Rayat Shikshan Sanstha's

R. B. Narayanrao Borawake College, Shrirampur

Affiliated to S.P. Pune University, Pune

NAAC Reaccredited "A' Grade (CGPA 3.22), DST-FIST Recognized College,

ISO: 9001-2015

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Program Outcomes, Program Specific Outcomes and Course Outcomes

Department of Chemistry

Programme Outcomes: B. Sc Chemistry

Chemistry (Semester-III)

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

Programme Specific Outcomes	PSO-1. Gain the knowledge of Chemistry through theory and practical's. PSO-2. To explain nomenclature, stereochemistry, structures, reactivity, and mechanism of the chemical reactions. PSO-3. Identify chemical formulae and solve numerical problems. PSO-4. Use modern chemical tools, Models, Chem-draw, Charts and Equipments. PSO-5. Know structure-activity relationship. PSO-6. Understand good laboratory practices and safety. PSO-7. Develop research oriented skills. PSO-8.make aware and handle the sophisticated instruments/equipments.

Course Outcomes B. Sc Chemistry

Semester-III

Course	**Outcomes** After completion of these courses students should be able to;
CH-331 Physical Chemistry	CO-1. Write an expression for rate constant K for third order reaction CO-2. Solve the numerical problems based on Rate constant CO-3.Understand the term specific volume, molar volume and molar refraction CO-4. Know the meaning of phase, component and degree of freedom CO-5. Derive the expression for rotational spectra for the transition from J to J+1
CH-332 Inorganic Chemistry	CO-1. Know the meaning of various terms involved in co-ordination chemistry CO-2. To understand Werner's formulation of complexes and identify the types of valences

	CO-3. Know the limitations of VBT CO-4. Know the shapes of d-orbital's and degeneracy of d-orbital's CO-5. Draw the geometrical and optical isomerism of complexes
CH-333 Organic Chemistry	CO-1. Define organic acids and bases. CO-2. Distinguish between geometrical and optical isomerism. CO-3. Discuss kinetics, mechanism and stereochemistry of SN^1 and SN^2 reactions. CO-4. Compare between E_1 and E_2 reactions. CO-5. Understand the evidences, reactivity and mechanism of various elimination and substitution reactions.
CH-334 Analytical Chemistry	CO-1. Know the principles of common ion effect and solubility product. CO-2. Study the methods of thermo-gravimetric analysis. CO-3. Understand the principles of Spectro-photometric analysis and properties of electromagnetic radiations. CO-4. Study the Voltammetry and Polarography as an analytical tool. CO-5. Measure the absorbance of atoms by AAS.
CH-335 Industrial Chemistry	CO-1. Know the importance of chemical industry. CO-2. Classify various insecticides. CO-3. Study the nutritive aspects of food constituents. CO-4. Understand the characteristics of some food starches. CO-5. Study the manufacture of cement, dyes, Glass, Soap and Detergents by modern methods.
CH-336-E Agriculture Chemistry	CO-1. Know the role of agriculture chemistry and its potential CO-2. Understand the basic concept of soil, properties of soil & its classification on the basis of pH. CO-3. Know the different plant nutrients, their functions and deficiency symptoms. CO-4. Identify the problematic soil and recommend a method for their reclamation. CO-5. Have the knowledge of various pesticides, insecticides, fungicides and herbicides.

Course Outcomes B. Sc Chemistry **Semester-IV**	
CH-341 Physical Chemistry	CO-1.Understand Mechanics of system of particles. CO-2.Know the Redox reaction. CO-3 Study the Crystal Field Theory. CO-4.Solve the cell reaction and calculate EMF.. CO-5. Calculate interplanar distance. CO-6.Understand De-Broglie hypothesis and Uncertainty principle CO-7. Derive Schrodinger's time dependent and independent equations
CH-342 Inorganic Chemistry	CO-1 Study the electronic configuration of lanthanides and actinides. CO-2. Get knowledge of Crystalline solid. CO-3. Understand different operation in stoichiometric molecule. CO-4. Study the Bio-inorganic chemistry. CO-5. Understand the p-type semiconductor and n-type semiconductor.
CH-343 Organic Chemistry	CO-1.To study UV, IR and NMR spectroscopy. CO-2. Discuss different types of rearrangement reactions. CO-3. Determine structure of compound by spectroscopic methods. CO-4. Understand the difference between carbocation and carbanion. CO-5.To study alkaloids, Ephedrine, citral molecule with their properties and application.
CH-344 Analytical Chemistry	CO-1. Know the different analytical techniques. CO-2. To understand different types of separation techniques. CO-3. To study principle, construction and working of GC and HPLC. CO-4. To give an extended knowledge about chromatographic

	techniques used for separation of amino acids. CO-5. Discuss the problem based on distribution coefficient and extraction techniques.
CH-345 Industrial Chemistry	CO-1. Know the various pharmaceutical drugs, their application and synthesis. CO-2. To study the waste management. CO-3. To understand the function of dyes, paints and pigments. CO-4. To study the various type of surfactants. CO-5. To know about molasses and bagasse. CO-6. To study the different types of polymer.
CH-346(E) Dairy Chemistry	CO-1. Know the market of milk in different breeds. CO-2. Understand the basic principle of sterilization, homogenization, and standardization of milk. CO-3. Study the flow sheet diagram of shrikhand powder, whey powder, and ice-cream. CO-4. Study the different nutrient value in milk.
CH-347 Physical chemistry practical's	CO-1. Calculate molar and normal solution of various concentrations. CO-2. Determine specific rotations and percentage of to optically active substances by polorimetrically. CO-3. Study the energy of activation and second order reaction. CO-4. Study the stability of complex ion and stranded free energy change and equilibrium constant by potentiometry. CO-5. Find out the acidity, Basicity and PKa Value on pH meter.
CH-348 Inorganic Chemistry Practical's	CO-1. Study the gravimetric and volumetric analysis of ores and alloy. CO-2. Prepare a various inorganic complexes and determine its % purity. CO-3. To study binary mixture with removal of borate and phosphate. CO-4. To understand the chromatographic techniques
CH-349 Organic Chemistry Practical's	CO-1. Perform the Binary mixtures. CO-2. Preparation of organic compounds, their purifications and run

	TLC. CO-3. Determination of physical constant: Melting point, Boiling point. CO-4. Different separation techniques.

Programme Outcomes: M. Sc Organic Chemistry

Department of Chemistry	After successful completion of two year degree program in chemistry a student should be able to;
Programme Outcomes	. PO-1. Determine molecular structure by using UV, IR and NMR. PO-2. Study of medicinal chemistry for lead compound. PO-3. Improve the Skill of student in organic research area. PO-4. Synthesis of Natural products and drugs by using proper mechanisms. PO-5. Study of Asymmetric synthesis. PO-6. Determine the aromaticity of different compounds. PO-7. Solve the reaction mechanisms and assign the final product.
Programme Specific Outcomes	PSO-1. Know the structure and bonding in molecules/ ions and predict the Structure of molecule/ions. PSO-2. Understand the various type of aliphatic, aromatic, nucleophilic substitution reaction. PSO-3. Understand and apply principles of Organic Chemistry for understanding the scientific phenomenon in Reaction mechanisms. PSO-4. Learn the Familiar name reactions and their reaction mechanisms. PSO-5. Understand good laboratory practices and safety. PSO-6. Study of organometallic reactions. PSO-7. Study of free radical,bycyclic compound, conjugate addition of Enolates and pericyclic reactions. PSO-8. Study of biological mechanisms using amino acids.
Course Outcomes M. Sc Organic Chemistry **<u>Semester-I</u>**	
Course	**Outcomes** After completion of these courses students should be able to;

CHP-110 Physical Chemistry	CO-1. Realize the terms ionic strength, activity coefficient, DHO equation. CO-2. Know the Eigen function, Eigen value, operator and postulates of quantum mechanics. CO-3. Learn two and three dimensional box, mechanics of particle. CO-4. Understand the adsorption of gases by solid type of isotherms CO-5. Recognized the Fricke and cerric sulphate Dosimeter. CO-6. Learn parent-daughter relationship, application of radioactivity, NAA, IDA. Effect of radiation and units of radiation.
CHI-130 Inorganic Chemistry	CO-1 Determine and Learn about Dipole moment and bond order of The inorganic molecule. CO-2. Learn about geometry and shape of the molecule. CO-3. Known the preparation and properties of transition metal carbonyls CO-4. To understand the 18 electron rule and its application. CO-5. Find out the point group of inorganic molecules. CO-6. Learn molecular orbital and its orientation. CO-7. Learn concept of symmetry elements in molecules.
CHO-150 Organic Chemistry	CO-1. Learn SN1, SN2 and SNi Mechanism and stereochemistry. CO-2. Learn classical and non-classical carbocation, NGP by pi and sigma bonds. CO-3. Solve the elimination problems. CO-4. Distinguish between type of addition, elimination and substitution reaction. CO-5. Learn E and Z nomenclature inC,N,S,P containing compound ,Stereo chemical principal, enantiomeric relationship R and S.
CHA-190 General Chemistry	CO-1. Study the importance of safety and security, responsibility types of hazards and risk in chemical laboratory. CO-2. Understand the use of personal protective and other safety equipments, handling of chemical in laboratory. CO-3. Understand the route of explores for toxic chemicals. CO-4. Learn good laboratory practices and its applications.

Semester-II	
CHP-210 Physical Chemistry	CO-1. Learn the thermodynamic description of exact, inexact differential and state function. CO-2. Know the qualitative properties of solution, the depression in freezing point, elevation in boiling point and osmotic pressure. CO-3. Know the statistical thermodynamics and various partition functions. CO-4. Study the steady state approximation michaelis- menten mechanism, lindemann-hinshelwood mechanism, chain reaction, Rate determining stapes and consecutive elementary reactions. CO-5. Learn the molecular spectroscopy, R.Raman, Electronic and Mossbauer and its application.
CHI-230 Inorganic Chemistry	CO-1. Understand the mechanism in transition metal complexes, Born Haber cycle to calculate lattices energy. CO-2. Learn the use of catalyst, radius ratio rule of coordination number 3, 4. CO-3. Study the structure of atom, Hunds rule, term symbol, calculation of microstate and selection rule. CO-4. Understand the metal complexes in biological system.
CHO-250 Name reaction ,synthetic Organic Chemistry and spectroscopy	CO-1`. Study the various name reaction with examples. CO-2. Learn the mechanism of rearrangement reaction, use synthetic reagent of oxidation and reduction for solving the problems. CO-3. Understand the factors affecting UV-absorption spectra, Interpret IR-spectra on basic values of IR-frequencies. CO-4. Discuss the problem of UV, IR and NMR.
CHA-290 General Chemistry	CO-1**.** Study the instrumentation, sample injection system, columns for HPLC and GC, Solvent treatment system and choice of mobile phase. CO-2. Learn instrumentation of mass spectrometry, fragmentation, structure determination. CO-3. Solve mean and standard deviation problems. CO-4. Understand the accuracy and precision and classification error.

	CO-5. Learn distillation, solvent extraction, crystallization, and other separation techniques.
CHP-107 Physical chemistry practical's	CO-1. Calculate molar and normal solution of various concentrations. CO-2. Determine specific rotations and percentage of to optically active substances by polorimetrically. CO-3. Study the energy of activation and second order reaction. CO-4. Study the stability of complex ion and stranded free energy change and equilibrium constant by potentiometry. CO-5. Find out the acidity, Basicity and PKa Value on pH meter.
CHI-147 Inorganic chemistry practical's	CO-1. Study the gravimetric and volumetric analysis of ores and alloy. CO-2. Prepare a various inorganic complexes and determine its % purity. CO-3. Preparation of nonmaterial. CO-4. To understand the chromatographic techniques.
CHO-247 Organic chemistry practical's	CO-1. Perform the ternary mixtures. CO-2. Preparation of organic compounds, their purifications and run TLC. CO-3. Determination of physical constant: Melting point, Boiling point. CO-4. Different separation techniques.
Semester-III	
CHO-350 Organic reaction mechanism	CO-1. Study of carbanion-formation, stability and related name reaction, enemies and its applications. CO-2. Understand the NGP. CO-3. Learn the carbines and nitrenes. CO-4. Study of free radicals: generation of radicals, Nucleophilic electrophilic radicals, inter and intra molecular C-C bond formation via mercuric hydride. CO-5. Study of oxidative coupling and SNAr reaction.
CHO-351 Spectroscopic methods in structure determination.	CO-1. Study ^{1}H NMR Spectroscopy: Chemical Shift, deshielding, correlation for protons bonded to carbon and other nuclei. CO-2. Study of ^{13}C NMR spectroscopy: FT- NMR, type of ^{13}C NMR spectra, proton decoupled , off resonance, APT, INEPT, DEPT, Chemical

	shift, nuclear and hetero nuclear coupling constant CO-3. 2D NMR techniques: COSY, homo and hetero nuclear 2D resorts spectroscopy, NOESY and the applications CO-4. Study of mass spectrometry: Instrumentation, various methods of ionization, SIMS, FAB, MALDI. Different detectors rules of fragmentations of different functional groups.
CHO-352 Organic stereochemistry	CO-1. Study of stereochemistry of six member ring. CO-2. Learn the stereochemistry of rings other than six members. CO-3. Understand fused bridge and Caged rings. CO-4. Learn resolution of racemic modification, stereochemistry of organic compound using NMR. CO-5. Determine geometrical isomerism and stereochemistry of olefins.
CHO-353 Photochemistry, Pericyclic reaction and heterocyclic chemistry.	CO-1. Study of photochemistry: Carbonyl compounds, alkenes, dienes, polyenes and aromatic compounds. CO-2. Study photo rearrangement Barton reaction, application of photochemical reaction. CO-3. Learn Pericyclic reaction: Electro cyclic, Cycloaddition, and Ene Reaction, analysis by correlation diagram, FMO approach and ATS concept. CO-4. Study of heterocyclic chemistry: Five and six member heterocyclic with one or two hetero atoms. CO-5. Understand condensed five and six member's heterocyclic. CO-6. Study the synthesis, reactivity, aromatic character and importance of heterocyclic compounds.
Semester-IV	
CHO-450 Chemistry of natural product	CO-1. Study structure and stereochemistry of hardwickiic acid, camptothecin and podothyllotoxin. CO-2. Study the synthesis of taxol, estorne and mefepristone, fredericamycin A. CO-3. Learn biogenesis terpenoides, alkaloids and shikimmte pathway.
CHO-451	CO-1.Study of transition metal complexes in organic synthesis.

Advance synthetic organic chemistry.	CO-2. Learn C=C formation reaction, multi compound reaction, ring formation reaction. CO-3. Study of sharpless azides Cycloaddition, use of boron and silicon in organic synthesis.
CHO-452 Carbohydrate and chiral approach, chiral drugs and medicinal chemistry.	CO-1. Study of carbohydrates: Introduction of sugar, structure of triose tetrosa, panctose, hexoes, stereochemistry of glucose. CO-2. Understand the chiral approach, concept of chiral templates, and utilization of the basic concept for reterosynthetic strategy. CO-3. Study of chiral drug. CO-4. Learn medicinal chemistry, the action and discovery. CO-5. Study the structure activity and drug targets. CO-6. Study of antimicrobial drugs, antibacterial, antifungal, antiviral, antimalerial etc.
CHO-453 Designing organic synthesis and asymmetric synthesis.	CO-1. Study the design of organic synthesis, protection deprotation of hydroxyl, amino carboxyl, ketones and aldehyde. CO-2. Learn retrosynthesis. CO-3. Understand the principle and application of asymmetric synthesis. CO-4. Study of cram's rule, felkin-Anh rule, Cram's chelate model asymmetric synthesis using chiral reagent.
CH-O-347 Single stage preparations	CO-1. Spectral analysis best on instrumental techniques. CO-2. Preparation of organic compounds, their purifications and run TLC. CO-3. Determination of physical constant: Melting point, Boiling point. CO-4. Different separation techniques.
CH-O-447 Two stage preparation	CO-1. Spectral analysis best on instrumental techniques CO-2. Preparation of organic compounds, their purifications and run TLC. CO-3. Determination of physical constant: Melting point, Boiling point. CO-4. Different separation techniques.
CH-O-448 Single stage preparations by	CO-1. Spectral analysis best on instrumental techniques. CO-2. Preparation of organic compounds, their purifications and run TLC. CO-3. Determination of physical constant: Melting point, Boiling point.

Green synthesis.	CO-4. Different separation techniques.

Programme Outcomes: M. Sc Analytical Chemistry

Department of Chemistry	After successful completion of two year degree programme in chemistry a student should be able to;
Programme Outcomes	. PO-1.Demonstrate, solve and an understanding of major concepts in all disciplines of Chemistry. PO-2. Solve the problem and also think methodically, independently and draw a logical conclusion. PO-3. Create an awareness of the impact of chemistry on the society, and development outside the scientific community. PO-4. Become professionally trained in the area of Industry, material science, lasers and Nano-Technology. PO-5. Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of Chemistry experiments. PO-6. To inculcate the scientific temperament in the students and outside the scientific community. PO-7. Apply modern methods of analysis to chemical systems in a laboratory setting.
Programme Specific Outcomes	PSO-1. Learn about the potential uses of analytical industrial chemistry. PSO-2. Carry out experiments in the area of organic analysis, estimation, separation, derivation process, conduct metric and potentiometric analysis. PSO-3. Learn the classical status of thermodynamics. PSO-4. Gathers attention about the physical aspects of atomic structure, various energy transformation, molecular assembly in nanolevel and significance of electrochemistry. PSO-5. Understand good laboratory practices and safety. PSO-6. Introduce advanced techniques and ideas required in developing area of Chemistry. PSO-7. Make aware and handle the sophisticated instruments/equipments. PSO-8. Enhance students' ability to develop mathematical models for

	physical systems.
Course Outcomes M. Sc Analytical Chemistry **<u>Semester-I</u>**	
Course	**Outcomes** After completion of these courses students should be able to;
CHP-110 Physical Chemistry	CO-1. Realize the terms ionic strength, activity coefficient, DHO equation. CO-2. Know the Eigen function, Eigen value, operator and postulates of quantum mechanics. CO-3. Learn two and three dimensional box, mechanics of particle. CO-4. Understand the adsorption of gases by solid type of isotherms CO-5. Recognized the Fricke and cerric sulphate Dosimeter. CO-6. Learn parent-daughter relationship, application of radioactivity, NAA, IDA. Effect of radiation and units of radiation.
CHI-130 Inorganic Chemistry	**CO-1** Determine and Learn about Dipole moment and bond order of the inorganic molecule. CO-2. Learn about geometry and shape of the molecule. CO-3. Known the preparation and properties of transition metal carbonyls CO-4. To understand the 18 electron rule and its application. CO-5. Find out the point group of inorganic molecules. CO-6. Learn molecular orbital and its orientation. CO-7. Learn concept of symmetry elements in molecules.
CHO-150 Organic Chemistry	CO-1. Learn SN1, SN2 and SNi Mechanism and stereochemistry. CO-2. Learn classical and non-classical carbocation, NGP by pi and sigma bonds. CO-3. Solve the elimination problems. CO-4. Distinguish between type of addition, elimination and substitution reaction. CO-5. Learn E and Z nomenclature inC,N,S,P containing compound ,Stereo chemical principal, enantiomeric relationship R and S.

