style="list-style-type: none"> ➤ Students will familiarize with the concept, origin & development of agriculture so that they will understand the selected agricultural

Geography (Paper 3)	<p>concepts, cropping pattern, crop concentration, intensity of cropping, degree of commercialization, efficiency & productivity.</p> <ul style="list-style-type: none"> ➤ Also will get the knowledge about Green revolution, white & blue revolution, specific problems of Indian agriculture, agriculture tools, Soil testing centres, Bio compost, E- marketing, standard seeds, Agriculture awards, Kissan credit card. Narva, garuva, ghurva, Boariyojana. ➤ So the students can aware the people regarding better agriculture techniques.
Resources Conservation & Management (Paper 4)	<ul style="list-style-type: none"> ➤ Students will develop an understanding & appreciation for Missouri's natural resources system & conservation management. So that they will analyse comprehend forest management, practices stream & water management, grassland conservation, hunter education, fisheries & wildlife management.
M.A. Political Science	Students, who have completed their Post-Graduation in Political Science, will be well aware of
Programme Outcome	<ul style="list-style-type: none"> ➤ Both conventional and new approaches in this social science. ➤ His or her Political environment. ➤ New developments in Political Field, both in National and International. ➤ Emerging trends in National Politics and International behavior. ➤ Theoretical development of Political Science in India and in foreign countries.
Programme Specific Outcome	After completing Master of Arts in Political Science, the Student
	<ul style="list-style-type: none"> ➤ Will be able to understand International and National Policy related issues with an ease. ➤ Can make policy options with relative ease. ➤ Will be able to distinguish between several types of Governments, Systems, Constitutions, Policies and leaderships. ➤ Will develop the ability of thinking in critical manner and forming arguments. ➤ Will have a basic knowledge of Public Administration. ➤ Will become a better citizen by getting a good knowledge of political surrounding.
M.A. Political Science	Course Outcome
<i>Semester -I</i>	<ul style="list-style-type: none"> ➤ Western Political Thought ➤ Public Administration ➤ International Politics ➤ Comparative Politics
<i>Semester -II</i>	<ul style="list-style-type: none"> ➤ Modern Indian Political Thought ➤ Contemporary Political Issues ➤ Research Methodolog ➤ International Organization
<i>Semester -III</i>	<ul style="list-style-type: none"> ➤ Indian Government and Politics ➤ Indian Foreign Policy: Theory and Practice ➤ International Law ➤ Federal System in India
<i>Semester -IV</i>	<ul style="list-style-type: none"> ➤ State Politics in India

	<ul style="list-style-type: none"> ➤ Diplomacy: Theory and Practice ➤ Human Rights: Problems and Prospects ➤ Local Self Government in India
<i>Western Political Thought Paper -I</i>	<ul style="list-style-type: none"> ➤ Greek Political Thought: Characteristics, Plato: Ideal state, Theory of Justice, Theory of Education. Theory of Communism, Theory of Philosopher king. Aristotle: The father of political science, Theory of the state, Classification of constitution, Theory of slavery. Views on property and family, Theory of Revolution. ➤ Roman Political Thought: Characteristics, Medieval political thought: characteristics Machiavelli As the child of his time, Ideas of Human Nature, Separation of Politics and religion and Morality, views on state, Father of modern political thought. ➤ Hobbes: social contract theory, Locke: Social contract theory, Rousseau: Social contract theory. Theory of general will. Montesque: Power distribution Theory. ➤ Bentham: Theory of Utilitarianism, J-S. Mill: Utilitarianism, Revised edition of Benthamism on liberty, Conception of Representative Government. Hegel: Dialectical method, political view. J.H. Green: Concepts of liberty, Concepts of Rights, Sovereignty, will not force is the basic of state. ➤ Karl Marks: Dialectical Materialism. Materialistic or Economic, Interpretation of History, Theory of surplus value, Laski: view on state on sovereignty, The Pluralistic concepts.
Outcome	<ul style="list-style-type: none"> ➤ This Paper gives Students a vast perspective of Great Western Political Thinkers. ➤ Help them to understand development of Political Theory in a systematic manner. ➤ Teaches them the idea and development of the State. ➤ Gives detailed information about ancient, medieval and early modern Western Political Thinkers.
<i>Comparative Politics Paper -II</i>	<ul style="list-style-type: none"> ➤ Evolution of comparative political meaning, nature & scope. Comparative method in the study of political system, Approaches: Political sociology political economics. ➤ Political System Approach and Analysis (David, Esoteric Structural functional Approach and Analysis (Almond Powell), Political Culture and Political Socialization. ➤ Political Development Approach and Analysis (Lucian pie, Almond, Huntington, Organsky) Political Institutions, Political Communication ➤ constitutionalism, Political Elites, Political parties, Modernization. ➤ Pressure Group and social movement, Political leadership and political participation.
Outcome	<ul style="list-style-type: none"> ➤ This Paper gives to Students a detailed overview of Public Administration and Administrative Procedures. ➤ Gives workable knowledge of Budget and Finance. ➤ Distinguish between Public and Private Administration. ➤ Helpful for the students who want to make their career in Public Service Sector.
<i>Public Administration Paper -III</i>	<ul style="list-style-type: none"> ➤ Public Administration: Definition, meaning and mutual scope, study approaches, Differences and similarities with private Administration ➤ Theories of organization: Hierarchy, span of control unity of Command, coordination Delegation of Power, centralization and

	<p>decentralization.</p> <ul style="list-style-type: none"> ➤ Chief Executive: Line and staff Agencies, Leadership, Decision-making, Accountability control over Administration - Legislative and Judiciary: ➤ Personnel Management: Recruitment training, Promotion Bureaucracy: learning definition, characteristics, Merits-Demerits, Types: Modernisation Public service Commission. ➤ Financial Administration: Theories and process of Budget making, Controller and Auditor General of India, Accounting and Auditing, Neutrality in public service, Delegated legislation, Right to information
Outcome	<ul style="list-style-type: none"> ➤ This Paper helps the students to understand the dynamics and emerging trends of International Politics. ➤ Helps them to understand Non-Alignment as a core of Policy-Making. ➤ Helps to understand Specifics of National Interest and how it affects foreign policy. ➤ Gives brief idea of International organizations
<i>International Politics Paper -IV</i>	<ul style="list-style-type: none"> ➤ Development of International Politics: and Scope. Theories of International politics Realistic, Marxist, Game and System Theory. ➤ Concepts of Power: Its constituents and limitations, The management of power Balance of power; Collective security and changing nature of National power. ➤ The concepts of Non Alignment, meaning, definition, features; achievements Bases, role and Relevance. Disarmament meaning, needs, against Hindrances failures. ➤ Diplomacy- Definition, kinds-Functions Diplomatic Immunities. Regional organization SAARC, ASEAN, EU. ➤ Terrorism- Definition, Motivative elements, Terrorism in South Asia, Sima ,paar Terrorism, Terrorism- Nuclear Terrorism Global Terrorism
Outcome	<ul style="list-style-type: none"> ➤ The study of Comparative Politics helps to develop critical thinking ability in the Students. ➤ Students become aware of different modules of Comparative Politics. ➤ Gives details regarding specialties of different Political Systems. Distinguish between differences of Different Systems.
<i>Semester -II</i>	<ul style="list-style-type: none"> ➤ Political Science
<i>Modern Indian Political Thought Paper -I</i>	<ul style="list-style-type: none"> ➤ Evolution of Indian political thought, Indian Renaissance- Raja Ram Mohan Roy, Dayanand Saraswati and Vivekanand ➤ Mahatma Gandhi- Truth, Non-violence, satyagrah, View at ideal state, Gandhi as a social reformer, Chhoti as a political thinker. ➤ Pt. Jawaharlal Nehru: Political Ideas, Dr. B.R. Ambedkar: political ideas. ➤ Ram Manohar Lohia: Political and Social ideas, Jay Prakash Narayan: Social and Political ideas, Acharya Narendra Dev: social and political ideas. ➤ Deen Dayal Upadhyay: Political ideas, Manendra Nath Roy: Political ideas, Aurobindo: Nationalism and Political ideas.
Outcome	<ul style="list-style-type: none"> ➤ In the First Semester, Students have already learned about great Western Political Thinkers, now in the Second Semester, they learn about Indian Political Thinkers, who inspired our policies a lot in recent times. ➤ Distinguish between contemporary and traditional Political Thought.