CHA-190 General Chemistry	CO-1**.** Study the importance of safety and security, responsibility types of hazards and risk in chemical laboratory. CO-2. Understand the use of personal protective and other safety equipments, handling of chemical in laboratory. CO-3. Understand the route of explores for toxic chemicals. CO-4. Learn good laboratory practices and its applications.
Semester-II	
CHP-210 Physical Chemistry	CO-1. Learn the thermodynamic description of exact, inexact differential and state function. CO-2. Know the qualitative properties of solution, the depression in freezing point, elevation in boiling point and osmotic pressure. CO-3. Know the statistical thermodynamics and various partition functions. CO-4. Study the steady state approximation michaelis- menten mechanism, lindemann-hinshelwood mechanism, chain reaction, Rate determining stapes and consecutive elementary reactions. CO-5. Learn the molecular spectroscopy, R.Raman, Electronic and Mossbauer and its application.
CHI-230 Inorganic Chemistry	CO-1. Understand the mechanism in transition metal complexes, Born Haber cycle to calculate lattices energy. CO-2. Learn the use of catalyst, radius ratio rule of coordination number 3, 4. CO-3. Study the structure of atom, Hunds rule, term symbol, calculation of microstate and selection rule. CO-4. Understand the metal complexes in biological system.
CHO-250 Name reaction ,synthetic Organic Chemistry and spectroscopy	CO-1`. Study the various name reaction with examples. CO-2. Learn the mechanism of rearrangement reaction, use synthetic reagent of oxidation and reduction for solving the problems. CO-3. Understand the factors affecting UV-absorption spectra, Interpret IR-spectra on basic values of IR-frequencies. CO-4. Discuss the problem of UV, IR and NMR.

CHA-290 General Chemistry	CO-1. Study the instrumentation, sample injection system, columns for HPLC and GC, Solvent treatment system and choice of mobile phase. CO-2. Learn instrumentation of mass spectrometry, fragmentation, structure determination. CO-3. Solve mean and standard deviation problems. CO-4. Understand the accuracy and precision and classification error. CO-5. Learn distillation, solvent extraction, crystallization, and other separation techniques.
CHP-107 Physical chemistry practical's	CO-1. Calculate molar and normal solution of various concentrations. CO-2. Determine specific rotations and percentage of to optically active substances by polorimetrically. CO-3. Study the energy of activation and second order reaction. CO-4. Study the stability of complex ion and stranded free energy change and equilibrium constant by potentiometry. CO-5. Find out the acidity, Basicity and PKa Value on pH meter.
CHI-147 Inorganic chemistry practical's	CO-1. Study the gravimetric and volumetric analysis of ores and alloy. CO-2. Prepare a various inorganic complexes and determine its % purity. CO-3. Preparation of nonmaterial. CO-4. To understand the chromatographic techniques.
CHO-247 Organic chemistry practical's	CO-1. Perform the ternary mixtures. CO-2. Preparation of organic compounds, their purifications and run TLC. CO-3. Determination of physical constant: Melting point, Boiling point. CO-4. Different separation techniques.
Semester-III	
CHA-390 Electro analytical and radio analytical methods of analysis.	CO-1. Study of colorimeter, Faraday 1st law, Faraday 2nd law. CO-2. Study of voltametry and paleographic method of analysis, heterodynamic voltametry, plus paleography and cyclic voltametry. CO-3. Study of ampherometry and their applications. CO-4. Learn radio analytical methods of analysis, activation analysis, isotope dilution analysis, radio metric titration.

	CO-5. Understand thermal methods of analysis TGA, DTA, DSC.
CHA-391 Pharmaceutical analysis.	CO-1. Study of apparatus for test and assay, cleaning of glassware, role of FDA in pharmaceutical industry. CO-2. Learn biological test and assay, microbiological test and assay, physical test, determination, limit test sterilization. CO-3. Analysis of vegetable drug, sources of impurities in pharmaceutical row materials and finished products. CO-4. Learn standardization and quality control of different row materials.
CHA-392 Advanced analytical techniques.	CO-1. Study the classical approach for aqueous extraction, solid phase extraction, micro extraction and SFE. CO-2. Learn: AAS, FES, ICPAES, and DCP. CO-3. Study atomic fluorescence, resonant ionization and LASER based enhanced ionization. CO-4. Study of different detectors and their applications.
CHA-380 Geochemical and alloy analysis and analytical method development and validation.	CO-1. To understand assay validation and inter laboratory transfer. CO-2. Study the statistical analysis and analytical figure. CO-3. Learn the analysis of geological materials and alloys. CO-4.Study the analysis of soil, sampling, chemical analysis as a measure of soil fertility
Semester-IV	
CHO-490 Analytical spectroscopy	CO-1. Study of ESCA, Detectors and their applications. CO-2. Learn X-ray method of analysis, numerical problems. CO-3. Understand an introduction to microscopy, its applications. CO-4. Study of chemiluminescences, Fluorescence and phosphorescence. CO-5. Study of NMR spectroscopy.
CHO-491 Analytical methods for analysis of fertilizer detergent, water and polymer,	CO-1. Study of analysis of fertilizer, sampling and sample preparation, kjeldal's method. CO-2. Understand the analysis of soap and detergents, UV-spectroscopic analysis of detergent. CO-3. Study of water pollution and analysis of polluted water

paint and pigments.	CO-4. Learn the polymer chemistry, analysis and testing of polymer, measurement of molecular weight and size. CO-5. Understand paint and pigment analysis.
CHA-492 Pollution monitoring and control and analysis of body fluid.	CO-1. Study of pollution monitoring, removal of heavy toxic metals Cr, Hg, Cd, Pb, As. CO-2. Learn the removal of particulate matters, SO_2 And NOx. CO-3. Study the collection of specimen blood, urine, faeces. CO-4. Learn the analysis of blood and urine, Vitamin in body fluid. CO-5. Study the liver function and kidney function test.
CHA-481 Analytical toxicology and food analysis..	CO-1. Study of acute poisoning, clinical toxicology. CO-2. Learn the isolation, identification and determination of narcotics, stimulants and depressants. CO-3. Study the classification function, analysis of carbohydrate, Protein, lipid. CO-4. Study the food preservatives, identification determination, and composition.
CH-A-387 Analysis of materials	CO-1. Study the gravimetric and volumetric analysis of ores and alloy. CO-2. Prepare a various inorganic complexes and determine its % purity. CO-3. Preparation of nonmaterial. CO-4. To understand the chromatographic techniques. CO-5. Estimation of Iron By Various methods.
CH-A-487 Instrumental Analysis.	CO-1. Spectral analysis best on instrumental techniques CO-2. Photometric determination. CO-3. Study of Conductometer, FES, Polarography. CO-4. Analysis of riboflavin by photoflurometry. CO-5. To Study the spectroscopic techniques. CO-6. To study the terbidometry and Neflometry.
CH-A-488 Single stage preparations by Green synthesis.	CO-1. Study the dissolution of tablet. CO-2. Learn the spectroscopic techniques. CO-3. Study Volumetric and gravimetric estimation. CO-4. Analysis of Quinine sulphate by photoflurometry.

	CO-5. Study of folin Wu method.

Department of Zoology

T. Y. B. Sc. Zoology (Semester-III) Programme Outcomes: B. Sc Zoology

Department of Zoology	After successful completion of three year degree program in Zoology a student should be able to;
Programme Outcomes	PO-1. Demonstrate, solve and an understanding of major concepts in all disciplines of Zoology. PO-2. Solve the problem and also think methodically, independently and draw a logical conclusion. PO-3. Understand the evolution, history of phylum. PO-4. Create an awareness of the impact of Zoology on the environment, society, and development outside the scientific community. PO-5. To study and understand the classification of whole phyla includes in Non chordates with the help of charts/models/pictures. PO-6. To inculcate the scientific temperament in the students and outside the scientific community. PO-7. Use modern techniques, decent equipments and Zoology software's
Programme Specific Outcomes	PSO-1. Gain the knowledge of Zoology through theory and practical's. PSO-2. Study and understand the DNA Recombinant technology. PSO-3. Understand the testing of hypothesis. PSO-4. Use modern Zoological tools, Models, Charts and Equipments. PSO-5. Know structure-activity relationship. PSO-6. Understand good laboratory practices and safety. PSO-7. Develop research oriented skills. PSO-8.Make aware and handle the sophisticated instruments/equipments.

Course Outcomes B. Sc Zoology

Semester-III

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

ZY-331 Animal Systematic and Diversity- V	CO-1 Understand the evolution, history of phylum. CO-2 Understand about the Non Chordate animals. CO-3 To study the external as well as internal characters of non chordates. CO-4 To study the distinguishing characters of non chordates. CO-5 Understand the economical importance of Molluscs CO-6 Understand the various internal systems like Digestive system, nervous system with the help of charts. CO-7 Understand the functions of Gemmules and spicules. CO-8 Understand the economical importance of Molluscan shells.
ZY-332 Mammalian Histology	CO-1. Understand the terms Histology and Physiology CO-2. Understand the cell, tissue, organ, system and organisms. CO-3. Study the derivatives of skin- horns, nails, hairs. CO_4. Study and understand the terms- acidosis, alkalosis, asphexia, hypoxia, anoxia and cyanosis.
ZY- 333 Biological Chemistry	CO-1. Understand about the agencies responsible for Production of various products using biochemistry. CO-2. Understand the term pH, Buffer. CO-3. Understand the structure and function of carbohydrate, amino acids, proteins, and lipids. CO-4. Understand the concept Enzymes and also Vitamins and minerals. CO-5. Understand the Principle role of Vitamins in metabolism and Deficiency diseases.
ZY-334 Enviromental Biology & Toxicology	CO-1. CO-1.Know the biotic and abiotic components of ecosystem. CO-2.Food chain & food web in ecosystem. CO-3.Understand diversity among various groups of animal kingdom. CO-4.Understand Animal community & ecological adaptation in animals. CO-5. Scope , importance and management of biodiversity
ZY-335 Parasitology	CO-1.To study and understand the scope and branches of Medical Zoology. CO-2. To aware the students for various parasites and diseases which spreads in human with the help of study of host-parasite relationship. CO-3. To increase awareness for the health in students. CO-4. Understand the various disease causing vectors like Mosquitoes. CO-5. To aware about the typhoid, cholera likes disease.

	CO-6. Understand the importance of medical diagnostic and also understand the term forensic Entomology
ZY-336 Cell Biology	CO-1. Understand the Scope of cell biology, because cell is the basic unit of life. CO-2. Understand the Main distinguishing characters between plant cell and animal cell. CO-3. To study and understand the whole cell organelles with their structure and function. CO-4. Understand the cell cycle and know the importance of various cells in body of organisms. CO-5. Understand the various applications of cells by using cell biology like study of various types of tumour. CO-6.Understand the Animal cells and various cell organelles by using microphotographs.
Course Outcomes B. Sc Zoology **Semester-IV**	
ZY-341 Biological Techniques	CO-1.Understand the various Applications of Biotechnology. CO-2. Study and Understand the Hybridoma technology as well as Enzyme biotechnology. CO-3. Study and understand the DNA Recombinant technology. CO-4. Understand the industrial and environmental biotechnology. CO-5. Study and understand the Stem cell biotechnology. CO- 6. Understand the Scope and Significance of Biotechnology.
ZY-342 Mammalian Physiology and Endocrinology	CO-1.Understand the Importance of physiology and branches of it. CO-2.Understand the terms-Osmosis, diffusion, pH and Buffer. CO-3.Understand the Digestion and Excretion process, by studying the Organs of it CO-4.Understand the process of Metabolism. CO-5.Understand the term Detoxification. CO-6.Understand the Circulatory system and Lymphatic system. CO-7.Study the nervous system.
ZY-343 Genetics and Mol. Biology	CO-1.Understand the Molecular biology and molecular biology. CO-2.Understand the cell divisions and types of mutation.

	CO-3.Understand the structure and function of the cells. CO-4.Understand the term cell signalling. CO-5.Aware the students for Cancer. CO-6.Understand the Tools and Techniques in Molecular Biology. CO-7.Understand the term ELISA technique and DNA finger printing.
ZY-344 Organic Evolution	CO-1. To understand Origin of life with respect to prokyariotic and eukaryotic cells. CO-2. Understand the evidences of organic evolution by anatomical embryological list, paleontological, physiological, genetics and molecular biology evidences. CO-3. Understand theories of organic evolution, isolation, speciation. CO-4. Understand geological time scale, methods and classification of animal distribution and factors affecting animal distribution.
ZY-345 General Embryology	CO-1.Understand the terms: Gametogenesis, Fertilization and early development. CO- 2.Understand the Morphogenesis and Organogenesis in animals. CO-3.Understand the Aging, Apoptosis and Senescence.
ZY-346 Medical Entomology	CO-1.Understand the fundamentals of agricultural, forest, medical and veterinary entomology. CO-2.Understand, Morphology and Anatomy of Insects. CO-3. Understand intra specific and inter specific relationships among insects. CO-4. To understand significance of beneficial and harmful insects with reference to their habit and habitat, life cycle, diseases caused by them and their control measures.

Programme Outcomes: M. Sc Zoology

Department of Zoology	After successful completion of two year degree program in Zoology a student is able to;
Programme Outcomes	PO-1. . Student can identify and classify all Animal phylum from protozoa to Mammals, also understand the evolutionary relationship and their taxonomic aspects.

	PO-2. Knows the concept, process, physiology, and molecular basis of animal development. Also knows the methods of cultivation & economic importance of various species, honeybees, lac insects, fruit fly, Sericulture, Vermiculture etc. PO-3. Students know about economically important Fishery, Poultry, Animal husbandry, Goat and sheep farming and also methods of preparation and application of Milk and milk products. PO-4. Understand the application of Bio-pesticides; know about sources, methods and production of bio-fuel. PO-5. In Biotechnology student gain knowledge about various techniques such as Elisa techniques, DNA sequencing, DNA finger printing techniques, Somatic cell hybridization, cloning, Human Genome project etc. PO-6.Students learns the basic biostatistics, experimental statistics and bioinformatics. PO-7. Students understood plant organism interaction, Animal tissue culture. PO-8.To inculcates the scientific temperament in the students and outside the scientific community.
Programme Specific Outcomes	PSO-1. Students acquired knowledge through practical work in fields as well as in laboratory. PSO-2. Project helps for creating research attitude among the post graduate students

Course Outcomes M. Sc Zoology

Semester III

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

ZY-301 Entomology I	CO-1. To understand the origin, evolution and inter relationship of insects with other arthropods. CO-2. To understand classification and phylogeny of Apterygotes, Exopterygote and Endopterygote insects. CO-3. To understand the comparative and histological studies of systems such as digestive, respiratory, nervous, circulatory, excretory and reproductive system. CO-4. To understand Integument and its derivatives. CO-5. Understand the Studies of the following systems: The Sense organs, Endocrine glands and Exocrine glands. CO-6. To understand Light and sound producing organ.
ZY-302 Environmental biology	CO-1. CO-1.Know the biotic and abiotic components of ecosystem. CO-2.Food chain & food web in ecosystem. CO-3.Understand diversity among various groups of animal kingdom. CO-4.Understand Animal community & ecological adaptation in animals. CO-5. To understand Scope , importance and management of biodiversity CO-6. Understand the Population and community ecology, wetland forest and their conservation.
ZY-303 Aquaculture	CO-1. To understand the Aquaculture concept, Culture systems: Freshwater aquaculture systems: Freshwater prawn culture, fish culture in paddy fields, Brackish water culture, Mariculture: Oyster culture, Crab culture, Lobster culture, mussel culture, culture of Eels, Culture of aquatic weeds. CO-2. To understand the Composite fish culture and Preparation and management of fish culture ponds. CO-3 Transport of fish seed and Brood fish and Harvesting: Fishing techniques, preservation & processing of fish and Fish pathology. CO-4 To understand Fresh water prawn culture and Pearl culture, Pearl producing mollusks, pearl formation, collection of oysters, rearing of oysters, insertion of nucleus, harvesting of pearls, composition & quality of pearl.

	CO-5 To understand the Technologies in Fisheries development**:** Recirculation technology, Geographic Information System (GIS) technology, passive Acoustics in fisheries, Use of Information Communication Technology (lCT) in fishes: production aspects, marketing aspects.
ZY-304 Insect physiology and Biochemistry	CO-1.To understands Integument: Structure, Chemistry, sclerotization, functions. CO-2. To understand Digestion and absorption of proteins, Carbohydrates and lipids. CO-3. To understand Fat body: Structure, physiology, biochemistry, functions. Integration of carbohydrate, fat and acid metabolism CO-4. Ventilatory mechanisms and their control. CO-5. Haemolymph: Physico-chemical characteristics of plasma: types and structure of haemocytes, functions. CO-6. Muscle: structure, physiology and biochemistry of flight muscles. CO-7. Excretion and water balance: Structure and function of malphigian tubules. Water balance and nitrogen excretion. CO-8. Microsomal and extramicrosomal enzymes insecticide degradation and detoxification.
ZY-306 Parasitology	CO-1. To understand the Study of life cycle, role as vector & control measures of: Ticks(*Argas, Boophilus*) Mosquito - anyone from- *Anopheles/ Aedes/ Culex* CO-2. To understand the Preadaptation to infectiousness, Myasis: Classification according to tissue, vectors specific, sub specific, accidental; clinical presentation humans, syndrome, symptoms, diagnostic, control method prevention, treatment.; Transmission, Parasitoidal etc. CO-3. To understand the Manipulation of Host behavior, Parasitism & Altruism, parasites & social behavior of hosts, parasitism & life history, parasitic effects benefiting the host. CO-4.To Understand the classification, geographical distribution,

	morphology, life-cycle, transmission, pathogenecity, treatment and prophylaxis of: Protozoa, Platyhelminthes, Nematoda. CO-5.To understand the Genetics & Molecular Biology of ***Trypanosoma:*** ***Plasmodium,*** Resistance of Malaria to drugs, its mechanism & assessment. Platyhelminthes and Nematodes. CO-6. To understand the Serology & immunodiagnostic methods**:** Serology & antibody synthesis, preparation & demonstration of specific antigens of *Entamoeba, Plasmodium, Trypanosoma* & *Leishmania* & Immunodiagnostic assays, Immunodiffusion, Indirect haemogglutination test,
ZY-308 Insect Ecology	CO-1. To Understand about the History of ecology & Entomology Ecological associations, Insect and humans, Insect and Climate, Temperature Photoperiod Rainfall, Wind, Climate change, Insect Herbivores. CO-2. To understand the Feeding strategies of herbivorous insects, Plant defenses and Natural enemies and insect population dynamics. CO-3. To know The variety of Natural enemies & Impact of enemies on insect populations. CO-4. To Understand the Concept of niche & competition among insects, Insects in ecosystems , Fundamentals of ecosystem ecology Leaf shredding insects, Insect defoliators & cycling of nutrients insect, plant community *:* structure and successor. CO-5. To understand the Insect conservation methods, Threats to insects conservation and restoration, Prospects for insect conservation.
Course Outcomes M. Sc Zoology **Semester-IV**	
ZY-401 Entomology II	CO-1. Gametogenesis: Spermatogenesis , Oogenesis, Seminal transfer, Fertilization and oviposition. CO-2. Insect early embryonic development: Cleavage and Blastoderm formation, Germ band,

	Gastrulation, Blastokinesis, differentiation of germ layers, Segmentation, Appendages formation and organogenesis in brief. CO-3. The post embryonic development; Eclosion from the egg. The developmental stages: larva, Pupa, Nymph, Emergence from the pupa/cocoon. Metamorphosis and Growth. CO-4. Hadorn's experiments with imaginal disc, Regeneration and Aging. CO-5. Diapause: Occurrence, Initiation and Preparations for diapauses, Diapause development and Controls.
ZY-402 Economic Zoology	CO-1.To understands Parasitic protozoans and their role in human welfare, soil protozoans and their role in agriculture. CO-2.To understands Sponge culture and its importance in industry. CO-3.Understand Concept of Coral reef and its significance. CO-4. Understand Helminths as human and animal parasites. CO-5. Understand Nematodes- parasitic roundworms of animals and plants And Vermiculture industry in India. CO-6.Understand the Household insects, Apiculture, Lac culture, Sericulture, Prawn culture, Insects of commercial value and stored grain pests.
ZY- 403 Mammalian Reproductive Physiology	CO-1.To understand Reproductive organ: male and female gonads, duct systems and sex accessories, external sexual dimorphisms CO-2. Understand the Reproductive patterns: Environmental factors and breeding, continuous and seasonal breeders. CO-3.Understand the Sexual cycles: puberty, oestrous and menstrual cycles. Ovarian event: follicular phase, cycling of non-pregnant uterus and vagina. CO-4.To understands Pregnancy: conception and blastocyst formation, implantation and delayed implantation, placenta: formation, types and functions, hormones in pregnancy.
ZY- 405 Pollution	CO-1.To understands the Biosphere: Introduction, hydrosphere,

Biology	lithosphere, atmosphere. CO-2. To understand Pollution: Kinds of pollution and pollutants (Air, Water, Agricultural). CO-3.To understands Noise pollution: Characteristics of sound, source and effects of noise pollution. CO-4. To understand Pesticide pollution: Pesticides and their kinds, possible sources and pathways of pesticide Pollution. Impact of pesticides on living organisms.