	<ul style="list-style-type: none"> ➤ Gives a brief overview of evolution of Indian Political Thought. ➤ Teaches about the power of Non-violence.
<i>Contemporary Political Issues Paper -II</i>	<ul style="list-style-type: none"> ➤ Background of the Cold war End of the Cold war Causes of the Cold War, Detante Contemporary Problem of Post cold War Era. Uni polar, World System, end of communist Group . ➤ New international Economics order, issue of North South Dialogues- Mbaring, Background, Various conference (Brant, Prithivi) Pressure on North South Dialogue limitation and challenges, South-south dialogue (cooperation) ➤ Globalization: IMdaniri\$, Characaterstics, Merit, Demerit, Environmental state United Nation Environment Programme, International Law of Environment Protection Rio Conference 1992, Prithvi Conferenc e 2002. ➤ Nuclear Disarmament and Arms control CTBT, NPT, Disarmament and United Nations - Role and effods since 1947 to 1980, 1981 to update. ➤ Problem,of Third World: Concept Characteristics, Role, super power America and Third World. Devetoping issues- Economic, Social Development Agriculture, Health, Poverty, Food Problem
Outcome	<ul style="list-style-type: none"> ➤ Gives students an overview of issues, who have a deep impact in policy making, both Nationally and Internationally. ➤ Provokes interdisciplinary research approach by studying about new international economic order. ➤ Teaches about the quests of modern world as Disarmament, Environmental issues etc. ➤ Gives details about the concerns of third world countries.
<i>Research Methodolog Paper -III</i>	<ul style="list-style-type: none"> ➤ Social research: Nature, Importance and Use, Difference between pure and applied research Identification of research Problem research Design. ➤ Scientific Research method: Hypothesis concepts and variables, Hypothesis formulation and testing, sampling method. ➤ Tools and techniques of Data Collection: Observation, Characteristics of observations, kinds of observation, Merit and dernerifs of Questionnaire, Schedule, interview, Sampling and suruey Techniques. ➤ Nature of Study: Case Study: Technique Role and Importance Case study. Pilot studies and panel studies, Application of computer in social Science research. Encoding, Schedule, data Resources and Analysis. ➤ Statistics Analysis- Mean, Median, Mode, Report Writing: Prupose forms and contents, reference.
Outcome	<ul style="list-style-type: none"> ➤ It is an essential part to develop scientific research approach among students. ➤ Students get the chance to learn about new research methods in social sciences. ➤ Is a must to have an interdisciplinary research. ➤ Opens the door for students for further studies
<i>International Organization Paper -IV</i>	<ul style="list-style-type: none"> ➤ IntemationalOrgansiation: Nature and Evolutiqn International Organsiation- A Hybris of Nation State System.and The International system, The,League of Nation-structure and functions, Role in protecting World ,peace, causes of failure of league Natiops. ➤ Ttre:United' Nations: aims, structure and functions, various orgins of U.N. Need of Reform in the U-N. Structure, India and United

	<p>Nations.</p> <ul style="list-style-type: none"> ➤ Peaceful settlement and forceful settlement of International Disputes and Enforcement Action, Role of United Nations in Economic and social development. ➤ United Nations in post cold war Era, Socio, Economic and Humanitarian Role, United Nations as a peace keeper and politics within United Nations ➤ The evolution at International financial Institute: Bretton Woods system, World Trade Organization, International Monetary Fund, World Bank, New World Economic Order, Assessment of United Nations role.
Outcome	<ul style="list-style-type: none"> ➤ Students get vast information about the Evaluation and Development of international organizations. ➤ Students get the chance to understand problems and relevance of international organizations in present scenario. ➤ Students get details about the League of Nations and causes behind its failure. ➤ Students get details about United Nations and its organizations.
<i>Semester -III</i>	Political Science
<i>Indian Government and Politics Paper -I</i>	<ul style="list-style-type: none"> ➤ Background of the Constituent Assembly - Composition and Working/ salient Features of the Indian Constitution. Ideological contents - Preamble Sources of the Indian Constitution, Process of Constitutional amendment. ➤ Fundamental Rights and duties, Directive Principles of State Policy; Centre State Relation - Legislative, Financial, Administrative. ➤ Union Executive - President Prime Minister and Council of Ministers ➤ Union Legislature - House of People (Lok Sabha), House of State (Rajya Sabha), Supreme Court of India. ➤ Challenges before Indian Politics, Casteism; Regionalism, Linguism, Communalism, Corruption.
Outcome	<ul style="list-style-type: none"> ➤ This paper helps students to develop a deep insight about our country. ➤ Gives details about development of our constitution. ➤ Tries to make them better citizens by teaching them about their fundamental rights and duties. ➤ Gives them a vast knowledge about challenges before Indian Politics.
<i>Indian Foreign Policy: Theory and Practice Paper -II</i>	<ul style="list-style-type: none"> ➤ Foreign Policy Meaning, nature and Determinants. Determinants of Indian Foreign Policy Internal and External principles and objectives, origin and Evolution of India Foreign Policy. ➤ India and America, India and Russia, India and China. ➤ India and Pakistan; India and Bangladesh, India and Sri Lanka. ➤ India and Nepal, India and Bhutan, India and SAARC ➤ India and Non Alignment Movement India and ASEAN. India and Indian Ocean. India and Problems of Terrorisms
Outcome	<ul style="list-style-type: none"> ➤ This paper enables students to analyze about the Foreign Policy and its determinants. ➤ Gives brief explanation about Origin, Principles and Objectives of Indian Foreign Policy. ➤ Gives details about Indian relations with Superpowers. ➤ Gives details about India's foreign policy about neighboring countries. ➤ Teaches about India's foreign surroundings.

<p><i>International Law Paper -III</i></p>	<ul style="list-style-type: none"> ➤ International Law- Definition, nature, scope sources development . ➤ Grotius Contribution Codification Relation development ,National and International Law. ➤ Limitation and possibilities of International Law Neutrality Definitions characteristics type /Rights and Duties of Neutral state, state Succession. ➤ Treaties,-meaning, definition, Classifications,objects effects, performance of treaties. Extradition - meaning, Nature, development - conditions Extradition in india. ➤ Recognition - meaning, Definition, principles, methods, consequences. Asylum - Types, conditions, Diplomatic asylum impact on International Law - With Reference of third World.
<p>Outcome</p>	<ul style="list-style-type: none"> ➤ This paper allows students to grow insights about global legal system. ➤ Gives insights about how international laws affect policy making and relations with other countries. ➤ Gives detailed analysis of impact of international laws. ➤ Distinguish between its impact on superpowers and third world countries.
<p><i>Federal System in India Paper -IV</i></p>	<ul style="list-style-type: none"> ➤ Federal system meaning Definition Features of Federal system Merits and Demerits of federal system , Deference between federal and Unitary system , Origin and History of Federal system in India. ➤ Federal system in India and Thought of Constitution makers Structure of Federal system in India –Federal and Unitary Features. ➤ Sarkaria Commission Report Centre –state relation in India – Legislative ,Administrative and Financial. ➤ Planned Economics Development and Politics in India with special Reference to the Indian Federal system , Impact of Planning on Federalism in India. ➤ Regional Parties and their effect on Indian Federalism Emerging trends in Indian Federalism.
<p>Outcome</p>	<ul style="list-style-type: none"> ➤ This Paper distinguishes between Federal and Unitary System. ➤ Teaches about development of India’s Constitutional Development. ➤ Gives Information about uniqueness of our federal system. ➤ Provides the best opportunity to understand emerging trends in our federal system.
<p><i>Semester -IV</i></p>	<p>Political Science</p>
<p><i>State Politics in India Paper -I</i></p>	<ul style="list-style-type: none"> ➤ Governor, Appointment, power and Position of governor, Chief Minister - Appointment, Power, Function and Position Council of Minister - Function and Power of State. ➤ State Legislative - Legislative Assembly, Legislative Council, Power and function of State Legislative. ➤ State Judiciary. High Court and Subordinate Courts: Composition, Function & Powers. ➤ Demand for State Autonomy- meaning, Arguments in Favour and against of State Autonomy. Factors influencing State Politics, Inter State Council ,State Planning commission , State relation commission
<p>Outcome</p>	<ul style="list-style-type: none"> ➤ Provides detailed information about our political system. ➤ Provides information about state executive system. ➤ Provides information about our state legislative system. ➤ Provide details about our judiciary system especially in states.
<p><i>Diplomacy: Theory and Practice</i></p>	<ul style="list-style-type: none"> ➤ Diplomacy: Meaning definition; objective and function, Diplomacy Origin and development, Diplomacy as a means and tools, limitation.

<i>Paper -II</i>	<ul style="list-style-type: none"> ➤ Types of diplomacy old and new diplomacy .New, trends summit and parliamentary; Democratic and confirence, Personal diplomacy, Open and Secrete diplomacy ➤ Forms of diplomacy, in different countries - India, America, Britain, Russia, China, Italy, France and United Nations. ➤ Qualities of diplomat, working of diplomat, language, their classes and immunities. ➤ Indian diplomacy and united Nations, Treaties and International compacts Role of Great diplomats - castle-Reigh, Bismarhck, woodrowwilson, v.K. Menon, K.S. Pannikar, p.V.Narsimharao.
Outcome	<ul style="list-style-type: none"> ➤ This paper is advanced course in International relations. By studying this paper, a student develops deeper insight in this field. ➤ Gives detailed information about origin and development of diplomacy. ➤ Through this paper, students gain a lot of real political World experience. ➤ They become knowledgeable about Indian diplomacy in the context of other countries.
<i>Human Rights: Problems and Prospects Paper -III</i>	<ul style="list-style-type: none"> ➤ Human Rights- Meaning, definition; nature and historical development. HumanRights - Different.perspective : Liberal, M arxist, Gandhian. ➤ National Human Rights commission- Organisation, Objects, ,function and power, importance, role. ➤ Rights of women, child, minority and refugees. ➤ United Nation and Human Rights, Univresal declaration of Human Right, Intemational protection of Human Rights- Civil, Political, Social and Economic Rights. ➤ Collbctive'Rights, The Right of Self Determination, Problerns and Possibilities of Human Rights in India
Outcome	<ul style="list-style-type: none"> ➤ It is one of the most important aspects of current scenario, both in national and international levels. ➤ Through this paper, a student gains respect and tolerance for difference of opinion. ➤ Human rights are the base of any civil society, thus it is very important subject to study. ➤ By having knowledge of human rights, students can empower themselves and protect venerable people from abuse also.
<i>Local Self Government in India Paper -IV</i>	<ul style="list-style-type: none"> ➤ Local self governmentmeaning ,Definition , features, function , importance , merits –demerits of local sefl Government. ➤ Evolution of local self government ,73 constitutuon amendment. ➤ Rural Local self Government:'Organisation, power and function Three tier Pacnhayati Raj, System, Control. ➤ Urban Local self Government Organisation, power and function (Municipal corporation, Municipal council) Finance &control over. ➤ Local self Government and Bureaucracy, tokpal- lokayukta, right to information.
Outcome	<ul style="list-style-type: none"> ➤ A very useful course for students for their day to day life. ➤ This paper makes them aware to their thoughts clear and coherent. ➤ Students become well aware of their rights and duties. ➤ This is a very important training ground to manage local challenges.
M.A. Sociology	<ul style="list-style-type: none"> ➤ Upon successful completion of the program the post graduate

	would be able to
Program Outcome	➤ Examine the rules and responsibilities of individuals group and institutions in larger society displaying understanding of the complex relationship between human behaviour and the social context.
	➤ Propose a plan of research for a sociological problem or issue, including conceptualization of the problem . review of pertinent literature design of a research study , and identification of methods appropriate for exploring the problem or issue.
	➤ Apply various theoretical perspectives to issue in society ,showing how a perspective frames each issue ,that is, how we understand the issue , the kinds of question we can ask about it , and the kinds of research methods we can apply to answering the questions .
Course Outcome	➤ Major areas that will be covered under PG program :-
<i>M.A. Previous (sem.1)</i>	➤ Classical sociological theories ,
	➤ Methodology of social research
	➤ Rural sociology
	➤ Urban society in India
<i>M.A. Previous (sem.2)</i>	➤ Modern sociological theories
	➤ Social research and statistics
	➤ Rural Development and Changes
	➤ Urban social structure and Problems.
<i>M.A. Final (sem3)</i>	➤ Perspective of Indian Society
	➤ Industrial sociology.
	➤ Demographical Profile
	➤ Criminology
<i>M.A. Final (sem4)</i>	➤ Theoretical perspective& Indian Society
	➤ Industry and society in Indian
	➤ Social Demography of India
	➤ Criminology and correctional Institutions
Semester 1	➤
<i>Classical sociological theories (Paper 1)</i>	➤ Students would be able to gain knowledge about the historical social and economic profile of sociology and the pioneers of the subject like August Comte ,Max weber , karl Marx, Durkheim and their respective classical theories which paved way for sociology to develop as in independent discipline of social enquiry
<i>Methodology of social research (Paper2)</i>	➤ Students will understand meaning, characteristics , object and importance of social research . They will gain knowledge about the survey and how to conduct both quantitative and qualitative methods in sociological research .They will also gain techniques of data collection , tabulation report writing.
<i>Rural sociology (Paper3)</i>	➤ Rural and Agrarian societies are one of the earliest forms of community and civilization . This paper examines the Indian rural social system, Indian rural social structure, peasant society, folk culture. Rural power structure is also a very important aspect of society .This paper also examines leadership ,Village panchayat , peasant relations , localization , universalisation little and great tradition
<i>Urban society in India (Paper4)</i>	➤ Students will Know about the urban society as well as concept , importance, urban community . They will gain knowledge development of city .urbanization in India , changing pattern of

	urbanization and problems of urbanization .
Semester-2	➤
<i>Modern sociological theories</i> (Paper 1)	➤ Students will know about the recent integrative developments in sociological theory as well as like structural functional theory ,conflict theory , phenomenological theory , Indian sociological theory ,reflective and theories form modernism to post modernism .
<i>Social research and statistics</i> (Paper 2)	The Students will gain knowledge concept of statistics, diagrammatic presentation of facts , graphic presentation of facts , computer in social research and measures of central tendency .
<i>Rural Development and Changes</i> (Paper 3)	➤ Students will get to know rural demography in change , rural social institution , rural change , rural social problems peasant unrest rural development and programme. They will know about poverty unemployment gutbandi and migration .
<i>Urban social structure and Problems</i> (Paper 4)	➤ Students will get further in –depth knowledge about the city and city dimension , urban ecology and its theory , sociological thinker s ,urban problems ,urban planning in Chhattisgarh etc.
Semester- 3	➤
<i>Perspective of Indian Society</i> Paper1	➤ This paper will make student acquainted with the rich heritage and culture of India .Its cultural, religious and linguistic , they will know about concept of Indian society like verna , Ashram ,Karma, Caste system and Indian villages and unit representing the society .
<i>Industrial sociology.</i> (Paper2)	➤ Last century has witnessed an upsurge in industrialization and has affected the structure of societies across the world .the paper analyzes the relationship between society and industry, industrialization , Industrial planning , Industrial revolution and policies ,human resource and planning .
<i>Demographical Profile</i> (Paper3)	➤ Students will get to know the demography , meaning scope , demographic study and research in India ,census , fertility and birth rate s India Malthusian and neo Malthusian theory of population . the Problems of over population in India
<i>Criminology</i> (Paper4)	➤ Thought the development of an understanding of theories of crime ,law and criminal justice system student can demonstrate the role of criminological theory as framework for understanding crime rates, pattern and from of crime and changing profile of criminals and crime .
Semester- 4	➤
<i>Theoretical perspective & Indian Society</i> (Paper1)	➤ Students will get insight about the theoretical perspectives of Indian society by eminent sociologists like Indo-logical perspective , structural functionalism ,Marxism or conflict perspective , civilization perspective and subaltern perspective
<i>Industry and society in Indian</i> (Paper2)	➤ Students will further get insight about social organization ,concept of employee organization like trade unions , leadership in industry , indebtedness of industrial workers , child and women labours .
<i>Social Demography of India</i> (Paper3)	➤ Students will further get insight about Indian population, public health ,health services in India ,population education , census in India etc.
<i>Criminology and correctional Institutions</i> (Paper4)	➤ Students should develop understanding of the social correlates of crime and the distribution of crime across time and space . Theory of punishment , history of prison in India , correctional programmes in prison and problems related to itzail management .

Programme Overview	<ul style="list-style-type: none"> ➤ Sociology is the study of human social relationships and institution .Sociology’s subject matter is diverse ranging from crime to religion , from the family to the state from the division of race and social class to the shared beliefs of a common culture , and from social stability to radical change in whole societies M.A. Sociology programme will help student s to understand the way the social world works and how it might be changed for the better . Most generally , students will learn how to think evaluate and communicate clearly , creatively and effectively. These are all abilities of tremendous value in a wide variety of vocational calling and professions
Programme Education Objectives	<ul style="list-style-type: none"> ➤ To acquaint learners about the role of evidence in social sciences and how to conduct both qualitative and qualitative sociological research
	<ul style="list-style-type: none"> ➤ To inculcate effective communication written and oral ,about the field of sociology
	<ul style="list-style-type: none"> ➤ To impart substantive knowledge of core areas in sociology and the ability to think critically about them .
	<ul style="list-style-type: none"> ➤ To acquaint about the history and evolution of the discipline of sociology .
	<ul style="list-style-type: none"> ➤ To develop preparedness for professional study beyond the B.A. degree , or for entry into a career in the social sciences
Career Avenues	<ul style="list-style-type: none"> ➤ Sociologists are employed by research institutes , the criminal justice system ,public health and welfare organization , private businesses , law firm , international agencies , medical centres, educational institutions , advertising firm ,survey and polling organization , sociologists also work in business , human resources and journalism sector . In some sectors, sociologists work closely with economists, political scientist ,anthropologists, psychologists and social workers . the most common jobs held by sociologists are that of educators or teacher , researchers, administrators consultants and counsellors.
	<ul style="list-style-type: none"> ➤
M.A.	Ecomincs
Programme Outcome	<ul style="list-style-type: none"> ➤ Major areas that will be covered under PG program :-
M.A. (sem.1)	<ul style="list-style-type: none"> ➤ Macro Economic Analysis
	<ul style="list-style-type: none"> ➤ Quantitative Methods
	<ul style="list-style-type: none"> ➤ Indian Economic Policy
	<ul style="list-style-type: none"> ➤ Inetenational Trade &Finance
	<ul style="list-style-type: none"> ➤ Industrial Economics
M.A. (sem.2)	<ul style="list-style-type: none"> ➤ Micro Economic Analysis
	<ul style="list-style-type: none"> ➤ Research Mehtodology and Computer Application
	<ul style="list-style-type: none"> ➤ Indian Economic Policy
	<ul style="list-style-type: none"> ➤ Inetenational Trade &Finance
	<ul style="list-style-type: none"> ➤ Industrial Economics
M.A. (sem3)	<ul style="list-style-type: none"> ➤ Micro Economic Analysis
	<ul style="list-style-type: none"> ➤ Public Economics
	<ul style="list-style-type: none"> ➤ Economics of Growth
	<ul style="list-style-type: none"> ➤ Enviromental and Welfare
	<ul style="list-style-type: none"> ➤ Labour Economic
M.A.	<ul style="list-style-type: none"> ➤ Micro Economic Analysis

<i>(sem4)</i>	➤ Public Economics
	➤ Economics and Development and Planning
	➤ Economics of Social Sector
	➤ Labour Economic
	➤
<i>Programms Specific Outcome</i>	<ul style="list-style-type: none"> ➤ Understand the key concept of economics, theories and models. ➤ Comprehend current perspectives and issue in major areas of the Indian economy and World economy. ➤ Have a comprehensive knowledge of the socio-economic issues and make a critical appraisal of policy measures addressing their effectiveness. ➤ Understand the relevance and application of economic theories to contemporary economic issues. ➤ Equip themselves to be trained quality teachers, researches and policy makers.
<i>Course Outcome Semester -I</i>	➤ Economics
<i>Micro Analysis Economics Paper -I</i>	<ul style="list-style-type: none"> ➤ Basic Economic Problems, Deductive and inductive methods of analysis, Elasticity of demand ('Price, cross, Income) elasticity of supply, Theories of demand. ➤ Utility, Indifference curve Income and Substitution effects Slutsky theorem, Compensated demand curve and their application. ➤ Revealed 'Prefedrence theory, Revision of demand theory of hicks, Consumer's surplus. ➤ Production function - Short period and long period, law of variable proportion and return of scale isoquants- - least cost combination of in-puts, Economics of scale, elasticity of substitution. ➤ Euler's Theorem, Game Theory Technical Progress and production function Cob- Douglas, Cost and Revenue analysis.
<i>Quantative Methods Paper -II</i>	<ul style="list-style-type: none"> ➤ Basic Concept,- formulation of a linear programming problem its structure and variables, nature of feasible, baSicand:optional solution symmetrical and symmetrical distribution, measurement of Skewness-Karl Pearson's coefficient of Skewness, Blowley's coefficient of Skewness: ➤ Simple Correlation, Measuremngt of correlation , Karl Pearson's coefficient of correlation, Partial and multiple coefficient of Correlation, Spearman's Coefficient of correlation, Interpretation of coefficient of correlation. ➤ Regression analysis, regression and corelation, regression lines and regression coefficient, regression equations.multiple regression Analysis (up to three variables) standard error of the estimates, inter Pollution and extrapolation method of to fitting paraboliccurve. Newtons method of advancing difference, difect binomial expansion method and Lagrange's method. ➤ Probability, meaning and definition, Permutation and combination, Types of events, Measurements of Probability- addition and multiplication theorem, conditional probability ➤ index Number, Meaning importance, points to remember while constructing index number, chain index number, cost of living indexnumber, Fishers ideal index number Reversibility test- tirne Reversibility & factor Reversibility.
	➤ GBP and,,NationallIncome of india - Components and structure of