Department of Physics

PROGRAMME OUTCOMES: B. Sc. PHYSICS

Department of Physics	After successful completion of three year degree program in physics a student should be able to;
Programme Outcomes	PO-1. Demonstrate, solve and an understanding of major concepts in all disciplines of physics. PO-2. Solve the problem and also think methodically, independently and draw a logical conclusion. PO-3. Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of Physics experiments. PO-4. Create an awareness of the impact of Physics on the society, and development outside the scientific community. PO-5. PO-6. To inculcate the scientific temperament in the students and outside the scientific community. PO-7. Use modern techniques, decent equipments and Phonics software's
Programme Specific Outcomes	PSO-1. Gain the knowledge of Physics through theory and practical's. PSO-2. Understand good laboratory practices and safety. PSO-3. Develop research oriented skills. PSO-4. Make aware and handle the sophisticated instruments/equipments.

Course Outcomes B. Sc Physics

Semester-III

Course	**Outcomes** After completion of these courses students should be able to;
PH-331: Mathematical Methods in Physics II	CO-1. Know the Cartesian, spherical polar and cylindrical co-ordinate systems. CO-2. To understand the Special Theory of Relativity. CO-3. Discuss the Michelson- Morley Experiment. CO-4 To obtain the series solution by Frobenius method . CO-5 Study the Generating function for Legendre, Hermite polynomials.
PH 332: Solid State Physics	CO-1. Know the principles of structures determination by diffraction CO-2. To understand the principles and techniques of X-rays diffraction CO-3. Know the fundamental principles of semiconductors and be able to estimate the charge carrier mobility and density CO-4. To give an extended knowledge about magnetic properties like

	diamagnetic, paramagnetic, ferromagnetic, ferrites and superconductors
PH-333: Classical Mechanics	CO-1.Understand Newton's Laws of motion and their applications such as projectile and rocket motion CO-2. Gain the knowledge of motion in central force field CO-3. Classify elastic and inelastic scattering CO-4. Know the difference between Laboratory and centre of mass system CO-5. Understands Lagrangian and Hamiltonian formulation CO-6 Solve the problems using Lagrangian and Hamiltonian formulation CO-7 Get knowledge of canonical trans formation and Poission's bracket
PH-334: Atomic and Molecular Physics	CO-1. To know the Rutherford Experiment of atom. CO-2. To understand molecular spectra of atom. CO-3. To study the Raman spectra. CO-4. To study the Zeeman Effect. CO-5. To understand the Quantum Numbers.
PH-335: Computational Physics	CO-1. Write algorithm and flow chart for c-programming language. CO-2. To use of iterative, decision making and the jump statement. CO-3. Understand the concept of arrays and pointers. CO-4. Study of user defined functions and program structures. CO-5. Able to use the concept graphics in c language.
PH-336 B: Elements of Materials Science	CO-1. To study the Mechanical, Electrical and Thermal Properties of material. CO-2. Discuss the type of Phase Diagrams. CO-3. Know the solid solution and types of solid solution. CO-4. Understanding the Point Defect, Line Defect with example. CO-5.Study the Diffusion Mechanism. CO-6. Know the difference between Elastic and Plastic Deformation. CO-7. To understand the Polymer Vulcanization of rubber. CO-8. Know the AX-type crystal structure – eg. NaCl, ZnS etc.
Course Outcomes B. Sc Physics **Semester-IV**	
PH-341 Classical Electrodynamics	CO-1.Understand Mechanics of system of particles. CO-2.Know the Motion in Central Force Field. CO-3 Elastic and inelastic scattering. CO-4.Solve Langrangian and Hamiltonian formulation. CO-5. Learn Canonical Transformation and Poisson's Bracket.
PH-342: Quantum Mechanics	CO-1.Understand De-Broglie hypothesis and Uncertainty principle

	CO-2. Derive Schrodinger's time dependent and independent equations CO-3. Solve the problems using Schrödinger's steady state equation CO-4. Get knowledge of rigid rotator CO-5. Understand different operators in Quantum Mechanics
PH-343: Thermodynamics and Statistical Physics	CO-1.Tomstudy kinetic theory of Gases. CO-2. To study Maxwell Relations and Application. CO-3. Know the elementary concept of statistics. CO-4. Understand statistical distribution of system of particles. CO-5.To study statistical ensembles. CO-6.To study Quantum statistics.
PH-344: Nuclear Physics	CO-1. Know the properties of nucleus likes binding energy, magnetic dipole moment and electric quadruple moment CO-2. To understand the concept of radioactivity and decays law CO-3. To study achievement of Nuclear Models of Physics and its limitations CO-4. To give an extended knowledge about nuclear reactions such as nuclear fission and fusion CO-5. To understand the basic concept of Particle Physics
PH-345: Electronics	CO-1. Know the special purpose Diode. CO-2. To study the Transistor Amplifier. CO-3. To understand the FET, JFET,MOSFET. CO-4. To study the Operational Amplifier and their types. CO-5. To know the Timer IC- 555 and its classification. CO-6. To study the Regulated Power supply. CO-7. To understand the Sequential Logic Circuits.
PH-346 K: Lasers	CO-1. Know the history of LASERS and its basic concepts. CO-2. Understand the basic principle and working of different types of lasers. CO-3. Know the applications of lasers in various fields. CO-4. Understand the characteristics of LASERS. CO-5. Learn safety precaution sand measures while handling the lasers.

Programme Outcomes: M. Sc. Physics

Department of Physics	After successful completion of two year degree program in physics a student should be able to;
Programme Outcomes	PO-1. Apply the skill and knowledge in the design and development of electronic circuits to fulfill the needs of small scale electronic industry. PO-2.Demonstrate, solve and an understanding of major concepts in all disciplines of physics.

	PO-3. Solve the problem and also think methodically, independently and draw a logical conclusion. PO-4. Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of Physics experiments. PO-5. Create an awareness of the impact of Physics on the society, and development outside the scientific community. PO-6. To inculcate the scientific temperament in the students and outside the scientific community. PO-7. Use modern techniques, decent equipments and Phonics software's PO-8. Become professionally trained in the area of electronics, material science, lasers and nonlinear circuits.
Programme Specific Outcomes	PSO-1. Introduce advanced techniques and ideas required in developing area of Physics. PSO-2. Enhance students' ability to develop mathematical models for physical systems. PSO-3 Gain the knowledge of Physics through theory and practical's. PSO-4. Understand and apply principles of physics for understanding the scientific phenomenon in classical and quantum physics. PSO-5. Understand and apply statistical methods for describing the quantum and classical a particles phenomenon in various physical systems. PSO-6. Understand good laboratory practices and safety. PSO-7. Develop research oriented skills. PSO-8. Make aware and handle the sophisticated instruments/equipments.
Course Outcomes M. Sc Physics **Semester-III**	
Course	**Outcomes** After completion of these courses students should be able to;
PHYUT701 Statistical Mechanics in Physics (4 Credits)	PSO-1.This course develops concept in classical laws of Thermodynamics and their applications PSO-2.To learn Postulates of statistical mechanics PSO-3.To learn statistical interpretation of thermodynamics micro canonical, canonical and grand canonical ensembles PSO-4.To study the methods of statistical mechanics are used to develop the statistics for Bose-Einstein and Fermi-Dirac.
PHYUT702 Physics of Quantum Mechanics II (4 Credits)	CO-1. To study the application of Time- independent Perturbation Theory. CO-2. To understand the WKB approximation. CO-3. Know the application and validity of Born Approximation. CO-4. To study the Symmetry in Quantum Mechanics.
PHYDT703	CO-1. To know the Indian Energy Scenario.

Energy Studies I	CO-2. To study Solar Radiation & it's Measurements. CO-3. To know the Basics of Heat transfer. CO-4. To study the types of Energy storage systems.
PHYDT704 **Electronic Instrumentation-I**	CO-1. General Block diagram & Measurements of instrumentation. CO-2. To Study transducers strain gauge, thermistor, magneto resistive sensor. CO-3. Signal Conditions data acquisition & conversion. CO-4. To Understand the Display system & records.
Course Outcomes M. Sc Physics **<u>Semester-IV</u>**	
PHYUT801 **Nuclear Physics (4 Credits)**	CO-1. Know the properties of nucleus likes binding energy, magnetic dipole moment and electrical quadrapol moment CO-2. To study achievement of Nuclear Models of Physics and its limitations CO-3. To give an extended knowledge about nuclear reactions such as nuclear fission and fusion CO-4. To understand the basic concept of Particle Physics
PHYUT802 **Material Science (4 Credits)**	CO-1. To study the Mechanical, Electrical and Thermal Properties of material. CO-2. Discuss the type of Phase Diagrams. CO-3. Know the solid solution and types of solid solution. CO-4. Understanding the Point Defect, Line Defect with example. CO-5.Study the Diffusion Mechanism. CO-6. To obtain the Frenkel Imperfection, Schottky Imperfection Expression.
PHYDT803 **Energy Studies II**	CO-1.To study solar photovoltaics (SPV). CO-2. Know photo thermal application of solar energy. CO-3.To study Hydrogen energy. CO-4.To understands wind and Bio energy.
PHYDT804 **Electronic Instrumentation-II**	CO-1.Student knows the process control system. CO-2. Student understands different Principals of control system. CO-3.Lern the analog and digital controllers CO-4. Know modeling , simulation and MATLAB/ Sci. Lab programming

Department of Computer Science

PROGRAMME OUTCOMES: B. Sc. Computer Science

Department of Computer Science	After successful completion of three year degree program in Computer Science a student should be able to;
Programme Outcomes	PO-1 To develop problem solving abilities using a computer PO-2 To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems. PO-3 To imbibe quality software development practices. PO-4 To create awareness about process and product standards PO-5 To train students in professional skills related to Software Industry. PO-6 To prepare necessary knowledge base for research and development in Computer Science PO-7 To help students build-up a successful career in Computer Science
Programme Specific Outcomes	PSO 1: Demonstrate understanding of the principles and working of the hardware and software aspects of computer systems. PSO-2 Design, implements, test, and evaluate a computer system, component, or algorithm to meet desired needs and to solve a computational problem. PSO-3 To Enhance skills and adapt new computing technologies for attaining professional excellence and carrying research.
Course Outcomes BSc. Computer Science **Semester III**	
Course	**Outcomes**
CS-331 **Systems Programming**	CO-1 To understand the design structure of a simple editor. CO-2 To understand the design structure of Assembler and macro processor for a hypothetical simulated computer. CO-3 To understand the working of linkers and loaders and other development utilities. CO-4 To understand Complexity of Operating system as a software
CS-332 **Theoretical**	CO-1 To have an understanding of finite state and pushdown automata. CO-2 To have a knowledge of regular languages and context free languages.

Computer Science	CO-3 To know the relation between regular language, context free language and corresponding recognizers. CO-4 To study the Turing machine and classes of problems.
CS-333 Computer Networks -I	CO-1 Understand different types of networks, various topologies and application of networks. CO-2 Understand types of addresses, data communication. CO-3 Understand the concept of networking models, protocols, functionality of each layer. CO-4 Learn basic networking hardware and tools.
CS-334 **Internet Programming I**	CO-1 Learn Core-PHP, Server Side Scripting Language CO-2 Learn PHP-Database handling.
CS-335 Programming in Java-I	CO-1 To learn Object Oriented Programming language CO-2 To handle abnormal termination of a program using exception handling CO-3 To create flat files CO-4 To design User Interface using Swing and AWT
CS-336 **Object Oriented Software Engineering**	CO-1 Understanding importance of Object Orientation in Software engineering CO-2 Understand the components of Unified Modeling Language CO-3 Understand techniques and diagrams related to structural modeling CO-4 Understand techniques and diagrams related to behavioral modeling CO-5 Understand techniques of Object Oriented analysis, design and testing
Course Outcomes BSc. Computer Science **Semester IV**	
Course	**Outcomes**
CS-341 **Operating Systems**	CO-1 To understand design issues related to process management and various related algorithms CO-2 To understand design issues related to memory management and various related algorithms CO-3 To understand design issues related to File management and various related algorithms
CS-342 **Compiler Construction**	CO-1 To understand design issues of a lexical analyzer and use of Lex tool CO-2 To understand design issues of a parser and use of Yacc tool CO-3 To understand issues related to memory allocation CO-4 To understand and design code generation schemes

CS-343 Computer Networks -II	CO-1 Basic networking concepts. CO-2 Understand wired and wireless networks, its types, functionality of layer. CO-3 Understand importance of network security and cryptography.
CS-344 **Internet Programming II**	CO-1 Learn different technologies used at client Side Scripting Language CO-2 Learn XML,CSS and XML parsers. CO-3 One PHP framework for effective design of web application. CO-4 Learn JavaScript to program the behavior of web pages. CO-5 Learn AJAX to make our application more dynamic.
CS-345 Programming in Java-II	CO-1 To learn database programming using Java CO-2 To study web development concept using Servlet and JSP CO-3 To develop a game application using multithreading CO-4 To learn socket programming concept
CS-346 Computer Graphics	CO-1 Computer programming skills in C programming language CO-2 Basic understanding of use of data structures CO-3 Basic Mathematical concepts related to matrices and geometry.
CS-347 **Lab Course I System Programming & Operating System**	CO-1. Design and implement System programs with minimal features to understand their complexity. CO-2. Design and implement simulations of operating system level procedures. CO-3 Understand the process of designing and implementing System programs and operating system components.
CS-348 **Lab Course II Programming in Java**	CO-1. Implement core Java programs to solve simple problems CO-2. Implement Client and Server end Java programs
CS-349 **Lab Course III Programming in PHP & Project**	CO-1 Implement Simple PHP programs to solve simple problems CO-2 Understand the process of designing and implementing Web applications, using PHP.

Programme Outcomes: M. Sc. Computer Science

Department of Computer Science	After successful completion of two year degree program in Computer Science a student should be able to;
Programme Outcomes	PO-1. Able to developed the necessary learning skills and independence for further studies PO-2. Can initiate and lead projects within the scientific field and be responsible for the work of individuals and groups PO-3. Can communicate scientific information, challenges and findings to scholars as well as to general audience PO-4. Are capable of presenting and describing scientific issues and research findings in a foreign language PO-5. Can make decisions in an independent, professional manner and support them PO-6. Can decide which analytical methods and complex theories are applicable PO-7. Can communicate statistical information.
Program Specific Outcomes	PSO-1 Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, IoT and data analytics of varying complexity. PSO-2 Acquaint with the contemporary trends in industrial/research settings and thereby innovate novel solutions to existing problems.

Course Outcomes MSc. Computer Science

Semester III

Course	Outcomes
CS 301: Software Metrics & Project Management	CO-1 Software Metrics and Project Management covers skills that are required to ensure successful medium and large scale software projects. CO-2 It examines Requirements Elicitation, Project Management, Verification and Validation and Management of Large Software Engineering Projects. CO-3 Student learn to select and apply project management techniques for process modeling, planning, estimation, process metrics and risk management; perform software verification and validation using inspections, design and execution of system test cases.
CS 302: Mobile Computing	CO-1 To familiarize the students with the buzz words and technology of mobile communication CO-2 Understand the GSM architecture CO-3 Understand the issues relating to Wireless applications
CS 303: Soft Computing	CO-1 To understand the concepts of how an intelligent system work and its brief development process. CO-2 This course exposes learners to Neural Network, Fuzzy Logic and Genetic Algorithms, which are the major building blocks ofIntelligent Systems.

CS 304: Project	CO-1Students will be able to design, develop, document, and test software using current techniques. CO-2Students will be able to design, develop, document, and test so software that manages system resources.
CS 305: Web Services	CO-1 To Understand Web Services and implementation model for SOA CO-2 To Understand the SOA, its Principles and Benefits CO-3 Understanding cloud computing as a web service CO-4 Discuss the concept of virtualization and data in cloud.
CS 306: Database and System Administrator	CO-1 This curriculum offers you the opportunity to acquire a combination of both Operating Systems & Database Administration skills. CO-2 SDBA program gives you ideal opportunity to practice what you have learned through real life case studies.
Course Outcomes M. Sc Computer Science **<u>Semester-IV</u>**	
Course	**Outcomes**
CS 401: Full Time Industrial Training/ Industrial Project	CO-1 Knowledge of basic SW engineering methods and practices, and their appropriate application. CO-2 Knowledge and application of collaborative tools for SW development. CO-3 Successful implementation of teamwork behavior and policies in a large class project. CO-4 Students will demonstrate a breadth of knowledge in computer science, as exemplified in the areas of systems, theory and software development. CO-5 Students will demonstrate ability to conduct a research or applied Computer Science project, requiring writing and presentation skills which exemplify scholarly style in computer science.

Department of Botany

Programme Outcomes: B. Sc Botany

Department of Botany	After successful completion of three year degree program in Botany a student is able to;
Programme Outcomes	PO-1. Students know about different types of lower & higher plants their evolution in from algae to angiosperm &also their economic and ecological importance. PO-2. Cell biology gives knowledge about cell organelles & their functions PO-3. Molecular biology gives knowledge about chemical properties of nucleic acid and their role in living systems. PO-4. Genetics provides knowledge about laws of inheritance, various genetic interactions, chromosomal abrasions & multiple alleles. PO-5. Structural changes in chromosomes. PO-6.Student can describe morphological & reproductive characters of plant and also identified different plant families and classification. PO-7.They knows economic importance of various plant products & artificial methods of plant propagation PO-8. Use modern Botanical techniques and decent equipments. PO-9.To inculcates the scientific temperament in the students and outside the scientific community.
Programme Specific Outcomes	PSO-1. Students acquire fundamental Botanical knowledge through theory and practical's. PSO-2. To explain basis plant of life, reproduction and their survival in nature.

	PSO-3. Helped to understand role of living and fossil plants in our life. PSO-4. Understand good laboratory practices and safety. PSO-5 To create awareness about cultivation, conservation and sustainable utilization of biodiversity. PSO-6. To know advance techniques in plant sciences like tissue culture, Phytoremediation, plant disease management, formulation of new herbal drugs etc. PSO-7 Students able to start nursery, mushroom cultivation, biofertilizer production, fruit preservation and horticultural practices.

Course Outcomes B. Sc Botany

Semester-III

Course	**Outcomes** After completion of these courses students should be able to;
BO . 331 CRYPTOGAMIC BOTANY.	CO-1. Study of cryptogams to understand their Diversity. CO-2. Know the systematics, morphology and structure of algae, fungi , bryophytes, and Pteredophytes. CO- 3. Know life cycle pattern of cryptogams. CO-4. Know economic importance of cryptogams. CO-5.Know evolution of algae, fungi, bryophytes and Pteredophytes.
BO.332 CELL & MOLECULAR BIOLOGY	CO-1.Gain knowledge about cell and its function. CO-2.Learn the scope and importance of molecular biology. CO-3. Understand ultra structure of cell wall, plasma membrane and cell organelles CO-4. Understand the biochemistry of cell. CO-5. Understand the biochemical nature of nucleic acid and their role in living systems.

BO. 333 GENETICS AND EVOLUTION	CO-1.Understand the Mendelian and neo Mendelian genetics. CO-2 Know about interaction of genes, multiple alleles and linkage and crossing over. CO-3. Know about sex linked inheritance, chromosomal aberrations. CO-4. Know the evolutionary sequence of various groups of plants.
BO.334 SPERMATOPHYTIC AND PALAEOBOTANY	CO-1. Systematic study of gymnosperms and angiosperms. CO-2.Understand the morphological and reproductive character of spermatophytic plants. CO-3.Understand economic importance of gymnosperms and angiosperms. CO-4.Understand the diversity among spermatophyte. CO-5.To bring investigation of palaeobotanical study in India. CO-6.Know, scope and application of Palaeobotany. CO-5.Know types of fossils, geological time scale.
BO.335 HORTICULTURE & FLORICULTURE	CO-1.Understand economic importance of plant and plant product. CO-2. Know the methods of plant propagation. CO-3.Understand the fruit & vegetables production technology. CO-4.Understand the scope & importance of floriculture. CO-5.Understand the methods of cultivation of different flowering plants.
B0.336 COMPUTATIONAL BOTANY	CO-1.Understand the scope & importance of biostatistics. CO-2.Understand the scope and some basic commonly used terms like sampling, data, dispersion, population, central tendency etc. CO-3.Knowledge to apply statistical analysis to biological data for testing different hypothesis.

Course Outcomes B. Sc Botany Semester-IV	
BO. 341 PLANT PHYSIOLOGY & BIOCHEMISTRY.	CO-1.Know scope and importance of plant physiology. CO-2Understand plant & water relation. CO-3.Understand process of photosynthesis, C_3 , C4, CAM pathways. CO-4.Understand the process of respiration, growth and developmental process in plant. CO-5.Understand the biochemistry of cell. CO-6.Understand the different biochemical reaction of biomolecules in plant cell.
BO. 342 PLANT ECOLOGY AND BIODIVERSITY.	CO-1.Know the biotic and abiotic components of ecosystem. CO-2.Food chain & food web in ecosystem. CO-3.Understand diversity among various groups of plant kingdom. CO-4.Understand plant community & ecological adaptation in plants. CO-5. Scope , importance and management of biodiversity.
BO. 343 PLANT PATHOLOGY.	CO-1.Understand scope and importance of plant pathology. CO-2.Know disease cycle and disease development . CO-3.Know the effect of plant diseases on economy of crops. CO-4.Know the methods of studying plant diseases. CO-5.They can identify the plant diseases like bacterial , nematodal, and fungal. CO-6.Know the disease forecasting. CO-7.Know the prevention and control measures of plant diseases.

BO. 344 MEDICAL AND ECONOMIC BOTANY	CO-1.Understand scope and importance of pharmacognosy. CO-2.Know the cultivation, collection, processing & importance of various herbal drugs. CO-3.Understand the scope of economic botany. CO-4.Know the botanical resources like non wood forest products. CO-5.Understand the concept of Ayurvedic pharmacy.
BO. 345 PLANT BIOTECHNOLOGY	CO-1.Understand the fundamental of recombinant DNA technology. CO-2.Understand tissue culture techniques. CO-3.Role of microbes in agriculture , medicine & industry. CO-4.Know the fermentation technology. CO-5.Understand the concept of bioinformatics, genomics & proteomics. CO-6.Understand technical germplasm & cryopreservation.
BO. 346 PLANT BREEDING & SEED TECHNOLOGY.	CO-1.Understand the scope & importance of plant breeding. CO-2.Know the technique of production of new superior crop varieties. CO-3.Know the about heterosis, hybrid vigor etc. CO-4.Know the process of hybrid variety, development & their release. CO-5.Know about seed germination, processing , production etc.

Programme Outcomes: M. Sc Botany

Department of Botany	After successful completion of two year degree program in Botany a student is able to;
Programme Outcomes	PO-1. . Student can identify and classify all plant groups from algae to angiosperms, also understand the evolutionary relationship and their taxonomic aspects. PO-2. Knows the concept, process, physiology, and molecular basis of plant development. Also knows the methods of cultivation & economic importance of various species, millets, leguminous plants, fruits, essential oils, vegetables etc. PO-3. Students know about economically important algae, their cultivation and applications. and also methods of preparation and application of algal products. PO-4. Understand the application of Biopesticides; know about sources, methods and production of biofuel. PO-5. Acquired knowledge of fermentation technology and production of fermented products. PO-6.In seed technology student gain knowledge about seed structure development, chemical composition, seed production, processing, seed testing, quality control, seed certification and new hybrid variety. PO-7.Students learn the basic biostatistics, experimental statistics and bioinformatics. PO-8. Students understood plant organism interaction, PO-9.To inculcates the scientific temperament in the students and outside the scientific community.
Programme Specific Outcomes	PSO-1. Students acquired knowledge through practical work in fields as well as in laboratory. PSO-2. Students are expose to various industrial process by industrial training. PSO-3. Project helps for creating research attitude among the post graduate students

Semester III	
Course	**Outcomes** After completion of these courses students should be able to;
BOTANY. BO.3.1 SPERMATOPHYTIC BOTANY:	CO-1. To study the classification o gymnosperm & angiosperms. CO-2. Understand the relationship between living & non living fossil gymnosperms CO- 3. Know about systematic classification & nomenclature. CO-4. Knows about taxonomic aspects of angiosperms.
BO.3.2 DEVELOPMENT AND ECONOMIC BOTANY:	CO-1.Knows the concept, features & process of plant development. CO-2.Understand embryological aspects of development. CO-3. Know about the polyembryon, apomixes, parthenogenesis etc. CO-4. They also understand physiology, molecular basis of development CO-5. Know about various spices, millets, leguminous crop plants and their economic importance.
BO.3.3 INDUSTRIAL BOTANY-1	CO-1. Gain idea about economically important algae their cultivation & application. CO-2. Gain knowledge about methods of preparation & applications of biopesticides. CO-3. Understand floriculture & its importance. CO-4. Get ideas about different types of fruits. CO-5. Knows methods, processing of preservation of fruits.
BO.3.4 ADVANCED SEED TECHNOLOGY	CO-1. Gain scientific knowledge of seed development, structure and chemical composition. CO-2..Understand the principle and process of seed production. CO-3. Gain knowledge about objectives, genral layout of seed

	processing. CO-4. Gain knowledge about seed testing, seed certification, and quality control.
Course Outcomes M. Sc Botany **Semester-IV**	
BO.4.1- COMPUTATIONAL BOTANY	CO-1. Know the basic terms and test of hypothesis in biostatistics. CO-2. Understand the technical experimental statistics. CO-3. Know the concept of bioinformatics. CO-4. To know the concept of sampling methods and analysis of biostatical data in Botany.
. **Bo.4.2- PLANT ORGANISM INTERACTION.**	CO-1. Understand various kinds of plant-plant interaction like epiphytic plant, parasitic plant and Plant association. CO-2. Understand the interaction between herbivorus, carnivorus, and omnivores organisms. CO-3. Know the symbiotic association between various organism lke lichen, mycorrizae etc. CO-4. Understand the mechanism of seed dispersal and pollination.
BO.4.3-INDUSTRIAL BOTANY-II	CO-1. Know the concept, scope and importance of herbal technology. CO-2. To study the various type of plants such as Aromatic, medicinal etc. CO-3. Understand the floriculture and its importance. CO-4. Get ideas of gardening methods and landscaping. CO-5. Gain knowledge about Plant tissue culture techniques. CO-6. Know the ideas about fruit preservations.
BO.4.4- PLANT PATHOLOGY	CO-1. Know the concept, scope and importance of Plant pathology. CO-2. Understand courses of disease development. CO-3. Account of Plant disease classification.

	CO-4. Know the prevention and control measures of plant diseases. CO-5. Know the concept of disease forecasting CO-6. Knowledge of Bio-control and Integrated Pest management.

Department of Mathematics

Sr. No.	Name of Program	Course	Course Title	Course Objective	Expected Outcome
				(i) A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology and recognize basic geometrical figures and graphical displays, state important facts resulting from their studies. (ii) A student should get a relational understanding of mathematical concepts and concerned structures, and should be able to follow the patterns involved, mathematical reasoning. (iii) A student should get adequate exposure to global and local concerns that explore them many aspects of Mathematical Sciences. (iv) A student be able to apply their skills and knowledge that is, translate information presented verbally into	After completing this course student will be able to
					1. Solve various problems on properties of integers and use the basic concepts of divisibility, congruence and their applications in basic algebra.
1			Algebra and Geometry		2. apply factor theorem, remainder theorem to solve problems on polynomials and by using given relations between roots he will find the roots of polynomials 3. solve the system of homogeneous and non homogeneous linear of m equations in n variables by using concept of rank of matrix, finding eigen values and eigen vectors.
	BACHLOR OF				4. Solve the problems of lines in three dimension, planes, spheres, and cylinders and how geometry is related to algebra by using their algebraic equations.
		F.Y.B.Sc.			After completing the course, students will able to-
	SCIENCE				1. Identify algebraic and order properties of real numbers. 2. Identify and apply the function properties of real

2			Calculus and Differential Equations	mathematical form, select and use appropriate mathematical formulae or techniques in order to process the information and draw the relevant conclusion. (v) A student should be made aware of history of mathematics and hence of its past, present and future role as part of our culture.	number system such as the completeness property 3. Verify the values of limit of a function at a point using the definition of a limit 4. Students will be familiar with the techniques of integration and differentiation of function with real variables 5. Identify and apply the intermediate value thm, Mean value thm and L'Hospital's rule 6. Identify types of differential equations and solve differential equations such as Exact, homogeneous, non-homogeneous, and linear and Bernoulli differential equations etc.

3		S.Y.B.Sc.	Multivariable Calculus I		After completing the course, students will able to- 1. Students learn analysis of multivariable functions, continuity, and differentiability. 2. learn the concepts of multiple integrals and their Application to area and volumes
4			Laplace Transforms and Fourier Series		After completing this course student will be able to 1. Learn the methods and properties of Laplace transform and Inverse Laplace Transform, apply them to solve Linear Differential equations. 2. Apply the fundamental concepts of Fourier series, Fourier Sine series, Fourier Cosine series to find series representation of irrational numbers.
5			Linear Algebra		After completing this course student will be able to 1. Use the concept of basis and dimension of vector spaces linear dependence and linear independence, to solve problems. 2. Use the concept of inner product spaces to find norm of vectors, distance between vectors, check the orthogonality of vectors, to find the orthogonal and orthonormal basis. 3. Apply the properties of linear transformations to linearity of transformations, kernel and rank of linear transformations, inverse transformations to solve the problems of matrix transformations, change of basis.
6			Multivariable Calculus II		After completing this course student will be able to 1. Students develop knowledge in the limit, continuity, differentiation of vector functions. 2. Use the various techniques of solving Integral problems of vector valued functions.

7			Metric Spaces		After completing this course student will be able to 1. Learn the basic abstract ideas of analysis 2. Learn the basic ideas open sets, closed sets, limit point, isolated points, boundary points, subspace, product metric spaces and apply them to study the narure of sets. 3. Leran the theorems on completeness, compactness, connectedness and use them to solve the problems.identify the continuity of a function which is defined on metric spaces, at a given point and identify the set of points on which a function is continuous by using different theorems.
8			Real Analysis-I		After completing the course, students will able to -know sequence and series of real numbers and their convergence and divergence.
9		T.Y.B.Sc.	Group Theory		After completing the course, students will able to- 1. Identify the various algebraic structures with their corresponding binary operations. 2. generalize the groups on the basis of their orders, elements, order of elements and group relations 3. Compare two groups of same orders on the basis of isomorphism Criteria. 4. Compute the possible subgroups of given group of specific orders and will recognize them.
10			Ordinary Differential Equations		On satisfying the requirements of this course, students will have the knowledge and skills to: Solve linear differential equations with constant coeffiecients, non-homogeneous differential equations, system of first order equations, solution of differential equations by Power series method

11			Operations Research		After completing the course, students will able to- 1. Formulate and model a LPP from a word problem and solve them graphically in 2-D 2. Modify a primal problem and use the LPP to identify the new solution 3. Understand basic notions like feasibility, infeasibility, basic solutions, unbounded solutions etc

12			Number Theory		After this course, ✓ Solve various problems on properties of integers and use the basic concepts of divisibility and their applications in basic algebra. ✓ Apply Euclid's algorithm and backwards substitution. ✓ Understand the definitions of congruence's, residue classes and least residues
13		T.Y.B.Sc	Complex Analysis		On satisfying the requirements of this course, students will have the knowledge and skills to: 1. solve problems on basic concepts of modulus, argument of a complex number, deMoiver's theorem and use them to find roots of an algebraic equation. 2. Define continuity and differentiability for complex functions 3. Prove the Cauchy-Riemann equations and apply them to complex functions in order to determine whether a given continuous function is complex differentiable, 4. Evaluate integrals along a path - directly from the definition and also via the Fundamental Theorem of Contour Integration and Cauchy's Theorem, 5. Compute the Taylor and Laurent expansions of simple functions, determining the nature of the singularities and calculating residues, 6. Prove the Cauchy Residue Theorem and use it to evaluate integrals.
14			Real Analysis-II		On satisfying the requirements of this course, students will have the knowledge and skills to: Know convergence of sequence and series of functions, Riemann integrals, Improper integrals and its applications,
15			Ring Theory		After completing the course, students will able to- 1. Assess properties implied by the definitions of rings 2. Use various canonical types of rings 3. Analyze and demonstrate examples of ideals and quotient rings 4. Use the concept of isomorphism and homomorphism for rings

16			Partial Differential Equations		On satisfying the requirements of this course, students will have the knowledge and skills to: Form the partial differential equations and Solve the problems on Pfaffian differential equations. Solve the problems on first order and higher degree partial differential equations and its applications.
17			Optimization Techniques		After completing this course students will have the knowledge and skills to: 1. Solve the project management related problems by using the concepts of CPM, PERT so as to findout the project completion time. 2. Fond the optimal solutions of Game theory problems, Optimal solution of two person zero sum game, Solution of mixed strategy games, graphical solution of games, linear programming solution of game. 3. Solve the problems on Replacement policy after failure , how to process the n jobs on two machines or three machines in minimum time so that the machines remain idle for short time. 4. Solve the optimization unconstrained the optimization problems and constrained optimization problems of multivariable functions.
18			Computational Geometry		After completing the course, students will able to- 1. Design, analyze and develop algorithm and method for solving geometric problems efficiently 2. Assess theoretical and practical problems that involves geometry 3. Generalize basic notions of reflection, rotation, projection with real life examples

19	**MASTER OF SCIENCE**	M.Sc-I	Real Analysis		After completing the course, students will able to- 1. Understand basic theorem on lebesgue measure 2. Understand basic theory of measurable set, m'ble functions, measurability 3. Determine the Riemann integrability
20			Advanced Calculus		After completing the course, students will able to- 1. Compute double integrals, applications to area and volume, Green's thm in the plane and the change of variables in double integrals 2. Understand basic notions such as derivative of the scalar field w.r.to vector field, gradient of scalar field, paths and line integrals 3. Recognize fundamental vector product, area of various parametric surfaces
21			Group Theory		After completing the course, students will able to- 1. Assess properties implied by the definitions of group 2. Use various canonical types of groups including cylic groups and groups of permutations 3. Analyze and demonstrate examples of subgroups, normal subgroups and quotient groups 4. Use various theorems on "Sylow theorems" to identifying the whole structure of group of given order
22			Numerical Analysis		After this course, ✓ The students will not only learn how to use the finite element method, but also how to formulate and code a finite element method for any given set of partial differential equations. Thus, the finite element method is developed as a tool for the numerical solution of partial differential equations, and not confined only to structural mechanics applications the way it is typically taught. ✓ The students will learn how to Solve the Ordinary differential equation by various methods ✓ The students will learn how to find the Integration & Derivative by various methods

					✓ The students will learn how to find the roots of the equation by various methods

23			Ordinary Differential Equations		After completing the course, students will able to- 1. Distinguish between linear, non-linear, partial and ordinary differential equations 2. Recognize and solve homogeneous diff. equations, exact diff. equations, linear diff. equations by using Integrating factors 3. Identify ordinary and singular points 4. Find power series solution about ordinary point and a power series solution about singular points
24			Complex Analysis		After completing the course, students will able to- 1. Analyze sequence and series of analytic functions and types of convergence 2. Represent complex numbers pictorially and geometrically 3. Apply concept and consequences of analyticity and C-R- equations 4. Compute complex contour integrals and applying the Cauchy's integral in various versions. 5. Understand geometric interpretations of complex numbers.
25			General Topology		After completing the course, students will able to- 1. Understand various basic topologies 2. Understand the core ideas of countability and uncountability 3. Understatnd the theory of compactness, connectedness and completeness 4. Understand the heridatory topological properties 5. Understand the thms on normal spaces, regular spaces and relation between them

26			Linear Algebra		After this course, ✓ Use the concept of basis and dimension of vector spaces linear dependence and linear independence, to solve problems. ✓ Apply the properties of linear transformations to linearity of transformations, kernel and rank of linear transformations, inverse transformations to solve the problems of matrix transformations, change of basis. ✓ Solving linear equations, working with matrices, in particular eigenvalues and eigenvectors, and applying the techniques to real life problems like graph theory, computer science, Electronics and applied Mathematics.
27			Ring Theory		After completing the course, students will able to- 1. Analyze and demonstrate examples of ideals and quotient rings 2.Use the concept of isomorphism and homomorphism for rings 3. Assess properties implied by the definitions of rings and modules 4. Confidently apply algebraic concept
28			Partial Differential Equations		After completing the course, students will able to- 1. Solve examples on Charpit's and Jacobi's method 2. Solve wave equations, heat equations, boundary value problems, Lapalce equations, Cauchy problem, Dirichlet and Neumann problem for different regions. 3. Classify the various second order partial differential equations.
29		M.Sc-II	Combinatorics		After completing the course, students will able to- 1. Understand the ideas of permutations and combinations 2. Understand the addition and multiplication principles for counting 3. Understand how to apply combinatorial ideas to real life problems 4. Use generating functions to solve variety of combinatorial problems

30		M.Sc-II	Field Theory		After completing the course, students will able to- 1. Understand basic notions in the theory of field extensions 2. Apply the thms of algebraic extensions, splitting fields, separable and insepa. Extensions to find the various examples of extensions. 3. Relate the group theory and Galois theory in finding the Galois extension and Galois group. 4. Understand basic theory of composite extensions, simple extensions and cyclotomic extensions
31			Functional Analysis		After this course, ✓ A student learns the basics of functional analysis. ✓ They learn to treat the vector spaces which have the additional property of being topological spaces. ✓ Blending of these two structures brings them an exposure to higher mathematics. Important theorems like the Hahn-Banach theorem are taught here. These theorems stand a student in good stead throughout his mathematical life. ✓ The student having seen basic analysis and linear algebra is expected to learn how these topics play a significant role, first in multi-variate calculus which then naturally leads to calculus on manifolds. ✓ The intimate relationship between analysis and geometry should become apparent at the end of this course.
32			Graph Theory		After completing the course, students will able to- 1. Understand the language of graphs and model 2. Understand the use of graphs as model 3. Solve real world problems using graphs and trees
33			Topics in Analysis -I		***After successful completion of this course, students will be able to:*** ✓ Explain the Fundamental concepts of the Theory of Integral Equation. ✓ Distinguish the difference between Differential Equations and Integral Equations,singular integral equation. Convert he differential equation into an

					integral equation and vice versa

					✓ Solve the problems on Fredholm integral equations by Adomian decomposition memthod ,direct computation method ,and on Volterra integral equations equations by Adomian decomposition methodseries solution method successive approximation method. ✓ Find the solution of the problems on Fredholm Integro differential equation, Volterra Integro differential equation. ✓ Learn the methods and properties of of Laplace transform and Inverse Laplace Transform,apply them to solve Linear Differential equations. ✓ Apply the fundamental concepts of Fourier transform, Fourier Sine Transform, Fourier Cosine Transform to Evaluate Improper Integrals.
34			Number Theory		After this course, ✓ Solve various problems on properties of integers and use the basic concepts of divisibility, congruence and their applications in basic algebra. ✓ The students are able to Free Open Learn course, Introduction to number theory, as well as becoming proficient at modular arithmetic, you should find that you are increasingly able to communicate mathematical ideas and apply your knowledge and understanding to mathematics in everyday life, in particular to applications, such as the prevention of errors in ID numbers
35			Differential Geometry		After completing the course, students will able to- 1. recognize different types of graphs and its level sets 2. understand basic notions related vector fields, tangent spaces and surfaces 3. understand core ideas of orientation, geodesics, parallel transport, Weingarten map and Curvatures 4. solve examples on curvatures, arc lengths and line integrals, curvature of surfaces

36			Fourier Analysis and Boundary Value Problems		After completing the course, students will able to- 1. Find the Fourier series representation of a function of one variable 2. Find the solution of Wave equation, Lapalce equation. Heat equation using the fourier series
37			Lattice Theory		After completing the course, students will able to- 1. Acquire knowledge of fundamental notions from lattice theory and from properties of lattice theory 2. Develop ability to solve individually and creatively advanced problems of lattice theory and also problems connected with its applications to mathematics.
38			Topics in Analysis -II		After Successful Completion of This Course , student will be Able to 1. Value of the infinite product 2. Solve the problems by different using relations of Gamma Function and Beta function. Evaluate the improper integrals. 3. Write solution of Linear Differential Equations with variable coefficients in Series form. Apply the theorms to find relations among the parameter inthe hyeprgeometric function.