<p style="text-align: center;"><i>Indian Economics Policy Paper -III</i></p>	<p>GDP and national income, Role of Primary Secondary & Tertiary Sectors in GDP of India, National income and per Capita income, Growth rates of GDP and per Capita income, saving investment and Capital Formation Rates in India.</p> <ul style="list-style-type: none"> ➤ Economic Development and its Determinants - Approaches to economic Development and its measurement sustainable development Role of State Market and other institution, indicators of development Poli Human Development index (HDI) gender Development indices. ➤ Planning in India- Objectives and strategy of planning, Failure and achievements of Plan, Developing grass-root organization for development Panchayat, NGO's and pressure groups. ➤ Demographic Features, Poverty and equality, Broad demographic Features of India population, Rural- Urban migration; Urbanization and civic amenities, poverty and inequality. ➤ The agriculture sector, institution Structure- Land reforms in India, Technological change in agriculture- input and output, agriculture finance policy, Agriculture marketing and warehousing, issues in food security policies for sustainable agriculture.
<p style="text-align: center;"><i>International Trade & Finance Paper -IV</i></p>	<ul style="list-style-type: none"> ➤ Theory of international trade- Meaning and distinguishing features of international and international, trade Difference and similarities between inter-regional and international trade, Smith's theory of absolute advantage, Ricardo's theory of comparative cost and Haberler's support unity cost theory. ➤ Millis Theory of reciprocal demand, offer curve analysis, Heckscher-Ohlin theory of international trade, factor price equalization Stolper-Samuelson and Rybozynski theorems. ➤ Measurement of gains from trade and their limitations, The terms of Trade -Concept, Determination of terms of trade Factor affecting terms of trade, Terms of Trade, and Economics development, Terms of Trade and welfare implications, Trade as an engine of economic growth. ➤ The theory of international Tariff, quotas and non tariff barriers) Economic effects of tariff quotas on national income, output, consumption, Price employment, Terms of trade and income distribution, Dumping Type, objective and effects of dumping current incidence of Dumping in India and its impact on our economy anti dumping measure, ➤ Meaning and components balance of payment (BOP) Equilibrium and disequilibrium in the BOP measure to correct the adverse BOP Marshall -Lerner's conditions under devaluation, expenditure switching policies and direct control.
<p style="text-align: center;"><i>Industrial Economics Paper -V</i></p>	<ul style="list-style-type: none"> ➤ Framework and Problems of Industrial Economics— Concept and organization of a firm ownership, Control and objectives of the firm, passive and active behavior of the firm ➤ Market Structure— Seller's concentration Product differentiation; Entry conditions; Economics of scale; Market structure and profitability; Market structure and innovation; Theories of industrial location; Weber and Sergeant Florence Factors affecting location. ➤ Market Performance— Growth of the firm— Size and growth of a firm; Growth and profitability of the firm; Constraints on growth; Productivity, efficiency and capacity utilization— Concept and

	<p>measurement, Indian situation.</p> <ul style="list-style-type: none"> ➤ Indian industrial Growth and Pattern— Classification of industry, Industrial pokey in India— Role of Public and private sectors, Recent trends in Indian induStrial growth, MNCs and transfer of technology. ➤ Liberalization and Privatization— Regional Industrial growth in India, Industrial economic concentration and remedial measures, issues in Industrial proliferation and environmental preservation, Pollution control policies.
<i>Semester -II</i>	➤ Economics
<p><i>Micro Economic Analysis</i></p> <p><i>Paper -I</i></p>	<ul style="list-style-type: none"> ➤ Price and output determination- perfect competition - short run and long run, Equilibrium of the firm and industry, monopoly - price and output equilibrium under monopoly, price discrimination, monopoly control and regulation. ➤ Monopolistic competition- Generar and chamberlin approaches to equilibrium and selling cost, oligopoly- non collusive (curnot, Bertrad, Kinked Demend curve) and collusive (cartels mergers & price leadership) Baumols sales reverue maximization model, Baines limits pricing theory. ➤ Distribution- Marginal Productivity theory of distribution, Modern Theory of Distribution, Rent- Recardian and modern theory, Theory of interest and IS-LM Curve model. ➤ Theory of wages-wage determination under perfect and imperfect competition, Theories of profit, risk uncertainty and innovation theory, Welfare economics and general Equilibrium-Pilouvian Welfare economics, Pareto optional condition. ➤ Social welfare function, compensation principle, theory of second best - Arrow's impossibility theorem, partial and general equilibrium, walrasian excess demand and inputs output approaches to general equilibrium
<p><i>Research Methodology and Compture Application</i></p> <p><i>Paper -II</i></p>	<ul style="list-style-type: none"> ➤ Association of attributes, Meaning and types of association, consistency of data, methods of determination assooiation - method of comparison of observed and expected frequenqy, mqthod of comparison of proportion, coefficient of association using rule's method. Time series analysis, Short period oscillation, Trend, Semi average method, Moving average method, Method of least squares, Graphical presentation. ➤ Research methodology research and research method, Research meaning types and motivation of research main slages of Statistical research, primary and secondary data, methods of collecting primary data, secondary data different sources precautions while constructing question ➤ Sampling and sample design, census and sample methods, methods of sampling random sampling methods and non randsm sampling methods, size of sample merits and limitation of sampling, classification types of classifications type of classification tabulation of data parts of a table, types of tables. ➤ Hypothesis, meaning and types of hypothesis, procedure of test of significance, studentes T test Chi squar test and F ration test, Practical problems related to significance of the differenc.e between small samples. ➤ Computer, What is computer, Different parts of computer, Hardware

	and software, Types of Computer, Main characteristics of a computer, Role of Computer in economic research..
<i>Indian, Economic Policy Paper -III</i>	<ul style="list-style-type: none"> ➤ Industrial sector industrial Policy public sector enterprise and their performance, Problem of sick units in India privatization and disinvestment debate, growth and pattern of industrialization. ➤ Public Finances & Banking, Fiscal federalism: centre - state financial relation Finances of central government, Finances of state government Fiscal sector reforms in india, Review of monetary policy of RBI. ➤ External Sector & Economic Reforms- issues is export import policy and FEMA, Exchange Rate policy foreign capital and MNCs in india. the Progress of trade reforms in india. ➤ Balanced Regional Development indicators of regional, imbalance courses of Economic backwardness and regional imbalances. ➤ WHO and its impact different sector of economy, Economic, Reforms Retional of internal and external reform budget (Country and states), How to Prepare a budget of central and State government.
<i>International Trade & Finance Paper -IV</i>	<ul style="list-style-type: none"> ➤ Theory of Exchange rate ,Equilibrium Exchange rate free market theory of exchange rate concept of foreign exchange rate the purchasing power parity theory balance of payments theory spot and forward exchange rate fixed and flexible exchange rate their merits & de-merits. ➤ Emerging international monetary system Reform of international monetary system in india developing countries, Functions, achievements and failure of WTO (TRIPS, TRIMS) UNCTAD, IMF, World Bank. ➤ Asian Development bank, world bank and india European Economic Community Rational and Economical progress of SAARC and ASEAN regions. ➤ Theory of short term and long term capital movement and International trade –I port foreign investment and International trade ,2 FDI & FII International trade , Merits & De merit of long term capital movement global financial crisis and global recovery . ➤ Trade Problems and trade policies in india after reforms, Recent change in the direction and composition of trade and their implications, impact of trade reforms since 1991 instruments of export promotion, Recent import & export policies in india, problems of india's International debt.
<i>Industrial Economics Paper - V</i>	<ul style="list-style-type: none"> ➤ Industrial Finance — Owned external and other components of funds; Role, nature, volume and types of institutional finance — IDBI, IFCI, SFCs, SIDC. Commercial banks etc ➤ Financial Statement— balance sheet, profit and loss account assessment of financial soundness ➤ Project Appraisal-Cost— Benefits analysis— Net Present Value (NPV) and internal rate of return (IRR) criteria — balancing private and social returns. ➤ Industrial Labour — Structure of industrial labour, Employment dimensions of Indian industry; Industrial legislation; Industrial relations; Exit policy and social security; Wages and problem of bonus — labour market reforms.