Department of Psychology

OUTCOMES: B. A. PSYCHOLOGY

Department of Psychology	After successful completion of three year degree program in Psychology a student should be able to
Programme Outcomes	PO-1. Able to understand basic concepts of Psychology. PO-2. Understand the impact of environment, society, heredity on persons Behaviour. PO-3. Understand the human social behavior. PO-4. Awareness of self and social well being. PO-5. Think scientifically about surrounding human behavior. PO-6. Understand human development. PO-7. to write study tour report
Programme Specific Outcomes	PSO -1. To get admission post graduation course in Psychology. PSO-2. To interpretation of data and make project/research. PSO-3. To write scientific case study report. PSO-4. To use of basic psychological tests and experiments. PSO-5. Identify and Think on the various psychological problems. PSO-6. Make use of personality theories in daily practice. PSO-7. Make Use of Industrial theories while preparing for professional interviews. POS-7. Analyze and understand abnormal human behavior in practice.

COURSE OUTCOMES: B. A.PSYCHOLOGY

Course	**Outcomes** After completion of these course students should be able to

1227 **GENERAL PSYCHOLOGY F. Y. B. A**	1. To able to understand basic principles of Psychology. 2. To able to understand historical trends of Psychology.
	3. To able to understand Major concepts, different perspectives of Psychology. 4. To able to understand an overview of the applications of Psychology. 5. To able to understand Career opportunities in Psychology. 6. To understand Roll of Biological base in human behavior. 7. To understand Emotion, Motivation and Sensory Processes. 8. To Learn applications of various techniques of psychology.
SYBA	
2227 **SOCIAL PSYCHOLOGY(G2)**	1. To create the awareness among the students of Social Psychology and it's various fields. 2. To able to understand Social behavior. 3. To understand Self Concept and How to develop it. 4. To able to understand Important role of Social relations in individuals life. 5. To able to understand Attitudes, How prejudice are take place and its effect on behavior. 6. To able to understand Aggression and how to control it. 7. To able to understand the ways of communication and its applications. 8. To able to understand the leadership and its characteristics. 9. To learn various applications and techniques of Social Behavior.

SYBA **2228: Abnormal Psychology (S1)**	1. Student is expected to acquire knowledge of causes, symptoms and treatment of various psychological disorders. 2. To understand the criteria of abnormal behavior.
	3. To able to understand concept of DSM. 4. To able to understand various perspectives of psychopathology. 5. To learn schizophrenia disorder in detail. 6. To learn etiology and treatment of various disorder.
2229 **Developmental Psychology. (S2)**	1. To able to understand influences of various factors on development. 2. Able to understand basic concepts human development process. 3. To understand how birth (process) takes place. 4. Able to understand development of language. 5. To understand cognitive development process. 6. To understand physical, motor and development of relations. 7. To learn Physical and mental changes in Adolescence. 8. To learn all stages of life span and understand its good and bad impact on life.
TYBA	
3227 **INDUSTRIAL PSYCHOLOGY** **(G3)**	1. To understand the differences between Economic growth and Development, Indicators of Economic Development. 2. To learn about industrial and organizational psychology. 3. To able to understand Selection and training programme. 4. To able to learn evaluating job performance and application. 5. To understand motivation at the workplace. 6. To understand leadership, leadership qualities and functions of leaders of industrial Psychology. 7. To learn new concept 'engineering psychology' for easier work for workers.

3228 **SCIENTIFIC RESEARCH AND EXPERIMENTAL PSYCHOLOGY (S3)**	1. To acquire basic skills and understand basic concept of Research methodology. 2. To understand how to make small research project. 3. To learn making group report/project. 4. To able to understand theory of research. 5. To understand Psychophysics. 6. To understand the perceptual processes. 7. To learn psychological testing. 8. To understand thinking processes. 9. To understand problem solving concept.
3229 **PSYCHOLOGY PRACTICAL: TEST AND EXPERIMENTS.** **(S4)**	**1.** To able to understand basic concepts in Statistics. 2. To understand and solve the simple statistical problems. 3. To able to understand and use of general and special ability testing. 4. To learn how measure the individuals personality through using appropriate psychological test. 3. To able to use various type of tests. 4. To learn group testing with small sampling. 5. To able to understand concept of report writing and interpretation of data. 6. To learn to make project practically with minimum sample of 30. 7. To observe various problems in society and make the project on one issue or problem. 8. To learn making study tour report and process of study tour.

OUTCOMES: M. A. PSYCHOLOGY

Department of Psychology	After successful completion of two year post degree program in Psychology a student should be able to
Programme Outcomes	1. To go further higher education. 2. To provide the students with a unique opportunity of obtaining a professional qualification in Psychology focusing on the advanced Skills. 3. To able to understand basic concepts of Psychology and to analyze behaviour in practice. 4. Understand the Psychological way of thinking. 5. The ability to write clearly Project reports. 6. To develop comprehensive understanding of interdisciplinary issues and aspects of society. 7. To do scientific research in Psychology.
Programme Specific Outcomes	1. The ability to analyze Symptoms and able to diagnose. 2. Students will be able to effectively communicate with psychological illness. 3. Be exposed to alternative approaches to Psychological problems through exposure to coursework in allied fields. 4. To identify upcoming psychological hazards. 5. To suggest remedy for the various psychological abnormal behaviour. 6. To prepare the students for scientific Psychological Testing. 7. To prepare the students for scientific Counseling. 8. To prepare the students for Proper Prognosis.

	9. To prepare the students for appropriate news breaking, and able to take sessions.
M.A (Part – I) Semester I	
Psy-101: **Cognitive Process**	1. To able to understand The Basic cognitive process. 2. To understand concepts related to Cognition. 3. To understand concepts of sensation, attention and perception. 4. To understand language development process and related cognitive phenomena. 5. To understand concepts of problem solving, Creativity and decision Making. 6. To develop insight one's own and others behavior and underlying mental processes.
Psy-102: **Psychological Testing**	**1.** To understand Role of testing in Psychology.. **2.** To understand the scope of Psychological testing. **3.** To understand the meaning of psychological tests score concept. **4.** To able to understand Administration of various Psychological tests. **5.** To able to understand how to make norms for Psychological test. **6.** To able to understand the concept of Reliability. **7.** To able to understand concept of Validity. **8.** To able to understand concept of Norms and the test scores. **9.** To able to understand correlation coefficient.
Psy-103: **Statistical**	1. To develop computation skills in students.. 2. to understand the various statistical concepts.

Methods	3. To understand Normal Distribution Curve. 4. To able to understand the concept correlation and regression. 5. To understand and enable to analyze the data of practical and project work. 6. To able to understand calculate ANOVA. 7. To understand the concept of non-parametric test
Psy-EP104: **Psychology Practical: Tests.**	1. To understand the administration of Psychological Tests. 1. To understand of evaluation procedure of psychological testing. 2. To practically able to administrate psychological tests. 3. To learn Psychological skills for counsellor. 4. To understand personality tests. 5. To understand and administer test of self concept and Achievement. 6. To able to administer stress and social skill tests. 7. To able to administer Special Ability Test.
M.A (Part – I) Semester II	
PSY-201: **Learning and Memory**	**1.** To able to understand various types of theories of Learning and memory. **2.** To understand the types of Memory. **3.** To able to understand theory of classical conditioning. **4.** To able to understand cultural influence on learning. **5.** To understand the memory improvement techniques. **6.** To understand Models of Memory. **7.** To learn various applications of Learning and Memory. **8.** To Understand the basis of neurology in Learning and Memory.
PSY- 202:	**1.** To understand various psychological Assessment techniques.

Psychological Testing :Applications.	2. To understand Various applications of Psychological tests in various fields. 3. To understand administration of Psychological Tests. 4. To understand the applications of the tests of Industrial and Business. 5. To able to understand concept Clinical Setting. 6. To able to understand the concept of Education setting. 7. To able to understand the concept of counseling settings. 8. To able to understand the role of counselor and clinical psychologists. 9. To understand Group Testing. 10. To understand the CPQ, DAT, WISC, 16 PF, etc…
PSY-203: **Research Methodology**	**1.** To able to understand the basic term of advance research methods. **2.** To able to understand Sampling Techniques. **3.** To understand the Experimental designs in Research. **4.** To able to understand Multivariate designs of research. **5.** To understand Importance role of research in Psychology. **6.** To able to understand Qualitative research. **7.** To able to understand the Quasi- Experimental designs. **8.** To understand the importance of Scaling Concept in Psychology. **9.** To able to understand concepts of research designing.
EC-204: Psychological Practical: Experiments	1. To provide a thorough practical knowledge about the administration of Psychological Experiments. 2. To make the students aware about Psychological Experiments and Testing.

	3. To impart the knowledge of various skills of conducting experiments in psychology. 4. To make the applications of experimental research design. 5. To understand Cognitive process experiments. 6. To understand Learning experiments. 7. To understand Measures Memory of individuals through using proper experiments. 8. To understand and measure of Motivation and emotion state of Individuals.
M.A (Part –II) Semester III	
PSY-301: **Personality**	1. To understand applications of Personality theories in Life. 2. To learn and understand important theories of Personality. 3. To understand the various perspectives of learning. 4. To understand cognitive Perspective by learning various theories. 5. To able to understand individual differences in behavior. 6. To understand current issues and concept of temporal stability. 7. To able to understand Trait approach in detail. 8. To understand Psychoanalytic and Neo-psychoanalytic theories.
PSY-310: **Psychopathology-I**	1. To able to understand concept of Mental disorder. 2. To understand the latest DSM-5. 3. To able to understand Neurodevelopmental Disorders. 4. To able to understand Schizophrenia Disorder. 5. To able to understand OCD and related disorders. 6. To understand symptoms of disorders.

	7. To able to make Prognosis. 8. To learn various paradigm of Psychopathology.
PSY-311:Psycho diagnostic procedure and Techniques	1. To understand Nature, structure and role of testing in Psychology. 2. To able to understand diagnostic procedure. 3. To understand importance of various tools of diagnostic. 4. To able to make diagnosis. 5. To able to understand Structured clinical interview for DSM. 6. To understand cognitive assessment process. 7. To understand and able to make Clinical report. 8. To understand Role of Projective techniques in diagnosis.
PSY-312:Project	1. To Understand Process of research. 2. To able to understand the and able to implies appropriate statistical method. 3. To understand and able to select proper sampling technique. 4. To understand and able to analyze collected data. 5. To able to use proper review of previous research. 6. to able to present data through using appropriate graph. 7. To able to make appropriate conclusion. 8. To understand the whole process of research by doing practical work. 9. To able to make project report in APA style.
M.A (Part –II) Semester IV	
PSY EP401:	**1.** To understand theories of Motivation and Emotion.

Motivation and Emotion	2. To understand foundation of Motivation, 3. To understand the process of biological mechanism. 4. Students able to make applications of various Motivation theories. 5. To understand various Theories of Emotion. 6. To able to understand Concept and component of Emotions. 7. To understand Biological base of Emotion. 8. To understand various setup in motivation. 9. Understand Intervention in Emotion.
PSY EP 410: **Psychopathology-II**	On completion of the course, students are able to 1. To Understand Sexual disorders and its effect on life. 2. To able to understand disruptive and impulse behavior. 3. To understand substance and its related disorders. 4. To understand the personality disorders and able to distinguish with each other. 5. To able to recognize various symptoms and able to diagnose and prognosis,
PSY-EP 411: **Psychotherapies**	1. To Understand the concept of Psychotherapy. 2. To learn various Psychotherapies. 3. To learn applications of Psychotherapies. 4. To able to applications of Psychotherapy. 5. To understand the transactional analysis. 7. Able to understand the Process of Psychotherapy. 8. To able to understand Behaviour Therapy.

EP 412: **Practicum**	**1.** Students will be able to observe individuals behaviour in proper way. **2.** To understand the Process of case study. **3.** To understand the taking history of an Individual. **4.** To understand and able to Assessment and diagnosis. **5.** Students will be able to Proper Prognosis. **6.** To understand concept of News breaking and able to break the news. **7.** To Understand and able to make therapy sessions

Department of Geography

COURSE OUTCOMES:Geography

FYBA

Gg-110 Elements of Geomorphology (G1)

1. Understand the effect of rotation of revolution the Earth
2. Understand interior structure of the earth
3. know the importance of longitudes & latitudes
4. International Date line and Standard time
5. Understand Theory regarding of Origin of Continents and oceans
6. Study the formation of Rocks
7. Understand the work of internal and external forces and their associated Landforms.
8. Study the erosional and depositional land forms of Rivers and Sea Waves.
9. Understand the concept of mass Wasting
   Understand the Application of Geomorphology

SYBA

Gg-210: Elements of Climatology and Oceanography (G2)

1. Understand the importance of Atmosphere
2. Understand heat balance.
3. Understand the types of winds
4. Understand the structure, composition of Atmosphere.
5. Understand weather phenomena winds, humidity and precipitation.
6. Understand properties of ocean water.
7. Knowledge about effect of ocean Currents.
8. Study about types of tides.
9. Study of costal environment and Ocean Resources

Gg-220: Economic Geography (S1)

1. Study the Human Economic Activities
2. Explain the Weber theory of Industrial Location
3. Understand the mineral and power resources
4. Study conventional and non-conventional energy resources

5. Study of the distribution of Iron and Steel, Automobile, Cotton Paper and Ship Building Industries in India
6. Get knowledge about types of agriculture, trade and transport.
7. Aware the student about need of conservation and Protection of natural resources.
8. Study of Transport and Trade
9. Understand the concept of Privatization, Globalization and Liberalisation

Gg201 Fundamentals of Geographical Analysis (S2)

1. Measure Map Scales, conversion of scales
2. Understand types of projections
3. Preparation of various graphs and diagrams
4. Get knowledge about Statistical Methods.
5. Understand the different surviving techniques like, plane table, prismatic survey.
6. Acquire knowledge of preparation of drawing of profile with the help of Dumpy level.
7. Understand the socio economic condition of the villages.

TYBA

Gg-310: Human Geography (G3)

1. Understand the relationship of man and environment
2. Study of human evolution and races of man kinds.
3. Understand the concept of Determinism, Posibilism and Stop and Go determinism.
4. Understand the modes of life of Bhill, gonad, Nagas and Tribes in India
5. Importance of Right to Information Acts.
6. Understand the history of population
7. Study of distribution and density of population.
8. Get knowledge of population theories.
9. Study types, cause, effects of migration.

Gg-320 :Agricultural Geography (S3)

1. Understand approaches of agricultural geography
2. know the silent feature, problems and prospects of Agriculture.
3. study about types of agriculture,
4. Understand methods of irrigation

5. Know the Importance of water Resources.
6. Study about water harvesting concept and methods.
7. Study allied areas in agriculture and agriculture development
8. Study the Problems And Prospect of Agriculture
9. Understand sustainable agricultural development

Gg-301: Techniques of Spatial Analysis (S4)

1. know about Toposheets and its types
2. Understand the mechanism function of topographical maps.
3. Understand interpretation if weather images.
4. Understand the History of Remote Sensing
5. Know Arial Photographs and Satellite Imageries
6. Understand method of representation of relief.
7. Introduce the student of top sheet, weather map.
8. Understand the basic concept of R,S GIS& GPS.
9. Mapping and interpretation of Arial Photograph.

PROGRAM SPECIFIC OUTCOMES: Geography

On Completion of the BA (Geography) Students are able to:

1. Serve as a Geographer
2. Work as a teacher in colleges, schools and high schools
3. Serve as conservator in forest, Soil, Agricultural Departments.
4. Work in disaster and water resources management.
5. Serve in forest department as forest conservator.
6. Serve in cartographer in map making divisions of Government.
7. Work in NGOs.
8. Can Prepare for Competitive exams.

COURSE OUTCOMES: MA Geography

M.A/M. Sc. - I Year

1. Gg-101 Principals of Geomorphology

On completion of the course, students are able to:

1. Understand the nature, scope and significance of geomorphology and fundamental concepts in subject.
2. To examining the Origin and Evolution of the earth primary relief features by different theories in subject.
3. Understand about Exogenous Processes considering weathering and mass wasting and nature and types of the slope.
4. Evaluate the fundamental Model of Davisian Cylcle of Erosion to learn the function of fiver and its landforms development process.
5. Understand formation, process and development of Fluvial and Karst Landforms
6. To recognize and understand the formation, process and development of Glacial and Aeolian Landforms in geomorphology

2. Gg-102 Principals of Climatology

On completion of the course, students are able to:

1. Understand the difference between weather & climate and aims, nature, scope of climatology.
2. Understand the origin, composition and structure of atmosphere
3. Getting facts about Heat Budget and factors effects Heat Budget.
4. Understand the concept of horizontal, vertical temperature and inversion of temperature.
5. Identify the Atmospheric pressure and winds humidity and concept of precipitation and its types.
6. Understand the Air masses and Fronts and the Weather Forecasting.

3. Gg-103 Principals of Economic Geography

On completion of the course, students are able to:

1. Students Understand about the Nature and Scope, approaches of Economic Geography and recent trends of economic geography.

2. Understand about the basic Economic Processes- Production, Exchange, Consumption and its applications

3. Understand the fundamental theories in economic geography.

4. Review, understand and apply the modes of economics development by various models.

5. Compare the economic environment and economic development in the world.

6. Understand the economies scale, transportation and communication and nature and role of international trade in economic development of India.

4. Gg-104 Principals of Settlement & Population Geography

On completion of the course, students are able to:

1. Understand the Nature and Scope of Population & Settlement Geography and their evolution, significance and approaches for the study.
2. Understand the settlement types, pattern and nature and process of urban settlement And some basic concept related to settlement geography.
3. Examine and understand the various factors responsible for World Population growth and Distribution.
4. To understand the fundamental Concepts Related to Population such as density, over, Optimum & under population, fertility, mortality and population for future Perspectives.
5. To review and understand the subject matter with the help of Theories of Population.

5. Gg-105 Practical in Physical Geography

On completion of the course, students are able to:

1. Understand the stream ordering methods of Stahlers and Harton and calculate the stream orders and bifurcation ratio
2. To study and understand the drainage basin analysis and prepare the slope map, dissection index map, relative relief map, absolute relief map
3. To understand and prepare the slope profile and their types and drawing the block diagram

4. To understand the Climograph, Hydher graph Climate graph.

5. To understand and classify climatic region using Koppen's and Thornwaite climatic classification methods

6. Gg-106 Practical in Human Geography

On completion of the course, students are able to:

1. Students understand the statically crop combination methods.

2. To evaluate and understand agricultural efficiency with various methods.

3. Evaluate the Data Analysis Techniques of measures network structure.

4. Understand & Draw Lorenz Curve and location quotient.

5. Understand population indices' and population projection Analysis

7. Applied and understand the data analysis techniques for rural and urban settlement And prepare the adequate maps, various Graphs.

7. Gg-201 - Quantitative Techniques in Geography

On completion of the course, students are able to:

1. Understand the introduction of types of statistical and characteristics of geographical data, Scales of measurement.

2. Clear the facts about the probability, types of probability and applications and uses in different field of geography.

3. Understand the concept of sampling and designing and conducting a sample survey for data collation and data analysis.

4. Evaluate, calculate and understand the parametric and non-parametric statistical tests.

5. Understand the correlation and regression analysis and their application in various field of geography.

8. Gg. 202- Practical in Cartography

On completion of the course, students are able to:

1. Understand the types and scales of Data measurement.

2. Use data representation by various techniques of maps and Diagrams.

3. Understand the map projections definition and necessity of projections and types – perspective and non-perspective, conventional and classification of projection.

4. Understand and graphical construct the polyconic projection, international map projection, universal transverse Mercator (UTM) projection and mollweide projection.

9. Gg. 203- Practical in Surveying and Field visit

On completion of the course, students are able to:

1. Understand the topographical maps, its introduction, types, index, grid reference, and interpretation of topographical maps

2. Study the satellite imageries- introduction, calculation of geographical area, interpretation of satellite imageries.

3. Understand the aerial photographs- introduction, definition, types, geometry of aerial photographs, methods, measurement of geographical area, elements of photo interpretation using stereoscope.

4. Study and understand the techniques of surveying, using dumpy level and theodolite for practical, field work, research, and measurement and management of area.

10. Gg.204 - Geography of Tourism

On completion of the course, students are able to:

1. To Students Understand about the tourism influencing factors: historical, natural, social-cultural and economic.

2. Study the tourism motivating factors for pilgrimages, leisure, recreation, elements.

3. Understand the Tourism types: eco-ethonocoastal and adventure tourism, national and international tourism, globalization and tourism.

4. To Stud tourism attraction, evolution of tourism, promotion of tourism, case studies from in India.

5. Study and understand the environmental laws and tourism-current trends, spatial and recent changes, Tourism circuits-short and longer, accommodation and supplementary accommodation other facility, Indian hotel industry.

11. Gg.205- Geography of Disaster Management

On completion of the course, students are able to:

1. Examining the introduction to disaster, nature, scope, significance, types and approaches to study.
2. Understand the fundamental concept of hazard, disaster, vulnerability, resilience and risk
3. Understand the various types and impact of natural and manmade hazards on human being, regional economy, nature etc.
4. Understand the role of local peoples, NGOs, police, army, paramilitary forces in disaster management
5. Study the previous disasters and their management happened in India

12. Gg.206- Geography of Energy Resources

On completion of the course, students are able to:

1. To Students Understand about the definition, types and Forms of energy and classified material based and process based energy resources.
2. Study the global scenario of energy requirement since industrial revolution period to the present and understand issue related to energy use and environment, understand difference in use of energy in develop and developing country.
3. To understand the issues related to tread, energy crisis and related treaties and agreements on international level.
4. To understand spatial and temporal pattern of energy consumption in agriculture, transport and industrial sectors, with reference to different states, rural and urban areas the in country.
5. Study and understand planning of energy, institutional arrangements, policy models and understand the energy management process in India and methods of energy conservation traditional vs. modern energy management and sustainable development.

13. Gg. 207- Practical in Terrain Analysis

On completion of the course, students are able to:

1. Understand the topographical maps, aerial photographs, satellite images its introduction, types, index, grid reference, and interpretation of them
2. Study the satellite imageries- introduction, calculation of geographical area, interpretation of satellite imageries.
3. Understand the aerial photographs- introduction, definition, types, geometry of aerial photographs, methods, measurement of geographical area, elements of photo interpretation using stereoscope.
4. Study and understand the techniques of preparation of DEM, primary and secondary attributes using surfer8 and Global Mapper software

14. Gg-212 - Agricultural Geography

On completion of the course, students are able to:

1. Understand about the introduction to agriculture, nature, scope, significance and Development of agriculture geography, study approaches applied in agriculture.
2. Understand the influence of physical, Economic and Technological factors on agriculture patterns.
3. To understand the agricultural system its meaning and concept, whittlesey's classification

of agricultural system, types of agricultural, study the types of agricultural in respect of area, salient features and their problems.
4. Understand the agricultural regionalization and modes in agricultural geography and their classification of agricultural models and some theories.
5. Understand definition and characteristics of arid and semi-arid regions and study about droughts and famines, role of irrigation and dry farming.

15. Gg-222 - Industrial Geography

On completion of the course, students are able to:

1. Understand study about the industrial geography, its nature, scope, and different study methods.
2. To study the locations of industry and their activities primary and secondary and its factors responsible for same.
3. To review on world distribution of some industries and selected countries.
4. To understand the global nature of industrialization and related problems, methods of measuring the spatial distribution of manufacturing.
5. Understand the environmental degradation, industrial hazards and occupational health, manufacturing industry, role and factors affecting on the same.

M.A/M.Sc-2nd Year

1. Gg-301 Geography of India with special Reference to Maharashtra

On completion of the course, students are able to:

1. Understand the about the physiographic division of India and Maharashtra.

2. Understand the India Drainage system of India Rivers

3. Understand the climatic variation in India and climatic region of India and Maharashtra.

4. Examine and understand the types of vegetation of India and Maharashtra.

5. Understand the variation in industrial development in India and Maharashtra.

6. Examine and understand the developed and underdeveloped states in India.

2. Gg-312 Trade and Transport Geography

On completion of the course, students are able to:

1. Understand the history and development, nature, types, need and types of trade

2. Study the physical, economic, social and political factors influencing on international trade

3. Understand types, characteristics, merits and demerits of modes of transportation

4. Understand the role and significance various modes of transportation in local and international trade.

5. Understand the various problems of transportation in urban areas

3. Gg-321 Soil Geography

On completion of the course, students are able to:

1. Understand the nature, scope, and concept of soil geography

2. Understand physical and chemical properties of soil and factors affecting formation of soil.

3. Understand vertical structure of soil and soil horizon.

4. Understand soil classification of USDA

4. Gg-332 Practical in Economic Geography

On completion of the course, students are able to:

1. Understand concepts of crop combination, Agricultural Efficiency and Agricultural Productivity.

2. Examine Location Quotient, Lorenz Curve, Gini's Coefficient and Von Thunean

3. Understand transport Network Analysis

4. Get information about gravity potential population surface model

5. Understand application Breaking Point theory (Trade Area)

5. Gg-302 Interpretation of Topographical Maps & Village Survey / Project Work

On completion of the course, students are able to:

1. Identify the conventional signs and symbols of SOI toposheet.

2. Understand the topographical maps, its introduction, types, index, grid reference, and interpretation of topographical maps
3. Identify the conventional signs and symbols of OS toposheet.

4. Understand the OS topographical maps, its introduction, types, index, and interpretation of OS topographical maps

6. Gg. 303 Research Method in Geography

On completion of the course, students are able to:

1. Examining the introduction of research, motivation in research, types of research, significance of research, research process and criteria of good research.
2. To understand the research problems, selecting research problems, literature review and to study the hypothesis, its types, sources, formation of hypothesis and utility of hypothesis in scientific research.
3. To understand the research design, need, features, basic principal and developing of research plan, and sampling design and its basic types, steps, characteristics of sampling design.
4. Study about type's data and methods of data collection and study the processing and analysis of data using different statistical methods.
5. Understand the interpretation and report writing, techniques, precaution of interpretation, layout of research report, types of reports and oral presentation mechanics of writing a research report.

7. Gg. 304 Social & Cultural Geography

On completion of the course, students are able to:

1. Understand the nature, scope and concept, relationship between culture and social Environment and right of information act.
2. To examining the cultural complex and traits of culture and its concepts.

3. Evolution to civilization and various cultural development and cultural system according to religion, language and geography and global cultural changes.
4. To study the origin and growth of culture and agriculture and its basic concepts. Understand the concept of space and social process and present status.
5. Understand difference in rural and urban social and cultural life style with reference of settlement patterns.

8. Gg. 305 Practical in Watershed analysis

On completion of the course, students are able to:

1. Understand the fundamentals concepts related to watershed, significances of watershed development, demarcation of watershed, types of watershed according to area and shape
2. Study about the physical parameters of watershed, channel geometry and basin morphology.
3. Understand the hydrological parameters, rainfall, aerial precipitation, evaporation and transpiration, infiltration, run off and drainage.
4. Understand the watershed development planning and sample of watershed management and planning for appropriate development of watershed management for water conservation and development.

9. Gg-401 Theoretical and Applied Geography

On completion of the course, students are able to:

1. Understand the historical development of geographical thought according to Greek, Roman, Indian, German, French, British and American school.
2. Understand the dualisms in geography such as determinism and possibilism, systematic Vs regional and physical Vs human geography.
3. Understand recent trends, scientific methods, quantitative revolution and computer application in geography.
4. Understand the definition, need, and signification of applied geography.

10. Gg-402 Principles of Remote Sensing and GIS

On completion of the course, students are able to:

1. Understand the all fundamental concept of GIS, potential of GIS, concept of space & time, objectives of GIS, elements of GIS, GIS tasks, history of GIS and GIS applications in different field.
2. To examine and understand the spatial and non spatial data models and all its functions components and applications in geography.
3. Extract the knowledge and information about geospatial analysis and database query and GIS data analysis the various concept and problems in analysed in GIS environment.
4. Understand the concept of map, projections, and coordinate systems and basic of the same for different purposes in geography.
5. GIS applied in the various kinds of fields, agriculture, populations, watershed planning and land use planning.

11. Gg. 403 Practical in Remote Sensing and GIS

On completion of the course, students are able to:

1. Understand the modern techniques in geography under this course such as remote sensing and aerial photography.
2. Examining the history, basic theories of EMR, and other concepts.
3. Understand and get the knowledge about fundamental concept, types of aerial photography characteristics of aerial photographs and aerial camera.
4. Review on development of Indian remote sensing and functions of IRS.
5. To understand the types of remote sensing, and types of platforms in remote sensing.
6. To get an knowledge about satellite sensor and types of sensors, and their functions and characteristics
7. Understand the data product, types of data product and its applications and uses in remote sensing.

12. Gg-405 Geography of Health

On completion of the course, students are able to:

1. Understand fundamental concepts, approaches, development and challenges of health care in India.
2. Learn the geographical factors affecting on human health.
3. Get the knowledge of genetic, communicable, non-communicable and occupational diseases.
4. Understand diffusion of diseases and causes major diseases.
5. Understand rural environment and health and health problems of tribes in India.

6. Get the knowledge about urban environment and health; pollution.

13. Gg. 404 Geography of Food Security of India

On completion of the course, students are able to:

1. Get the knowledge about fundamental concept food security, accessibility, utilization and food stability.
2. Understand the hunger and malnutrition and examine spatial-temporal distribution.
3. Find the physical factors and socio-economic factor affecting food security in India.
4. Understand agricultural productivity, land availability, land degradation in India.
5. Examining spatial-temporal distribution of major food and cash crops in India.
6. Understand concept of food justice, food sovereignty social injustice, gender inequalities and Food Security conditions in India at national and state level.
7. Obtain the knowledge about India's Food Security Bill 2013 and its Benefits and detriments.

14. Gg. 407 Regional Geography of SAARC countries

On completion of the course, students are able to:

1. Examining and understand the history of SAARC organization, their importance and General location of SAARC countries.
2. Understand about the strategic location of India. And salient Features of SAARC Organization.
3. Study and understand about Physiography, Climate, Drainage, Vegetation, Agriculture, Economic, Demographic and cultural Aspect of India

15. Gg. 423 Oceanography

On completion of the course, students are able to:

1. Understand the meaning, nature and scope, modern trends in Oceanography.
2. Understand the ocean floor and relief of the ocean bottom.
3. Understand the properties like temperature, density, salinity of ocean water.
4. Understand the characteristics and properties of factors affecting on formation of sea waves.
5. Understand the tides, tide generating forces, types of tides and tidal effects in coastal areas.
6. Get knowledge about distribution of lithogenous, biogenous, and hydrogenous sediments on ocean floor.

16. Gg-441 Principles of Regional Geography & Project Work

On completion of the course, students are able to:

1. Understand the definition and concept of regional geography study about the principles and importance of Regional Geography.
2. Understand regional approach for the study regionalization and planning.
3. Understand theoretical structure of planning by central place theory, Growth pole Theory, and Gunnar mydal's cumulative causation.

4 study about causes, effect of regional disparities and remedies on disparities.

5 student presentations on any one topic related to regional geography with issues and solutions.

PROGRAM SPECIFIC OUTCOMES: MA Geography

On completion of the M.A. /M. Sc (Geography), students are able to:

1. **Government Department:** A geographer has better job opportunities in government departments like planning and development, urban planning, forestry, environmental and disaster management departments, Public Work Department, Agriculture Department and travel agencies, manufacturing firms, text book, map publishers, media agencies, etc.
2. **Cartographer:** Many people choose to work as a cartographer with extensive knowledge about maps and are involved in making maps, charts, globes, and models of Earth and other planets.
3. **Surveyor:** Many others with a degree in geography also select to work as a surveyor in government sectors and private companies.
4. **GPS Surveyors:** In recent days even the fields of GIS as well as Remote Sensing are providing better job opportunities to people with the educational background in geography and related GPS specializations.
5. **GIS and Remote Sensing Fields:** Many Multinational Companies (MNC) are providing jobs to Geographer as a GIS Expert, Digitizers in GIS Company, GIS Analysis, GIS Engineer
6. **Government employer:** Central government agencies employ geographers for mapping, intelligence work and remote sensing interpretation. State and local governments employ geographers on planning and development commissions.
7. **GIS specialist:** City governments, county agencies and other government agencies and private groups are often in need of experienced GIS professionals.
8. **Climatologist:** Agencies viz. National Weather Service, news media, the Weather Channel and other government entities occasionally need climatologist.
9. **Transportation Manager:** The regional transit authorities or shipping, logistics and transportation companies requires in transportation geography.
10. **Researcher:** Many Government and non-government institutes along with research center offer several career options for qualified geographers with numerous specializations.
11. **Teacher/Professor:** The college teachers, school teachers and university teacher, depending upon the experience and degrees obtained.
12. **Competitive Examinations**: It is learn that in the NET/SET, MPSC/UPSC and other competitive examinations.

Department of Economics

COURSE OUTCOMES: B. A. Economics

FYBA

ECO-1157- Indian Economy – Problems and Prospects (G-1)

On completion of the course, students are able to

1. Understand nature, Basic Characteristics and Major issues of Indian economy
2. Understand population & economic development
3. Understand Poverty and Unemployment Concepts and their trends in Indian economy
4. Understand role of agriculture, industrial sector in Indian economy.
5. Understand economic planning in India
6. Understand Salient Features of Economy of Maharashtra.
7. Understand Role of Co-operative in Economic Development of Maharashtra.
8. Understand Regional Imbalance Causes & Preventive Measures.

SYBA

ECO-2157: Modern Banking (G2)

On completion of the course, students are able to

1. Create the awareness among the students of Modern Banking System.
2. Understand commercial banking system in India
3. Understand working & operation of RBI
4. Understand new development in Indian financial system periods
5. Understand cooperative and rural banking in India
6. Understand non banking financial institutions & financial services in India
7. Understand the Indian money market
8. Understand the Indian capital market
9. Able to understand international aspects of the Indian financial system

ECO 2158: Micro Economics (S1)

On completion of the course, students are able to

1. Student is expected to understand the behavior of an economic agent, namely, a consumer, a producer, a factor owner and the price fluctuation in a market.
2. To understand nature and scope of economics, the theory of consumer behavior, analysis of production function and equilibrium of a producer, the price formation in different markets structures and the equilibrium of a firm and Industry.
3. Understand concept of Revenues and cost of Production.
4. Understand Linear & Non- Linear functional relationship

5. Understand price determination of factors (Rant, wages, interest and Profit.)

6. Understand meaning of social welfare function.

ECO-2159: Macro Economics (S2)

On completion of the course, students are able to

1. Understand macro economic analysis

2. Understand of national income

3. Understand classical & Keynesian theories of output and employment

4. Understand consumption & Investment function

5. Understand process of credit creation by commercial banks

6. Understand Quantity theory of money.

7. Understand various macroeconomic problems.

8. Understand various macroeconomic policies.

.TYBA

ECO-3157: Economic Development and Planning (G3)

On completion of the course, students are able to

1. Understand the differences between Economic growth and Development, Indicators of Economic Development.
2. Understand Characteristics of Developing Countries.
3. Understand Constraints on Development Process.