	<ul style="list-style-type: none"> ➤ Current Problems of selected Industries— Iron and Steel, Cotton textiles, jute, sugar, coal, cement and engineering goods, development of small— . scale and collage industries in India.
<i>Semester III</i>	<ul style="list-style-type: none"> ➤ Economics
<i>Macro Economic Analysis Paper -I</i>	<ul style="list-style-type: none"> ➤ Definitions and concepts of National Income NI and national product, methods of measurements of NI and difficulties in the measurement of NI, Different forms of national income accounting, social accounting, input_ output accounting, NI and welfare ➤ consumption- Marginal and average propensity to consume, Keynes Psychological laws of consumption, determinants of consumption function, Income consumption relationship absolute income hypothesis, Duesenberg's relative hypothesis, permanent, income hypothesis and life cycle hypothesis ➤ Meaning and types of investment; determinants of investment, marginal efficiency of capital investment, saving and investment equality, multiplier, accelerator, super multiplier employment theory_ Glassical theory, Keynesian theory of income and employment, comparative study ➤ Demand for Money- Fundamental, equation of Keynes post Keynesian approach to demand for money- patinkin, Boumol's, James Tabin, Friedman, Gurley & Shaw's approaches. ➤ The Product market equilibrium, the money market equilibrium, General Equilibrium of product and money market, changes in general Equilibrium.
<i>Public Finance Paper -II</i>	<ul style="list-style-type: none"> ➤ Role of Government in organize society, Principles of maximum social advantage taxation- different forms, principals of taxation, shifting, effects and incidents of taxation, Impact of tax under laws of returns and perfect competition. ➤ Indian tax System Indirect & direct tax, corporate tax, personal income tax, estate duty central excise, custom duties, taxes on land and agriculture, value added tax, MODVAT. Service tax, taxable capacity, tax reforms in India ➤ Public expenditure- Different forms of expenditure, structure and growth of public expenditure in India trend in central govt. expenditure, economic effects of public expenditure on production and distribution, public expenditure and economic growth. ➤ Public debt- Different source of public debt, Redemption of public debt, principles of public debt management, Growth of Public debt in India ➤ Budget- budget process in India, objectives of budget, kinds of budget traditional budget, performance budget, zero based budget, out come budget, gender budget, budget theory-classical view point, balance budget, modern view point, imbalance budget.
<i>Economics Of Growth Paper -III</i>	<ul style="list-style-type: none"> ➤ Economic Growth: Economic growth and development, measurement of economic growth, Economic growth modet vicious circle of poverty, Physical Quality of life index, Human development index, UNDP Human development report 2010, inclusive growth. ➤ The concept of capital output ratio, input- output analysis, project evaluation and cost-benefit artalysis, Methods of project evaluation. ➤ Theories of Development: the Marxian model, The Schumpeterian model, ' Keynesian Model, theory of development, mahalalanobis four

	<p>sector model.</p> <ul style="list-style-type: none"> ➤ Theories of development Harrod- Domar Model: Arthur Lewis Model unlimited supply of labour, Ranis & Feiwel Model, Kaldor Model of distribution. ➤ John Robinson model, Meade's New- Classical model Hicks and Hayek model, Solow model of long-run growth.
<i>Environmental And Welfare Economics Paper -IV</i>	<ul style="list-style-type: none"> ➤ Welfare Economics - Definition of welfare economics, Criterion of social welfare, Cardinal Criterion, Pareto Optimality Criteria, Kaldor- Hicks Compensation Criterion, The Bergson Criterion, the problem of second best. ➤ Social welfare function, Maximization of social welfare, Maximization in Perfect competition, public goods and private goods, market failure & public goods. ➤ Environmental Economics- Beneficiation of Environmental Economics, Relation between environmental Economics and economics, Environmental Economics and ecological economics, environmental and resource economic important issues in environmental Economics, Macroeconomic policy and environment. ➤ Theories of Externalities- Economies and diseconomies, External Cost, Marginal social cost, Marginal private cost, Pigou taxes and subsidies. ➤ Environmental value- Use value, option value and non use value, International carbon tax, environment and W.T.O.
<i>Labour Economics Paper -V</i>	<ul style="list-style-type: none"> ➤ Labour Market— Nature and characteristics of labour market, Analysis classical, new classical. Analysis of demand and supply, labour forces, demand for labour relating to choice of technology. ➤ Supply of labour in relation to growth of labour force— Rationalization, methods of recruitment and placement, Employments revise organization in India. ➤ Employment— Employment and development relationship poverty and unemployment-concept, Types and measurement, particularly in India, Causes of unemployment issues relating to employment rationalization. ➤ Technological change and modernization on employment in organized. Private industry, public sector and employment in agriculture sector ➤ Wage determination Various classical, neo classical and bargaining theories of wage determination, various concepts of minimum wages and fair living, Problem of implementation of minimum wages.
<i>Semester -IV</i>	➤ Economics
<i>Macro Economic Analysis Paper -I</i>	<ul style="list-style-type: none"> ➤ Quantity Theory of Money- Fisher's and cash balance (Cambridge) approach, definition of money supply, determinants of money supply, RBI approach to money supply, budget deficits and money supply, High Powered money, control of money supply. ➤ Concept of inflation, semi and full inflation, Demand pull and cost push Inflation, theory of structural inflation, causes & effects of inflation, stagflation, control of inflation, The Philips curve analysis. ➤ Business cycles- main features of business cycles, Types of Business cycle, Theories of Business cycles, Hume's monetary theory of trade cycle, Schumpeter's Keynes Hicks, Samuelson's,

	<p>Friedman, Kaldor model of trade cycle, Control of business cycle.</p> <ul style="list-style-type: none"> ➤ Monetary policy- Meaning of monetary policy, instrument of monetary policy, Objective of Monetary policy, limitations of monetary policy, monetary policy and economic development, new classical macro economics. ➤ International Monetary System & Fiscal Policy- International Monetary system, International Liquidity problem, SDR & New International Economic Order, Meaning & objectives of Fiscal Policy, instruments of fiscal Policy.
<p><i>Public Economics Paper -II</i></p>	<ul style="list-style-type: none"> ➤ Fiscal federalism in India, principles of fiscal federalism, finance commission report, vertical and horizontal imbalance ➤ Fiscal Policy- Objectives of Fiscal policy, theory of Fiscal Policy, Policy in under developed countries, Economic stability and fiscal policy and full unemployment, Fiscal policy and economic development: A Study in Development finance. ➤ Federal finance - Principle of federal finance in India, Centre-state financial relation, resource transfer from centre to state Godgil formula. ➤ Analysis of central & Chhattisgarh Govt. budget, Taxable and non taxable income of Chhattisgarh, Structure and growth of public expenditure in Chhattisgarh. ➤ Financial responsibilities and budget management Act, Performance of the chhattisgarh Govt. Budget, Plan & Non plan, Expenditure in Chhattisgarh.
<p><i>Economic. Development & Planning Paper III</i></p>	<ul style="list-style-type: none"> ➤ Economic Planning objective, achievements and failure of indian plans, Resource mobilization in indian plan, strategy of indian plan, saving capital formation and overall growth rate, Eleventh five year plan 2007-12) Midterm appraisal of eleventh five year plan. ➤ Approach to development.- Vicious circle of poverty, Big-push theory, theory of critical minimum efforts, balanced and unbalanced growth. ➤ Investment criteria in economic development, The social marginal productivity criteria the capital turnover criteria, The Reinvestment. Criterion time series criterion fiscal . ➤ fiscal and monetary policy human capital formation in developing countries economics crises in development and countries with special reference to economic development . ➤ Problems of development measuring poverty of world and india income inequalities unemployment the choice of techniques, sustainable Development, role of state in economic development, problem of price rise in India.
<p><i>Economics Of Social, Sector Paper IV</i></p>	<ul style="list-style-type: none"> ➤ Pollution- Classification of pollution, Control of pollution, Air pollution control water pollution control, pollution control strategies,- cost benefits analysis of pollution environment and pollution. ➤ Environmental protection, Environmental laws Protection Environment development sustainable development pollution growth and environmental issues global warming climate change green house effect ➤ resources classification of resources renewable non renewable optimum use of resources land resources forest resources social forestry peoples participation in manage of common forest land

	<p>energy efficiency and environment energy taxation atomic & solar energy .</p> <ul style="list-style-type: none"> ➤ Education economics of education expenditure on education productive expenditure on education productivity of education ,the return education Human capital Vs Physical ,educational reform and right education act . ➤ health Economics determination of health care malnutrition the concept of human life inequalities in health class and gender prospective HDI ,GDI ,GEM, and HPI
<i>Labour Economics Paper -V</i>	<ul style="list-style-type: none"> ➤ Wage determination by Qatar- urban & rural, Organized and unorganized. Wages and inflation, Productivity and wage relationship, Profit sharing scheme, Causes of wage differentials in terms of firm, occupation and region. ➤ Industrial Relation Industrial Relation and trade Unions Industrialization and emergence of trade unionism, Growth structure and pattern of trade unionism Achievements and failures of trade union movement. ➤ Causes of industrial disputes, Step to achieve Industrial peace, Method of settlement of industrial disputes collective bargaining, Conciliation arbitration role of judicial activism, labour legislation in India, Indian labour law and practices in relation, to international labour standard. ➤ State and labour in India State and social security of labour, concept of social security and its evolution social assistance, Review and appraisal of state policies with respect to social security and labour welfare in India. ➤ Special problem of labour, Child labour, Female labour, discrimination and gender bias in treatment of labour, Labour market reform exit policy need for safety nets, Measures impairing, Flexibility in labour markets, Social Insurance, Second National commission of labour, globalization and labour markets.
M.A. Hindi	➤ Major areas that will be covered under PG program
<i>M.A. (sem.1)</i>	<ul style="list-style-type: none"> ➤ हिन्दी साहित्य का इतिहास ➤ प्राचीन काव्य ➤ आधुनिक गद्य साहित्य ➤ भाषा विज्ञान
<i>M.A. (sem.2)</i>	<ul style="list-style-type: none"> ➤ हिन्दी साहित्य का इतिहास ➤ मध्यकालीन काव्य ➤ आधुनिक गद्य साहित्य ➤ हिन्दी भाषा
<i>M.A. (sem.3)</i>	<ul style="list-style-type: none"> ➤ भारतीय काव्य शास्त्र ➤ आधुनिक काव्य ➤ प्रयोजन मूलक हिन्दी ➤ भारतीय साहित्य
<i>M.A. (sem.4)</i>	<ul style="list-style-type: none"> ➤ पाँचवाँ काव्य शास्त्र ➤ छायावादोत्तर काव्य ➤ पत्रकारिता ➤ लोकसाहित्य एवं छत्तीसगढ़ी साहित्य
<i>semester -1</i>	➤
<i>हिन्दी साहित्य का इतिहास Paper1</i>	➤ इतिहास दर्शन और साहित्य इतिहास ,हिन्दी साहित्य के इतिहास के लेखन की परम्परा आधारभूत सामग्री और साहित्य इतिहास के पुनलेखन की समस्याएँ हिन्दी साहित्य का