4. Understand theories and Approaches of economic development.

5. Understand some growth models

6. To understand macroeconomic policies, roll of foreign capital and economic planning etc. in developing countries.

ECO-3158: International Economics (S3)

On completion of the course, students are able to

1. Understand Nature, Scope and Importance of International Economics

2. Understand theories international trade.

3. Understand gains from international trade & their measurements

4. Understand theory of intervention in trade

5. Understand the theory of regional blocks

6. Understand trade policies in India

7. Understand international financial institutions

8. Understand foreign direct investments

9. Understand foreign exchange market

ECO3159: Public Finance (S4)

On completion of the course, students are able to

1. Understand Functions and Role of Government in Economy and Meaning, Nature, Scope & Importance's of public finance.

2. To understand various Approaches about Role of Government and Principle of Maximum Social Advantage- Dr. Dalton.

3. Understand concept of public expenditure

4. Understand concept of public revenue

3. Understand incidence & approaches of taxation

4. Understand concept of public debt

5. Understand concept of budget & deficit finance

6. Understand taxation & public debt of India

7. Understand fiscal federalism in India

PROGRAM SPECIFIC OUTCOMES: B. A. ECONOMICS

On completion of B.A (Economics), Students are able to:

1. Understand basic concepts of economics.

2. To able to analyze economic behavior in practice.

3. Understand the economic way of thinking.

4. The ability to analyze historical and current events from an economic perspective.

5. The ability to write clearly expressing an economic point of view.

6. Be exposed to alternative approaches to economic problems through exposure to coursework in allied fields.

7. To create students ability to suggest of the various economic problems.

COURSE OUTCOMES: M. A. ECONOMICS

M.A (Part – I) Semester I

EC-1001: Micro Economics analysis

On completion of the course, students are able to

1. Understand the Basic Micro- Economic Problems of Scarcity and Choice, utility demand modern utility analysis, Elasticity of demand.
2. To understand concepts one and two input production function.
3. To understand concepts Law of Variable Proportions Returns to the Variable Factor, Returns to Scale, Cobb- Douglas Production Function.
4. To understand Analysis Characteristics and properties various concepts and Curves of Production cost and Revenue.
5. To understand concepts of Partial and General Equilibrium
6. To understand Concept of Social Welfare

EC-1002: Public Economics-I

On completion of the course, students are able to

1. To understand Role and functions of the Government in an economy.

2. Understand concepts Private Goods, Public Goods, and Merit Goods.

3. To understand and explain various theory and modals for public policy.

4. Understand concept and theories of public expenditure.

5. Understand concept of budget & deficit finance.

6. Understand incidence & approaches of taxation

7. Understand concept of public debt

8. Understand concept of budget & deficit finance

9. Understand taxation & public debt of India

EC-1003: International Trade

On completion of the course, students are able to

1. Understand Classical and Modern Trade Theories international trade.
2. Understand gains from international trade & concepts of term of trade.
3. To understand Trade policy.
4. Understand Effects of Tariffs under Partial and General Equilibrium.
5. To understand Function and Role of GATT, WTO,
6. Understand Composition and Features of Global Trade Growth.

EC-1005: Labours Economics

On completion of the course, students are able to:

1. To understand Nature, Scope and Importance of Labour Economics

1. To understand major events, trends and developments of the labour markets in the real world.
2. To appreciate differences in views of economists both from positive and normative standpoints with respect to issues in the labour markets.

3. To understand Marginal Productivity Theory, Theory of Collective Bargaining, Modern Theory of Wages.
4. To understand Wage Determination in Organized- Unorganized Sector.

5. To understand Approaches to Labour Migration trends & effects of Migration.

6. To understand Labour Unions of Labour Union in India.

7. Understand Labour Market reforms.

M.A (Part – I) Semester II

EC-2001: Micro Economics Analysis – II

On completion of the course, students are able to

1. Understand Structure of markets and Salient futures of Monopoly, Imperfect Competition oligopoly & duopoly.
2. To understand explain the theories of Monopoly, Imperfect Competition oligopoly & duopoly.
3. Understand theory of distribution

4. Understand general equilibrium & economic efficiency & welfare.

5. To understand explain the Goal of Profit Maximization and Alternative Theories of the Firm.
6. To understand Arrow's Impossibility Theorem.

EC- 2002: Public Economics-II

On completion of the course, students are able to

1. To understand various view of public Debt and Sources of Public Debt

2. To understand Burden of Public Debt on Indian Economy and Principles of Debt Management and Repayment.
3. To understand Interdependence of Fiscal and Monetary Policies.

4. To understand Meaning and Components. Preparation, Presentation and Execution of Budget.
5. Understand concept of budget & deficit finance.

6. Understand fiscal administration & public governance in India

7. Understand taxation & public debt of India

8. Understand fiscal federalism in India

9. To understand Fiscal Sector Reforms in India

10. To understand Budget Management & Kelkar Committee Recommendations

EC-2003: International Finance

On completion of the course, students are able to

1. Understand Balance of Trade and Balance of Payments- Meaning, Structure and Components Balance of Payments and Causes of Disequilibrium in BOP.
2. Understand foreign exchange market.

3. To understand Purchasing Power Parity Theory, Balance of Payments Theory, Monetary Models for Determination of Rate of Exchange.
4. Understand Current and Capital Account Convertibility of Rupees.

5. To understand Importance and Role of Foreign Capital-Trade and Investment, Theories of International Investment.
6. Understand international financial institutions

7. Understand the role of foreign direct investments

EC-2005: Industrial Economics

1. To provide a thorough knowledge about the economics of industry in an analytical manner in the Indian context.
2. To make the students aware of the basic issues such as productivity, efficiency and capacity utilization involved in the industrial development of India.
3. To impart the knowledge of how the firms interact in different markets, what are the main effects of their interactions for the social welfare.
4. To make the students aware of what strategic and non-strategic factors can influence the market performance.
5. To understand Industrial Structure in India.

6. To understand Theories of Industrial Location.

7. To understand Measures required for improving productivity and efficiency.

8. To understand Meaning, scope, importance of industrial finance.

M.A (Part –II) Semester III

EC-3001: Macro Economic Analysis – I

On completion of the course, students are able to

1. To understand Macroeconomics is not only a scientific method of analysis; but also a body of empirical economic knowledge.

2. To stimulate among the students an awareness on macroeconomic challenges and policy management in progressive nations
3. Understand various concepts of National income.

4. To understand Determination of output and employment Effects of change in Aggregate Demand and Supply Curves - Classical Approach
5. Understand nature classical & Keynesian theories of employment

6. To understand Fiscal policy and crowding out effect, Optimum Policy mix with IS-LM Model.
7. Understand measures of money supply.

8. Understand various theories of demand for money.

EC-3002: Growth and Development –I

On completion of the course, students are able to

1. Understand conceptualizing growth and development, Characteristics of LDCs.

2. To understand the world distribution of income and Development gap.

3. Understand theories of economic development

4. Understand concept of poverty & development

5. Understand population & human development

6. To understand Theories of Economic Growth and Development

Ec-3003: Modern Banking

On completion of the course, students are able to

1. To understand Nature, structure and role of financial system in economic Development and Functions of financial system.
2. Understand the Indian money & Capital market.

3. To understand role and functions of modern banks in India.

4. Understand non banking financial institutions & financial services in India.

5. Understand cooperative and Regional rural banking in India

6. To understand Current challenges faced by banking sector in India.

7. To understand Nature and role of foreign exchange market.

8. To understand Role of foreign direct investment.

9. To understand Working and role of IMF, IBRD, IDA, IFC

Ec-3004: Demography

On completion of the course, students are able to

1. To understand Nature, Scope and Relationship between development and Population growth.
2. Understand various theories of Population.

3. To understand Structure and characteristics Indian population.

4. To understand an analysis of Indian population policy.

M.A (Part –II) Semester IV

EC4001: Macro Economic Analysis - II

On completion of the course, students are able to

1. To understand theories of money supply and liquidity.

2. To understand Classical and Modern theories of Demand for Money and Price.

3. Students will be able to describe the determinants of the demand for money, the supply of money and interest rates and the role of financial institutions in the economy.

4. Students will be able to define fiscal and monetary policies and how these affect the economy.

5. To understand various Theories of Interest Rates.

6. Understand fiscal policy.

EC4002: Growth and Development –II

On completion of the course, students are able to

1. Understand the role of agriculture and Industry in development.

2. To understand the employment argument Police Environment.

3. Understand issues & techniques of economic growth

4. Understand some growth models

5. Students will be able to describe Trade as an engine of growth.

6. To understand the role of IMF, World Bank, FII and FDI

7. To understand the role of the government and markets in the developmental process

EC-4003: Research Methodology

On completion of the course, students are able to

1. To learn and appreciate alternative methodologies in terms of sampling designs, data collection techniques and in the methods of data analysis.

2. Understand concepts of research designing

3. Understand concepts of hypothesis testing methods

4. Able to understand measuring central tendency

5. Able to understand dispersion and co-efficient

7. Able to understand methods of correlation

8. Understand contents of report writing

9. Students will be able to describe Information Systems and knowledge management Computerized data processing.

EC-4004: Rural Development

On completion of the course, students are able to

1. Students will be able to describe objective, importance and various approaches to Rural Development.

2. To understand the Rural Administrative machinery.

3. To understand and explain role of Rural Infrastructure in rural Development.

4. To understand Problems of Rural Development in India.

5. Students will be able to critical assessment of rural development programs as a part of inclusive and sustainable growth.

PROGRAM SPECIFIC OUTCOMES: MA Economics

On completion of the M.A. (Economics), students are able to:

1. To provide the students with a unique opportunity of obtaining a professional qualification in economics focusing on the advanced practical areas
2. Understand basic concepts of economics and to analyze economic behaviour in practice
3. Understand the economic way of thinking.
4. The ability to analyze historical and current events from an economic perspective.
5. The ability to write clearly expressing an economic point of view.
6. Students will be able to effectively communicate economic ideas.
7. Be exposed to alternative approaches to economic problems through exposure to coursework in allied fields.
8. To create students ability to suggest of the various economic problems
9. To develop comprehensive understanding of interdisciplinary issues and aspects of society.
10. Economics majors will be able to apply advanced microeconomic and macroeconomic theories to explain the behaviour of individuals, businesses, and industries in market-based systems and the challenges of developing economies
11. Economics majors will be able to explain the role of government in the economy, including taxing, spending, regulating and producing.
12. Predict the impact of fiscal and monetary policy – use of deficits, changes in the money supply, etc. – on overall economic performance.
13. Explain and discuss the determinants of economic growth.
14. Discuss the costs and causes of unemployment, and assess public policies to ameliorate it.
15. Students will be able to formulate informed opinions on policy issues and recognize the validity of opposing viewpoints.
16. Discuss economic globalization and the inter-connectedness of nations.
17. To prepare the students for variety of challenging careers through Innovation in teaching and research.
18. To prepare the students for scientific research in economics

COURSE OUTCOMES: M.Phil. Economics

Course – I Research Methodology & Quantitative Technique

On completion of the course, students are able to

1. To learn and appreciate alternative methodologies in terms of sampling designs, data collection techniques and in the methods of data analysis.
2. Understand concepts of research designing
3. Understand concepts of hypothesis testing methods
4. Able to understand measuring central tendency
5. Able to understand dispersion and co-efficient
7. Able to understand methods of correlation
8. Understand contents of report writing
9. Students will be able to describe Information Systems and knowledge management Computerized data processing.
10. Students will be able to carry out a small scale research project in their areas of research interest independently and scientifically.

Course – II Advanced Economic Theory.

On completion of the course, students are able to

1. To expose the students to the basic principles of microeconomic theory.
2. To prepare the students to think like economists.
3. To illustrate how microeconomic concepts can be applied to analyze real-life situations
4. The students will gain the basic principles of microeconomic theory.
5. To provide to the students a systematic introduction to mainstream approaches to the study of macroeconomics in the current century
6. To stimulate among the students an awareness on macroeconomic challenges and policy management in progressive nations.
7. To developed in the students the ability for objective reasoning about macroeconomic issues
8. The students will be made aware of the mainstream approaches to the study of macroeconomics in the current century.
9. The students will gain an understanding of the macroeconomic challenges and policy management in progressive nations
10. The students will attain the ability for objective reasoning about macroeconomic issues.

Course –III Modern Indian Economy

On completion of the course, students are able to

1. The main objective of this paper is to make the students aware of recent developments in Indian Economy and to suggest research topics on current trends in Indian Economy.
2. The student is able to understand the features and structural changes of Indian economy and compare with the growth pattern and challenges of other economies.
3. The challenges and growth structure of regional economies are discussed in line with Karnataka economy.
4. The course enables the student to apply the theoretical knowledge in the actual working of Indian economy.
5. To explore the economic foundations for public policy analysis related to agricultural issues.
6. To provide a thorough knowledge about the economics of industry in an analytical manner in the Indian context.

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PROGRAM SPECIFIC OUTCOMES: M. Phil.Economics

On completion of the M.Phil. (Economics), Degree students are able to:

1. **Master of Philosophy or M. Phil. (Economics)** is a **postgraduate research course** in economics. It is the branch of social sciences which deals with the aspects related with economics. It is concerned with the latest concepts and practices regarding distribution, consumption and production of services and goods acquired an advanced technical training in microeconomics and econometrics;
2. M. Phil. (Economics) is focused on the analysis and study of consumption, production and distribution of goods and services. It teaches the students the working of economies and interaction of economic agents.
3. It is applicable in almost every area like finance, government, business, education, crime, law, social institutions, science etc.
4. This course aims to equip the students with a broad perspective on social and political influences on economics. Along with the economic theories and principles
5. This course provides an insight into practical application of these theories and principles in practical situations.
6. The students are taught to identify problems, think creatively and come up with innovative methods to present an optimal solution.
7. Acquired a solid grounding in the principles and practice of financial markets and developed the understanding of the tools necessary to make good financial decisions.
8. begun to acquire independent research skills and experience of putting them into practice;
9. acquired experience and guidance in formulating a realistic research topic and prepared written work to a strict timetable; and
10. Acquired sufficient knowledge and understanding of advanced economics to proceed to a career as a professional economist in industry or to a research degree.

Department of English

COURSE OUTCOMES: B. A. English

Compulsory English

Objectives.

1. Bridge up the gap of the students knowledge between H.S.C. and U.G.
2. To acquaint the students with the basics of the subject of English.
3. To develop the comprehensive attitude of the students in reading and writing.

Outcomes.

1. The students know the nature of the subject in comparison to the secondary level.
2. The students get more knowledge of structure and semantics.
3. They have the literary sense and comprehension of the subject.

Optional English (G-1)

Objectives

1. To acquaint the students with English Language for further studies in English language and Literature
2. To prepare the students with basic skills in language.
3. To prepare the students with the basics of phonology.
4. To prepare the students for vocabulary and basic Grammar.

Outcomes

1. After the completion of the course the students are ready to take up the special studies in language and Literature.
2. The students know English as a Language at the global level.
3. The students are also able to do other certificate courses with the knowledge of English.

S.Y B.A

Compulsory English

Objectives.

1. To develop the skills of the students in English Language.
2. To prepare the students with vocabulary and Grammar.
3. To develop the comprehension level of the students.

Outcomes.

1. The students know the nature of the subject in comparison to the secondary level.
2. The students get more knowledge of structure and semantics.

3. The students have the literary sense and comprehension of the subject.

Optional English (G-2)

Objectives-

1. To acquaints the students with literature and Language.
2. To broaden the scope of the studies in English with different forms of literature.
3. To enrich vocabulary through learning literature.
4. To get in acquaints with linguistic aspects of English.

Outcomes.

1. The students know the forms of literature.
2. The students get know the literary values. .
3. The students also know about the word formation and vocabulary.
4. The students know well how to study Language and Literature.

English Special- (S-1)

Objectives-

1. To acquaints the students with the dramatic Poetry.
2. To broaden the scope of the studies in dramatic Poetry with the basics in Drama.
3. To develop the sense of humanity with the study of Drama.
4. To apply the literary values in practical life.

Outcomes.

1. The students know the Drama as a form of Literature
2. The students know Human life at the Universal Level
3. The students also know about the different streaks of human life.
4. The students can analyze the literary forms

English Special-(SII)

Objectives-

1. To acquaints the students with the Lyrical Poetry.
2. To broaden the scope of the studies in Lyrical Poetry with the basics in verse.
3. To develop the sense of humanity with the study of poetry.
4. To apply the literary values in practical life.

Outcomes.

1. The students know the Poetry as a form of Literature.
2. The students know Human life at the Universal Level.
3. The students also know about the different streaks of human life.
4. The students can analyze poetry as a form of literature.

Compulsory English

Objectives.

1. To develop the skills of the students in English communication skills.
2. To prepare the students with vocabulary and Grammar.
3. To develop the comprehension level of the students.
4. To develop soft communication skills in English.

Outcomes.

1. The students know the skills of communication in English.
2. The students know the different between prose and poetry.
3. The students have the literary sense and comprehension of the subject.

Optional English (G3)

Objectives-

1. To continue the knowledge of the students with literature and Language on the basis of G1and G2.
2. To broaden the scope of the studies in English with the poetry of particular country in English.
3. To enrich vocabulary through learning literature.
4. To get in acquaintance with structure of English.

Outcomes.

1. The students know literature of particular country.
2. The students know cultural background of the country.
3. The students also know about structure of English.
4. The students are ready for some jobs in any field of the society.
5. The students also prepare with vigor for competitive exams.

English Special- (S-III)

Objectives-

1. To acquaints the students with the novel as form of literature.
2. To broaden the scope of the studies in narrative Poetry with the basics in novel.
3. To develop the sense of humanity with the study of novel.
4. To apply the literary values in practical life.

Outcomes.

1. The students know the novel as a form of Literature
2. The students know Human life at the Universal Level
3. The students also know about the different streaks of human life.
4. The students can analyze the novellas form of literature.

English Special-(S-IV)

Objectives-

1. To acquaintance the students with the nature of literary criticism.
2. To broaden the scope of critical studies in literature.

3. To get in acquaintance with fine arts and poetry.

4 To get know different social trends through literary criticism.

Outcomes -

1. The students know how to criticize literature.

2. The students know the Human complexities.

3. The students also know about the different streaks of human life.

4. The students can analyze literature.

COURSE OUTCOMES: M. A. English

M. A.-I

Paper-1: English Literature from 1550- 1798

Objectives –

1. To introduce students to major movements and figure of English literature through the study of selected literary texts.
2. To create literary sensibility and emotional response to the literary text and implant sense of appreciation of literary texts.
3. To expose student to the artistic and innovative use of language employment by the writers.
4. To instill values and develop human concern in student through exposure to literary texts.
5. To enhance literary and linguistic competence of student.

Outcomes-

1. The students know the scope of literary theory and the entire picture about literature.
2. The students can think about human life with universal attitude.
3. The students are ready for any competitive exam.
4. The student can join educational field for teaching or research.

Paper- II: English Literature From: 1798-2000

Objective-

1. To introduce students to major movements and figures of English literature through study of selected literary texts.
2. To create literary sensibility for appreciation in students and expose them to artistic and innovative use of language by writers and to various worldviews.
3. To instil values and develop human concern in students through exposure to literary texts.
4. To enhance literary and linguistic competence of students.

Outcomes-

1. The students know the scope of literary theory and the entire picture about literature.
2. The students can think about human life with universal attitude.
3. The students are ready for any competitive exam.
4. The student can join educational field for teaching or research.

Paper-III: Contemporary Studies in English Language

Objective-

1. To introduce student to the basic tools essential for systematic study of language.

2. To acquaint student with the basic concept and issues in linguistic.

3. To introduce them into theoretical perspective and enable them to apply the acquired linguistic skills in real life situation.

4. To initiate them to various sub-disciplines of linguistic.

Outcomes-

1. The students know the English language phonological .morphological and syntactical perspectives.

2. The students can join any field for job.

3. The students can go with knowledge in the teaching field.

Paper IV: Literary Criticism and Theory

Objective-

1. To introduce students to the nature, function and relevance of literary criticism and theory.

2. To introduce them to various important critical approaches and their tenets.

3. To encourage them to deal with highly intellectual and radical content and thereby develop their logical thinking and analytical ability.

4. To develop sensibility and competence in them for practical application of critical approach to literary texts.

Outcomes:

1. The students know the social issues with critical attitude.

2. The students know complex human nature.

3. The student's attitude is humane.

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COURSE OUTCOMES: M. A. English

M.A.II

Paper: I -Indian Writing in English

Objective-

1. To introduce students to major movements and figure of Indian literature in English through
2. To create literary sensibility and emotional response to the literary text and implant sense of appreciation of literary texts.
3. To expose student to the artistic and innovative use of language employment by the writers.
4. To instill values and develop human concern in student through exposure to literary texts.
5. To enhance literary and linguistic competence of student.