	इतिहासकाल ,विभाजन, सीमा निर्धारण और नामकरण की समस्याएँ, आदिकाल की पृष्ठभूमि, वीरगाथाकाल , रासो की साहित्य , जैन साहित्य, काव्य धाराएँ ,रचनाकार एवं उनकी रचनाएँ, पूर्व मध्यकाल की इतिहासिक पृष्ठभूमि, भक्ति आंदोलन एवं चेतना उत्तर मध्यकाल की इतिहासिक पृष्ठभूमि ,काल-सीमा और नामकरण ,दरबारी संस्कृति , रीतिकालीन साहित्य ,साहित्य की विभिन्न धाराएँ, प्रतिनिधि रचनाकार एवं उनकी रचनाएँ । लक्षण ग्रंथो की परम्परा ।
<i>प्राचीनकाव्य</i> Paper2	➤ विद्यापति व्याख्या , पदावली , आलोचना , व्यक्तित्व एवं कृतित्व, भक्ति भावना , श्रृंगार वर्णन प्रकृति चित्रण सौंदर्यचित्रण गीतपद्धति काव्य कला अंलकार , कबीरव्याख्या , आलोचना ,व्याख्या जायसी आलोचना , पदमावत में विरह प्रेम भाव , सौंदर्य कवियों का सामान्य अध्ययन –अमीर खुसरो, मीराबाई, रैदास, रहीम, रसखान आदि ।
<i>आधुनिक गद्य साहित्य</i> Paper3	➤ व्याख्या चन्द्रगुप्त, जय इंकर प्रसाद समीक्षा नाटक एवं व्यक्तित्व ,आशाढ के एक दिन व्याख्या , समीक्ष –राके मोहन निबंध –साहित्य की महत्ता आचार्य महावीर प्रसाद द्विवेदी ,करण-आचार्य रामचन्द्र भुक्ल , आचार्य हजारीप्रसाद द्विवेदी-भरतीय साहित्य की प्राण शक्ति, विद्यापति मिश्र-चन्द्रमामनसोजात, हरि इंकरपरसाई-भोला की जीव , सामान्य अध्ययन –भारतेन्दुहरि चन्द्र , डॉ. रामकुमारवर्मा , लक्ष्मीनारायण लाल , धर्मवीरभारती , जगदी चन्द्रमाधुर ।
<i>भाषाविज्ञान</i> Paper4	➤ भाषा और विज्ञान की परिभाषा ,अभिलक्षण ,व्यवस्था , स्वरूप, संरचना और भाषिक प्रकार्य , अध्ययन की दि ाएँ-वर्णात्मक ,ऐतिहासिक और तुलनात्मक , स्वन प्रक्रिया में स्वरूपऔर भाखाएँ, उनके कार्य एवं स्वन की अवधारणाएँ , वर्गीकरण ,स्वनिक परिवर्तन, भेद, वि लेशन , व्याकरण-स्वरूप और भाखाएँ अवधारणाएँ और उनके भेद, प्रकार्य ,मुक्तआबध्य दर्शी , संबंध दर्शी , वाक्य वि लेशन , निकटस्थ अवयव वि लेशन , गहन संरचना और बाह्य संरचना , अर्थविज्ञान-अवधारणा , भाब्द और अर्थ का संबंध , पर्यायता , अनेकार्थता , विलोमता , अर्थपरिवर्तन ।
semester2	➤
<i>हिन्दीसाहित्य का इतिहास</i> Paper1	➤ आधुनिक काल की सामाजिक , आर्थिक एव सांस्कृतिक पृष्ठभूमि की राजकांति और पुर्नजागरण, भारतेन्दु युग-प्रमुख साहित्यकार ,रचना और साहित्यिक वि ोशताएँ, द्विवेदी युग-प्रमुख साहित्यकार ,रचना और साहित्यिक वि ोशताएँ,हिन्दी स्वछंदतावादी चेतना का अग्रिम विकास छायावादी काव्य, प्रमुख साहित्यकार ,रचना और साहित्यिक वि ोशताएँ, उत्तर छायावादी काव्य की विविध प्रवृत्तियां-प्रगतिवाद, प्रयोगवाद ,नयी कविता, नवगीत, समकालीन कविता।प्रमुख साहित्यकार ,रचना और साहित्यिक वि ोशताएँ, हिन्दी की गद्य की प्रमुख विधाएँ-कहानी, उपन्यास, नाटक, एकांकी ,निबंध का विकास, हिन्दी की अन्य गद्य विधाएँ-रेखाचित्र, स्मरण, यात्रा साहित्य, आत्मकथा, जीवनी और रिपोतार्ज का विकास।वस्तुनिष्ठ और लघुउत्तरीय प्र नआदि ।
<i>मध्यकालीनकाव्य</i> Paper2	➤ सूरदास व्याख्या भ्रमरगीत सारसंपादन-आचार्य रामचन्द्र भुक्ल , आलोचना-सूर का व्यक्तित्व एवं कृतित्व ,भ्रमरगीत की दा णिक पृष्ठभूमि, भक्ति भावना,वियोग वर्णन ,उपालंभ काव्य,सूर की गोपियां, सूर के उद्धव, काव्य कला, तुलसीदास व्याख्या-रामचरित्र मानस, आलोचना-तुलसीदास के व्यक्तित्व एवंकृतित्व, भक्तिभावना ,महाकाव्यत्व, लोकजीवन एव संस्कृति, काव्यकला, लोकनायकत्व, दा णिकता, गीतित्व ,भाषा ैली , अंलकार योजना, बिहारीलाल व्याख्या संपादन, आलोचना-बिहारी के व्यक्तित्व एवं कृतित्व, संयोग, वियोग, निरूपण , सौन्दर्य चित्रण, बहुज्ञाता, काव्य सौन्दर्य ,काव्यकला, भाषा ैली ,अंलकार ,योजना, कवियों कि सामान्य अध्ययन-धनानंद के ावदास ,देव,भूशण,पदमाकर आदि ।
<i>आधुनिक गद्य साहित्य</i> Paper3	➤ व्याख्यान उपन्यास गोदान-प्रेमचन्द, समीक्षा प्रेमचन्द का व्यक्तित्व और कृतित्व, उपन्यास के तत्वों के आधार पर गोदान कि समीक्षा, मैला आंचल-फणी वरनाथ रेणु, समीक्षा-व्यक्तित्व और कृतित्व, उपन्यास के तत्वों के आधार पर मैला आंचल की समीक्षा, कहानी ,व्याख्या-चन्द्रधर भार्मी गुलेरी , जय इंकर प्रसाद , प्रेमचंद , निर्मल वर्मा उशा प्रियम्बदा, रांगेय राघव ,समीक्षा निर्धारित कहानिकारो कि व्यक्तित्व और कृतित्व, कहानी के तत्व के आधार पर कहानी कि समीक्षा।उपन्यासकार एवं कहानीकार का सामान्य अध्ययन जैनेन्द्र , भगवती भारणवर्मा , अमृतलाल नागर ,मृणाल पाण्डेय , आज्ञेय , य ापाल , राजेन्द्र अवस्थी, अमरकांत ।
<i>हिन्दीभाषा</i> Paper4	➤ हिन्दी की इतिहासिक पृष्ठभूमि , प्राचीन भारतीय आर्यभाषायें-वैदिक और लौकिक संस्कृति और उनकी वि ोशता ,भारतीय आर्यभाषायें-पाली , प्राकृत , भौरसेनी , अर्धमगधी , अप्रभं ा और उनकी वि ोशता , आधुनिक भारतीय आर्यभाषायें और उनका वर्गीकरण , हिन्दी का भौगोलिक विस्तार-हिन्दी की उपभाषाएँ, पं चमी हिन्दी , पूर्वी हिन्दी , राजस्थानी , बिहारी तथा पहाड़ी और उनकी बोलियां , खड़ी बोली ब्रज और अवधी कि वि ोशता, हिन्दी का भाषिक स्वरूप-हिन्दी का स्वनीम व्यवस्था खड्य,

	<p>खड्येत्तर , हिन्दी कि भाब्द रचना , उपसर्ग , प्रत्यय , समास , रूपरचना-लिंग वचन और कारक व्यवस्था के संदर्भ मे हिन्दी की संज्ञा, सर्वनाम , वि शेषण और क्रियारूप , हिन्दी काव्य रचना पदक्रम और अन्विति हिन्दी के विविध रूप संपर्क भाशा , राष्ट्र भाशा राजभाशा के रूप में हिन्दी , मातृभाशा, मध्यमभाशा, संचारभाशा ,हिन्दी की संवैधानिक स्थिति। हिन्दी में कम्प्यूटर सुविधायें-आंकड़ा संसाधन और भाब्द संसाधन वर्तनी- षोधक , म षीन अनुवाद ,हिन्दी और मानवीकरण। देवनागरीलिपि-वि शेषतायें और मानकीकरण ।</p>
Semester-3	➤
<p>भारतीय काव्य शास्त्र Paper1</p>	<p>➤ संस्कृत काव्य शास्त्र -लक्षण ,काव्य प्रयोजन, काव्य प्रकार,रस सिद्धांत-स्वरूप ,निश्पत्ति, अंग साधारणीकरण, अंलकार के सिद्धांत-मूलस्थापना , वर्गीकरण रीतिसिद्धांत , अवधारणा ,काव्य गुण भौलीरीति सिद्धांत की प्रमुख स्थापनाएँ, वक्रोक्ति सिद्धांत की अवधारणा ,भेद, अभिव्यंजनावाद , औचित्य का प्रमुख सिद्धांत ,भेद, ध्वनि सिद्धांत की प्रमुख स्थापना एवं स्वरूप ,प्रमुख भेद हिन्दी आलोचना की प्रमुख प्रवृत्तियां भास्त्रीय , व्यक्तिवादी ऐतिहासिक ,तुलानात्मक प्रभाववादी मनोवि लेशणवादी, सौंदर्य शास्त्रीय भौली वैज्ञानिक और समाज शास्त्रीय, आलोचनात्मक प्र न ।</p>
<p>आधुनिककाव्य Paper2</p>	<p>➤ मैथिली षरण गुप्त साकेत नवमसर्ग की व्याख्या , आलोचना-मैथिली षरण गुप्त व्यक्तित्व एवं कृतित्व , संपूर्ण साकेत से आलोचनात्मक, प्र न ,जय षंकरप्रसाद कामायनी-चिन्ता ,श्रृद्धा ,लज्जासर्ग की व्याख्या , आलोचना- जय षंकरप्रसाद व्यक्तित्व एवं कृतित्व , संपूर्ण कायामनी आलोचनात्मक प्र न ,पं सूर्यकांत त्रिपाठी निराला , राम की भाक्ति , पूजा , सरोज, स्मृति, एवं कुकुरमुत्ता की व्याख्या , आलोचनात्मक-निराला व्यक्तित्व एवं कृतित्व, राम की भाक्तिपूजा का काव्य ,वैभव सरोज स्मृति कविता की संवंदना , कुकुरमुत्ता में निहित व्यंग्य,कवियों का सामान्य अध्ययन अयोध्या सिंह उपाध्याय ,जगन्नाथदास रत्नाकार ,महादेवी वर्मा ,हरि षंकरवं षराय बच्चन , त्रिलोचन भास्त्री , वस्तुनिश्ठ , लुघउत्तरीय प्र न आदि।</p>
<p>प्रयोजनमूलकहिन्दी Paper3</p>	<p>➤ हिन्दी के विभिन्न रूप सर्जनात्मक भाशा , संचार, राजभाशा माध्यम भाशा मातृभाशा ,कार्यालयीन हिन्दी (राजभाशा), में प्रमुख प्रकार्य प्रारूपण पत्र लेखन संक्षेपण पल्लवन टिप्पण पारिभाशिक भाब्दावली ,स्वरूप एवं महत्व पारिभाशिक भाब्दावली निर्माण सिद्धांत ज्ञान विज्ञान, विभिन्न क्षेत्रों की पारिभाशिक भाब्दावली , विज्ञापन लेखन , कम्प्युटर का परिचय ,उपयोग तथा क्षेत्र वेब पब्लि षिंग का परिचय इटरनेट ई-मेल भेजना प्राप्त करना हिन्दी के प्रमुख पोर्टल ,डाउनलोडिंग व अपलोडिंग हिन्दी साफ्टवेयर , पैकेज, अनुवाद की परिभाशा क्षेत्र और सीमाएँ, अनुवाद की स्वरूप अनुवादकला विज्ञान अथवा षिल्प अनुवाद की ईकाई भाब्द पंधबंध , वाक्य पाठ, अनुवाद की प्रक्रिया, और प्रविधि वि लेशण अंतरण पुर्नगठन अनुवाद की प्रक्रिया के विभिन्न चरण अनुवाद की समस्याए साहित्यिक , कार्यालयीन, वैज्ञानिक एवं तकनीकी विधि विज्ञापन , मीडिया ,जनसंचार-प्रौद्योगिकी एवं चुनौतियां जनसंचार माध्यमों का स्वरूप मुद्रण श्रव्य, दृ ष्य श्रव्य माध्यम में रूपांतरण आदि ।</p>
<p>भारतीय साहित्य Paper4</p>	<p>➤ भारतीय साहित्य का स्वरूप, भातीय साहित्य के अध्ययन की समस्याएँ , भारतीय साहित्य मे आज के भारत का बिंब, भारतीय समाज शास्त्र, हिन्दी साहित्य में भारतीय मूलों की अभिव्यक्ति , बंगला, उडिया, भाशासाहित्य का इतिहास , प्रमुख कृतिकारों का परिचय तथा महत्वपूर्ण कृतियां, तुलनात्मक अध्ययन -बंगला साहित्य उडिया साहित्य और हिन्दी साहित्य , नाटक हृदयवन-गिरी ष कर्नाड से आलोचनात्मक प्र न , लुघ एव वस्तुनिश्ठ प्र न ।</p>
Semester-4	➤
<p>पा चात्य काव्य भास्त्र Paper1</p>	<p>➤ प्लेटो-काव्य सिद्धांत अरस्तु अनुकरण सिद्धांत , त्रासदी विवेचन,लांजाइनस उदात्त की अवधारणा वर्डसवर्थ काव्यभाशा का सिद्धांत ,कालरिजकल्पना सिद्धांत और ललित कल्पना , मैथ्यूआर्नाल्ड आलोचना का स्वरूप और प्रकार्य ,टी.एस. इलियट परंपरा की परिकल्पना और वैयक्तिक , प्रज्ञा, निर्वैयक्तिकता का सिद्धांत वस्तुनिश्ठ समीकरण संवेदन षीलता का असाहचर्य ,आई. एण्ड रिचर्ड सरागात्मक अर्थ संवेगों का संतुलन व्यवहारिक आलोचना ,सिद्धांत एवं वाद अभिजात्यवाद स्वच्छंदतावाद , अभिव्यंजनवाद, मार्क्सवाद मनोवि लेशण तथा अस्तिवाद, वस्तुनिश्ठ प्र न एवं लघुउत्तरीय प्र न आदि।</p>
<p>छायावादोत्तरकाव्य Paper2</p>	<p>➤ यात्स्यायन अज्ञेय व्याख्या -नदी के द्वीप , असाध्य वीणा ,बाबरा अहेरी , यह द्वीप अकेला ,कांगी की बाजरे , हरीवास पर क्षणभर , अन्तः सलिला, हिरोि षमा, आलोचना-अज्ञेय व्यक्तित्व एवं कृतित्व भावपक्ष ,कलापक्ष काव्य की वि शेषताएँ, काव्यकला ,गजान्नमाधव मुक्तिबोध व्याख्या-अंधेर में , कृतित्व एव व्यक्तित्व , भावपक्ष, कलापक्ष, काव्य किवि शेषताएँ , काव्यकला , लम्बी कविताओं कि परंपरा। नागार्जुन व्याख्या , बादल को गिरतें देखा है, सिंदुर तिलकितमाल, वसंत की आगवानी, कोइ आए</p>

	तुम से सीखे, तो फिर क्या हुआ, यह तुम थी, कोयल आज बोली है , अकाल और उसके बाद , भासन की बंदुक , प्रेत का बयान । आलोचना-नागार्जुन कृतित्व एवं व्यक्तित्व , भावपक्ष, कलापक्ष, काव्य कि वि शेषताएं , काव्यकला । कवियों का सामान्य अध्ययन -श्रीकान्त वर्मा, दुश्यंत कुमार , धूमिल , रघुवीर सहाय, धर्मवीर भारती।
<i>पत्रकारिता Paper3</i>	<ul style="list-style-type: none"> वि व पत्रकारिता का उदय ,भारत में पत्रकारिता का आरंभ , पत्रकारिता : स्वरूप एवं विभिन्न प्रकार, हिन्दी पत्रकारिता का उद्भव विकास, सम्पादनकला के सामान्य सिद्धांत ,समाचार पत्र के विभिन्न स्रोत , सम्वाददाता की अर्हता ,श्रेणी एवं कार्यपद्धति, पत्रकारिता से संबंधित लेखन सम्पादकीय ,फीचर रिपोतार्ज , साक्षात्कार, खोजी समाचार ,अनुवर्तन आदि की प्रविद्धिं इलेक्ट्रानिक मीडिया की पत्रकारिता-रेडियो , टी.वी. वीडियो केबल, मल्टीमीडिया और इटरनेट की पत्रकारिता , प्रिंट मीडिया-मल्टीमीडिया मुद्रणकला ,प्रुफ भोधन लेआउट तथा पृशठ सज्जा , पत्रकारिता का प्रबंध प्र ासनिक व्यवस्था , बिक्री तथा वितरण व्यवस्था , मुक्त प्रेस की अवधारणा , लोक सम्पर्क तथा विज्ञापन , प्रसार भारती तथा सूचना प्रौद्योगिकी ,प्रेस संबंधी प्रमुख कानून तथा आचार संहिता ,प्रजातांत्रिक व्यवस्था में चतुर्थ स्तम्भ के रूप में पत्रकारिता का दायित्व।
<i>लोकसाहित्य एवं छत्तीसगढी साहित्य Paper4</i>	<ul style="list-style-type: none"> लोकसाहित्य , लक्षण ,परिभाषा , क्षेत्र , लोक और लोकवार्ता और लोकविज्ञान , लोकसंस्कृति अवधारणा ,लोकवार्ता और लोकसंस्कृति लोकसाहित्य अवधारणा ,लोकसाहित्य के प्रमुख रूपों का संक्षिप्त में अध्ययन -लोकगीत , लोकनाटक,लोककथा, लोकगाथा,लोकनृत्य ,लोकसंगीत, छत्तीसगढी साहित्य का इतिहास , प्रवृत्तियां ,छत्तीसगढी साहित्य का उद्भव और विकास ,विधाए उपन्यास ,नाटक ,एकांकी , निबंध ,काहानी, महाकाव्य, दानलीला सुन्दरलाल भार्मा ।
M. Com.	
<i>Managerial Economics / Business Economics</i>	<ul style="list-style-type: none"> This course develop managerial perspective to economics fundamental as aids decision making under given environment constraints.
<i>Advance Accounting / Specialized Accounting</i>	<ul style="list-style-type: none"> The objective of this course is to expose student s to accounting issues and practices as maintenance of company account and handing accounting adjustment
<i>Management Account/Accounting For Managerial Decision</i>	<ul style="list-style-type: none"> The objective of this to acquaint student with the accounting concept. Tool and techniques for managerial decision .
<i>Statistical Analysis/ Advance statistics</i>	<ul style="list-style-type: none"> The object of this course is to help student learn the application of statistical tool and techniques for design making
<i>Business Laws</i>	<ul style="list-style-type: none"> The objective of this course is to provide knowledge of relevant provision of various laws influencing business operations
<i>Advance Cost Accounting</i>	<ul style="list-style-type: none"> This course exposes the student to the basic concept and the tool used in cost accounting.
<i>Income Tax and Account</i>	<ul style="list-style-type: none"> The objective of this course is to help student understand and conceptual framework of income tax.
<i>Tax planning And Management</i>	<ul style="list-style-type: none"> This course aims at making student conversant with the concept of corporate tax planning and Indian tax laws .As also their implications for corporate management
<i>Programme Outcome</i>	<ul style="list-style-type: none"> PGDCA
<i>Programme Outcome</i>	<ul style="list-style-type: none"> Computer is a versatile device .It can be designed to do any kind of activity provided all data and instructions are made available to it in digital form . Modern computers have incredible speed of processing It takes only few seconds for calculation that we take hours to complete .computersmake s It possible to receive , supply and process large volumes of data at high speed .
	<ul style="list-style-type: none"> Computer can ensure consistently very high degree of accuracy in computations .It Processes data according to the sequence of instruction .Hence if input data and procedures are correct the output

	will be consistently accurate.
	➤ A Computer s free form tiredness , lack of concentration , fatigue etc. It can work for hours without creating any error. If millions of calculations are to be performed , a computer will perform every calculation with the same accuracy .Due to this capability it overpowers human being in routine type of work
	➤ It means the capacity to perform completely different type work . You can may use your computer to prepare payroll slips .Next moment you may use it for inventory management or to prepare electric bills.
	➤ Computer is an automatic machine .It can ability to perform the given task automatically .Once a program is given to computer i.e. stored in computer memory the program and instruction can control the program execution without human interaction.
<i>PGDCA</i>	➤ Major areas that will be covered under PG Diploma program :-
<i>Course Outcome</i>	➤ Fundamental of Computer and Information Technology
	➤ PC-Packages and Computerized Accounting System
	➤ Data Communication and Computer Network
	➤ Programming Using ‘C’ & C++
	➤ Relational Database Management System (Oracle)
	➤ System Analysis & Design
<i>Fundamental of computer and Information Technology paper 1</i>	<ul style="list-style-type: none"> ➤ Introduction to computer and information Technology , Input/output devices- keyboard ,mouse ,monitervoce recognition ,printer ,plotter MICR, OCR, OMR, storage device –data storage and retrival methods sequention, direct and index,CD,DVD,CDRW. ➤ computer software – type of software ,system software ,application software ,oprating software ,multiprocessing and programming language machine , assembly high level 4GL, computr virus .data communication & network –analog digital signals , modulations amplitude modular . ➤ LAN, MAN, WAN, network .network operating system (NOS) bridges hub ,router .types of connection dialup leased line ,ISDN, broadband .
<i>Pc Package and Computerized Accounting system paper 2</i>	<ul style="list-style-type: none"> ➤ Fundamental of Dos &window – dos booting process ,intranal&extranal command , various version of window ,origin of window parts of window screen types and anatomy window using .introduction to spread sheet (MSExcel), retrieving work sheet file inserting deleting coping and moving of data cells ,inserting and deleting row & column ,the side of chart , printing the chart .
<i>Data communication Computer Network paper 3</i>	<ul style="list-style-type: none"> ➤ Introduction to Data Communication– Network models, protocols and architecture, standards organizations, line configuration, topology, transmission mode, classification of networks, OSI reference model, TCP/IP model. ➤ Analog and digital signals, Data encoding, parallel and serial transmission, modems, transmission media: guided media, unguided media, transmission impairment, performance, Synchronous and asynchronous transmission. ➤ Multiplexing, LLC, error detection and correction, flow control, HDLC, LANs- applications, architecture, Ethernet, 802.3 LANs, token ring, FDDI, IEEE 802.6, circuit switching, packet switching, message switching, connection oriented and connectionless services.

	<ul style="list-style-type: none"> ➤ Principles of internetworking– connection– oriented, connectionless, Routing concepts, routing algorithms– distance-vector routing, link state routing, shortest path routing. Congestion control, QOS, internetworking, network devices. ➤ Network security requirements and attacks, public key and private key encryption and digital signatures, digital certificate, firewalls, IDS (Intrusion Detection System)
<p style="text-align: center;"><i>Programming Using C & C++ paper 4</i></p>	<ul style="list-style-type: none"> ➤ Introduction to “C” Language: Fundamentals, simple I/O statements, reading and writing, data types constants, variable, operators & expressions, library function, control statements, if-else, while, do-while, goto, for statements switch, break, looping statements, functions recursion, arrays, multidimensional arrays, strings & pointers. ➤ Programming in C++, functions, class, object, constructor and destructor: Call by reference, call by value, return by reference, inline function, constant argument, function overloading, static member function, static data member,. Classes: implementing class, classes and members, accessing class members, implementing class methods, array of object, friend function. ➤ Constructor & destructors: parameterized constructor, multiple constructor, constructor with default argument, copy constructor, destructor. Operator overloading & type casting: Operator overloading, unary operator overloading, binary operator overloading, manipulates string using operator overloading, type conversions: basic to class, class to basic, class to class. ➤ Inheritance, virtual function: single inheritance, multilevel inheritance, multiple inheritance, hybrid inheritance, hierarchical inheritance, virtual base class, abstract class. ➤ Pointer & File: Pointer to object, this pointer, virtual function and pure virtual function. File: opening and close file, detecting end of the file.
<p style="text-align: center;"><i>Relational Database Management System</i></p>	<ul style="list-style-type: none"> ➤ Overview of Database Management: Data, information, data independence, database administration roles, DBMS architecture, different kinds of DBMS users importance of data dictionary, contents of data dictionary, types of database languages. Data models: network, hierarchical, relational. ➤ Introduction to distributed database, client/server databases, objectrelational databases, introduction to ODBC concept. Relational Model: Entity relationship model as a tool for conceptual design-entities attributes and relationships. ➤ ER diagrams; concept of keys: candidate key, primary key, alternate key, foreign key; strong and weak entities, case studies of ER modeling generalization; specialization and aggregation, Converting an ER model into relational schema. Extended ER features, introduction to UML, Representation in UML diagram. ➤ Structured Query Language (SQL): Relational Algebra: select, project, cross product different types of joins (inner join, outer joins, self join); set operations, tuple relational calculus, domain relational calculus, simple and complex queries using relational algebra, stand alone and embedded query languages, introduction to SQL constructs (SELECT.FORM, WHERE GROUP BYHAVING ORDERBY), INSERT, DELETE, UPDATE, VIEW definition and

	<p>use, temporary tables, nested queries, and correlated nested queries, integrity constraints: Not null, unique, check, primary key, foreign key, reference, triggers.</p> <ul style="list-style-type: none"> ➤ Relational database design: Normalization concept in logical model; pitfalls in database design, update anomalies: functional dependencies join dependencies, Normal forms (1NF, 2NF, 3NF). Boyce code normal form, decomposition, multi-valued dependencies, 4NF, 5NF. Issues in physical design; concepts of indexes, file organization for relational tables, de-normalization, clustering of tables, clustering indexes. ➤ Introduction to Query processing and protection the database: parsing, translation, optimization, evaluation and overview of query processing. Protecting the database integrity, security and recovery, Domain constraints, referential integrity, assertion, triggers, security & authorization in SQL.
<p style="text-align: center;"><i>System Analysis & Design paper 6</i></p>	<ul style="list-style-type: none"> ➤ The system concept: characteristics, elements and types of a system, the system development life cycle, considerations, for candidate systems prototyping. The role of system analyst. ➤ System planning and initial investigation: Information Gathering, information gathering tools. Structured analysis, the tools of structured analysis (DFD, Data Dictionary, Decision tree and Pseudo codes Decision Tables), PROS and CONS of each tool, system performance definition description of outputs, feasibility study. ➤ Cost/ Benefit analysis, Data analysis, Cost/ Benefit analysis, the system proposal. Stages of system design: Design methodologies, development activities, input design, output design forms design, types of forms, basics of form design layout considerations and forms control. ➤ File structure: File organization, objectives of database, data structure, system testing and quality assurance, why system testing, what do we test for, the test plan quality assurance, trends in testing, role of data processing auditor, training and documentation. ➤ Implementing and software maintenance: conversion combating resistance to change, post implementation review, software maintenance, hardware/software selection and the computer contract, suppliers, procedure for hardware/software selection, financial considerations in selection, the computer contract system security disaster recovery planning.


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 जिला- बिलासपुर छ.ग.