Outcomes-

1. To introduce students to major movements and figure of Indian literature in English through
2. To create literary sensibility and emotional response to the literary text and implant sense of appreciation of literary texts.
3. To expose student to the artistic and innovative use of language employment by the writers.
4. To instill values and develop human concern in student through exposure to literary texts.
5. To enhance literary and linguistic competence of student.

Paper: II-English Language and Literature Teaching

Objectives-

1. To acquaint the students with different theoretical and practical aspect of language and Literature Teaching.
2. To acquaint them with different approaches, methods and techniques of teaching English Language and Literature.
3. To sensitize the students to the major issues in ELLT in the Indian context.

Outcomes-

1. The students acquaints with the method of teaching.
2. The students acquaints with the language.

3. The students know the teaching of language skills and Testing.

4. The students know the instructional material and classroom issues.

Paper: III-Drama in English

Objective-

1. To introduce students to major movements related to Drama, works and Dramatist through study of selected text.
2. To create literary sensibility for appreciation in students and expose them to artistic and innovative use of Language by writers and to various world views.
3. To instill values and develop human concern in student through exposure to literary texts.

5. To enhance literary and linguistic competence of student.

Outcomes-

1. The students know the Dramatic form of Literature.

2. The students can think about the human psychology.

3. To expose student to the artistic and innovative use of language employment by the writers.
4. The students know Human life at the Universal Level

5. The students also know about the different streaks of human life.

Paper: IV American Literature.

Objective-

1. To introduce students to the major literary movements in America, literary works and writers through selected texts.
2. To enhance the literary sensibility of students by exposing them to the American writers of various times.
3. To instill values and develop human concern in student through exposure to literary texts.

5. To enhance literary and linguistic competence of students.

Outcomes-

1. The students know the literary movements of America and its history.

2. The students know the cultural aspect of America through literary works.

3. The students acquaints with the history of America.

4. The students acquaints with literary and linguistic competency.

Department of Political Science

Program Outcomes: BA POLITICAL SCIENCE

After completion of BA programme students should be able to …

- Students enable to develop academic proficiency in the subfields of Indian Government and Politics, Comparative Government, International Relations, Public Administration, Political Theory, and Political Ideology.
- Students enable to develop and be able to demonstrate skills in conducting as well as presenting research in political science.
- Students enable to analyze political and policy problems and formulate policy options.
- Students enable to discuss the major theories and concepts of political science and its subfields, and also deliver thoughtful and well articulated presentations of research findings.

PROGRAM SPECIFIC OUTCOMES: BA Political Science

On Completion of the BA (Political Science) Students are able to:

1. Serve as a politician
2. Work as a teacher in colleges, schools and high schools
3. Serve as political party member, political adviser, and well citizen of India.
4. Work in elections and political as well as administrative system.
5. Serve in forest department as forest conservator.
6. Can admit to MA Politics, LLB, MSW, MBA,
7. Work in NGOs.
8. Can Prepare for Competitive exams.

FYBA

Indian Government and Politics (G-1)

- Students enable to understand the philosophy of Indian constitutions.
- Students enable to identify the causes, impact of British colonial rule.
- Students enable to appreciate the various phases of Indian national movement.
- Students enable to create value in young youth regarding the patriotism.
- Students enable to understand the various Government of Indian acts their provision and reforms.
- Students enable to know the salient features in making of Indian constitution
- Students enable to appreciate the socio-economic political factors which lead to the freedom struggle.
- Students enable to appreciate the fundamental rights and duties and the directive principle of state policy
- Students enable to evaluate the evolution, functioning and consequences of political parties in India.
- Students enable to identify how electoral rules and procedure in India effect election outcomes.

SYBA

Political Theory (G-2)

- Students enable to understand the nature and scope of political theory.
- Students enable to understand the significance of political theory.
- Students enable to acquaint with the theories, approaches, concepts and principles of political theory.
- Students enable to appreciate the procedure of different theoretical ideas in political theory.
- Students enable to Interpret and assess information regarding a variety of political theory.
- Students enable to understand the various traditional and modern theories of political science.
- Students enable to evaluate the theories of origin of the state.

Western Political Thought (S-1)

Students enable to:-

- Examine political thought through the Classical, Renaissance, and Enlightenment periods based on the works of Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Tocqueville, and Marx;
- Compare and contrast the concepts of justice, freedom, equality, citizenship, and sovereignty in the works of Machiavelli, Hobbes, Locke, and Rousseau;

- Explain the different versions of, and importance of, the state of nature to political thought;
- Explain Karl Marx's worldview, with particular regard to his critique of democracy and the modern, politically liberal state; how it came to be; and its fundamental link to capitalism; and
- Explain John Stuart Mill's theory on utilitarianism and how he applies it to society and the state.

Political Sociology (S-2)

- Have good knowledge about main issues and topics in political sociology.
- Be able to understand basic principles of the exercise of power, of the state relations with civil society; individual and group interactions in the political realm.
- Achieve practical skills of analysis of social phenomena in their political settings.
- Acquire habits of socio-political information finding, sorting and critical examining.
- Foster skills of public presentations and discussions.

TYBA

Evaluation of Local Government in Maharashtra (G-3)

- Students enable to explain the role of British imperial on local government in India.
- Students enable to understand the contributions of various committees on local government.

- Students enable to describe the features and provisions of Constitutional Amendment Acts regarding Local Government Institutions.
- Students enable to equip the learner to play an active and responsible leadership role in the functioning of Local Government Institutions.
- Students enable to describe the significance and role of Grama Sabha in Maharashtra.

Public Administration (S-3)

- Students enable to demonstrate understanding of various activities of governmental administrators that fall under the rubric of public administration to include rule-making, ratemaking, and other regulatory activities, policy making and the delivery of services and programs
- Students enable to understand the 20th century emergence of the modern administrative state as a result of the technological, social, economic and political pressures that have emerged in national industrialized and developed complex, interdependent systems.
- Students enable to understanding of public administration as a career field in government.

International Politics (S-4)

- Students enable to understand the evolution, scope and significance of international relations
- Students enable to demonstrate an understanding of: the key historical events and also they enable to understand contemporary international system; and the key actors which shaped the international Politics.
- Students enable to discuss the main international relations theories.
- Students enable to analyze importance of International relation in process of nation progress.
- Students enable to appreciate the foreign policy their determinants features& its relevance.

PROGRAM OUTCOMES: M.A. POLITICAL SCIENCE

- Post Graduate Course in Political Science seeks to offer students advance knowledge of political concepts and practices in a manner that enables students to relate them to the contemporary local, national and international event.
- It seeks to emphasize both the knowledge and skill element by exposing students to new ideas not only by classroom teaching, but by also engaging in continuous experiential learning through field visits, seminars, discussions etc.
- Understanding of the institutions, processes, constitutional background, and policy outcomes of Indian government and the ability to compare Indian government to other countries around the world.
- Knowledge of key theories and concepts, historical developments, organizations, and modern issues in international relations.
- Understanding of government institutions, electoral processes, and policies in a variety of countries around the world and the ability to compare the effectiveness or impact of differing political arrangements across countries.
- Knowledge of some of the philosophical underpinnings of modern politics and government and the legal principles by which political disputes are often settled.
- Ability to use the comparative case study method of analysis, quantitative forms of analysis, and legal analysis in oral communication and in written research.

PROGRAM SPECIFIC OUTCOMES: MA POLITICAL SCIENCE

On completion of the M.A. (POLITICAL SCIENCE), students are able to work in various fields:

Public Administrator:

As a Public Administrator, MA Political Science graduates can utilize their knowledge to inform policy decisions and administer those decisions effectively.

Academician:

Those who choose to pursue further education can in turn become lecturers and professors.

Archivist:

A political archivist is responsible for assessing, collecting, processing, organizing, maintaining and preserving important records which possess long term value.

Correspondent:

A political correspondent is responsible for relaying important political events primarily for news channels.

Political Content Writer:

A Political content writer's job is to write about various contemporary and historical political issues majorly for online media outlets for news and information.

Consultant:

A political consultant is a professional who helps an organization make politically informed choices. Their knowledge about political philosophy comes in handy in such roles.

Manager:

MA in Political Science helps understand the broad administrative system in India, thus making them the right fit for managerial positions.

Subject Matter Expert:

Nowadays many IT and knowledge processing companies require subject matter experts for different subjects.

PR Executive

Public Relations is also a good option as exposure to political practices also acquaints one with culture and social systems of a place and hence making them ideal for a role as Public Relations executive.

Competitive Examinations:

It is learn that in the NET/SET, MPSC/UPSC and other competitive examinations.

M.A. (Semester -I)

PO-C1 : Political Theory

- Students got ability introduces Political Theory as a distinctive area of inquiry that is integral to the study of politics.
- Students got ability to highlights contemporary normative debates and place them in a historical perspective.
- Students enable to projects the global and interdisciplinary orientation of Political Theory. It also emphasizes the interplay of theory and practice in the political process.

PO-C2 : Public Administration

- Student enable to understand important concepts, approaches and theories of public administration
- Student enables to equip students with understanding of the latest developments in the field of Public Administration.
- Student enables to understand and analyze broad transformations in the study of public administration in the course of changes in socio-economic and political life.

PO-C3 : Political Institutions in India

- Students enable to introduce the leading institutions of the Indian political system and to the changing nature of these institutions. Apart from explaining the structure and functions of the main institutions.
- Student enable to understanding the institutional balance of power as discussed in the Indian constitution and as developed during the functioning of Indian democracy over the past decades.

PO-O1 : Modern Political Ideologies

- Student enables to understand the difference between ideology and thought as well as between theory and ideology.
- Students enable to understand the relationship between ideas and politics.
- Student enables to understand the core doctrines of each of the ideologies and to make sense of politics through different ideological perspectives.

M.A. (Semester -II)

PO-C4 : Public policy

- Student enables to understand basic concepts, theories and process of public policy.
- Student enables to understand policy processes and actors involved in it by studying specific policies.
- Student enables to understand and analyze policy making in practical context.

PO-C5 : Issues in World Politics

- Students enable to apply the theories and used to illustrate how each level of analysis the international system, the state, and the individual- to help in organizing and conceptualizing the issues.
- Student enables to understand the major issues of the twenty first century- security, economics and transnational issues are presented and analyzed.

PO-C6 : Comparative Politics

The purpose of this course is to acquaint the students with the sub-discipline of Comparative Politics with the following outcomes.

- Students enable to understand the trajectory of the sub-discipline.
- Student enable to understand the significance of the comparative methodology
- Student enables to understand the dynamics of domestic politics across the countries.

PO-O5 : Political Process in Maharashtra

- Student enables to study one state in an in-depth manner to understand how the political process evolves at the state level.
- Student enables to do assignments based on field studies. The study is to be done from socio-historical as well as political economy perspectives.

- Students enable to know the changes in the political process over the period of over half a century from Congress domination to a bipolar competition and from Maratha hegemony to the crisis of hegemony.

M.A. (Semester -III)

PO-C7: Political Thinking in Modern India

- Student knows the key ideas of political thinking in modern India as it shaped in the colonial context.
- Student enable to understand and decipher the diverse and often contesting ways in which ideas of nationalism, democracy and social transformation were discussed by leading Indian thinkers.

PO-C8: Political Sociology

- Student enables to introduce the overall scope of the sub-discipline of political sociology.
- Student enables to know power of political Sociology.
- Students enable to understand different forms of justifications of power and the role of ideology in this regard.
- They studied as a repository of power in society while class and patriarchy are two instances of how the nature of power is shaped by social factors.

PO - C9: Theory of International Relations

- Students enable to introduces the evolution and important of various theories.
- Students know a brief history of international politics.
- They understanding what are happening in the world and the levels of analysis. Competing theories are presented.

PO-O10: Indian Administration

- Student knows the key dimensions of Indian Administration functioning at different levels.
- Students understand and analyze the administrative reforms introduced recently to make administration people-centric and to what extent that goal has been realized.

M.A. (Semester -IV)

PO-C10: Traditions of Political Thought

- Student enables to know major traditions of thought that have shaped political discourse in different parts of the world over the last three millennia.
- Student stresses the great diversity of social contexts and philosophical visions that have informed the ideas of key political thinkers across epochs.
- The chief outcome is Student project the history of political thought as a series of critical, interconnected and open-ended conversations about the ends and means of the good life.

PO-C11: Political Process in India

- Student knows how to introduce the key issues and details of the political process in post independence India.
- Students enable to understand and analyze Indian politics.
- student understand the expansive meaning of political process as it shapes in the arena of electoral and party politics, in the form of mass mobilizations and as politics of interests.

PO-C12: Political Participation

- Student knows Political socialization is the process that shapes the durable set of attitudes and beliefs which affect nature and extent of participation.
- Student knows Public opinion also shapes political activity.
- Students are going beyond the study of routine participation.
- Student understand the relevance of collective action in the form of social movements

PO-O14: Party System in India

- Student understands the nature of party system in India.
- Student understands the functioning of main political parties operating in the system.
- Student focused on analytical perspectives on party politics in India.

PROGRAM OUTCOMES: BA History

After completion of the programme the students should be able to know

- Student enables to Evaluate, analyze and synthesize historical materials (primary and secondary sources).
- Student enables to Recognize and explain the historical development of cultures.
- Student understands to Evaluate and recognize different Empire in Indian history.
- Student Identify the role of theory and methodology in the production of historical knowledge
- Student Identify and critique basic historical concepts

PROGRAM SPECIFIC OUTCOMES: BA History

On Completion of the BA (History) Students are able to:

1. A history graduate can find employment with Archaeological Survey of India or with private firms related to archaeology.
2. For History graduates, the option of public service is always open.
3. Work as a teacher in schools and high schools
3. Serve as conservator and tourist guide in historical monuments.
4. NGOs and Social Welfare Organizations also employ BA History graduates.
5. Writer/Subject Matter Expert

Department of History

COURSE OUTCOMES: B.A. History

F.Y.B.A.

History General -1

(1177) Chh. Shivaji and His Times (1630 to 1707)

1. Students got knowledge of concept of Shivaji and his times.
2. Student view increased of Nationalism and Secularism.
3. Students got knowledge of administration of Shivaji Maharaj.
4. Introduced to student social, economic and religious condition.

S.Y.B.A.

History General - 2

(2177) Modern India (1857-1950)

1. "History of Modern India" topic as a part of History is a very important section as far as the Syllabus of any competitive examination is possible, especially Civil Services exams.
2. Students understand of the stages of development in Modern India, why certain events happened and analysis of the consequences of such developments that paves an impact on our society, economy and our political system.
3. Modern Indian history Importance For competitive examination.

History Special- 1

(2178)- Ancient India (3000B.C. to 1260AD.)

1. Ancient Indian history is very importance for UPSC Examination.
2. When students doing study of ancient Indian history that time they know about original culture religion and society.
3. Increasing student's wideness.
4. Student capable for discuss any Social issue.

History Special – 2

(2179) - History of Modern Maharashtra (1818-1960)

1. Students got knowledge of concept History of modern Maharashtra.
2. Modern Maharashtra history is useful to student for MPSC examination.
3. National and social movement in Maharashtra Introduced to students.
4. Student got knowledge of Maharashtra Philosophers and their philosophy

T.Y.B.A.

History General - 3

(3177)-History of the World in 20th century

1. Students got knowledge of concept in world history.

2. Students got global event knowledge it is use for increased intellectual level.

3. World trend of thinking, Marxist, Communalism, Dictatorship, Empearalism, Nazizum, fascism, Terrorism, Feminism, Globalization, etc introduced to Students.

History Special - 3

(3178)- Introduction to History

1. Students known source of history,

2. Practically student known to how much write history.
3 Increased the knowledge of research in history
4. Students know external and internal Criticism.
5 Students know historian works.

History Special - 4

(3179) History of Asia in 20th Century

1. Students know history of America.

2. Concept of American history introduced to Students

3. Students know causes of Great Depression and policy of New Deal and Fear Deal.

4. Students know American politics in world.

5. Students got knowledge of international relation with America.

PROGRAM OUTCOMES: MA History

- Students enable to adequate conceptual base of history and better understanding of history and its forces,
- Students enable to research in terms of form formulating hypotheses and develop broad frames of interaction with other social sciences and attain certain level of interdisciplinary approach.
- Students understanding the social, economic and institutional bases of Ancient India.
- Students enable to understanding the Ancient Indian history.
- Students enable to understand historical materials efficiently and effectively integrate and use of historical information to accomplish a specific purpose.

- Students understand cultural, ethical, social, legal, and economic issues history.

PROGRAM SPECIFIC OUTCOMES: MA History

On completion of the M.A. (History), students are able to:

1. **Jobs in Government:** policy analysts, government historians, intelligence analysts, museum curators, administrative and programs specialists, communication specialists, and corporate communication managers.
2. **Travel and Tourism Expert:** Work as a tourist guide at historical and religious places.
3. **School Teacher:** Work as a teacher in schools and high schools
4. **College Teacher:** Work as a assistant professor in colleges
5. **Archivist:** A history graduate can find employment with Archaeological Survey of India or with private firms related to archaeology.
6. **Researcher:** Many Government and non-government institutes along with research center offer several career options for qualified geographers with numerous specializations.
7. **Competitive Examinations**: For History graduates, the option of public service and NET/SET is always open.
8. **Social Work:** NGOs and Social Welfare Organizations also employ BA History graduates.
9. **Exhibit Designer / Content Creator**

10. Writer/Subject Matter Expert

11. Journalist: Journalism is a common career for History graduates.

12.

COURSE OUTCOMES: M.A. History

M.A. History Part-I (Sem.-I)

HS - Core Course- 1 History and its Theory

1. Students got knowledge of History writing theory.

2. History writing trends in the world introduced to students.

3. Students get helped to research in terms of formulating hypotheses and develop broad frames of interaction with other social sciences and attain certain level of interdisciplinary approach

HS -Core Course- 2 Evolution of Ideas and Institutions in Ancient India

1. Students understand of the social, economic and institutional bases of Ancient India.

2. It is based on the premise that an understand of Ancient Indian history is crucial to understand Indian history as a whole.

HS – Core Course- 3 Maratha Polity

1. Students understand administrative system of the Marathas in an analytical way, to acquaint the student with the nature of Maratha Polity.
2. Students understood basic components of the Maratha administrative structure, to enable the student to understand the basic concepts of the Maratha polity.

HS -Optional Course- 1 Cultural History of Maharashtra

1. Students know relatively neglected part of social history; it is an attempt to provide voice to the history of the oppressed.
2. It defines and provides understand of various concepts, further explains the caste system and evil practices like untouched ability and its rigidification in ancient and medieval times.
3. Students get knowledge of it lays emphasis on the earlier forms of protest by Buddhism, Jainism and later by Bhakti movement, in the medieval period especially in Maharashtra,
4. Students know that, which lays the foundation for social awareness and renaissance of the per Ambedkarian period.

M.A. History Part-I (Sem. - II)

HS -Core Course- 4 History and its Practice

1. To helped student interrogate existing paradigms and challenge the outdated.

2. To helped students in developed critique.

3. To helped student help research in terms of formulating hypotheses and developed broad frames of interaction with other social sciences and attain certain level of Interdisciplinary approach.

HS- Core Course- 5 Evolution of Ideas and Institutions in Medieval India

1. Student introduced nature of medieval Indian society, economy, state formations, and the main religious currents of the time.
2. It is seen as a continuation of the course on ancient India. Students understand of the nature of society, and the problems of the challenge to that society, through colonialism, at a later stage.

HS Core Course- 6 Socio –economic History of the Maratha

1. Students were the components of social structure and their functions, to understand the relationship between religion, caste, customs, traditions, class in 17th and 18th century Maratha Society,
2. To enable the student to understand aspects of economic life, to trace the determinants of changes in social and economic life.

HS – Core Optional Course- 7 Marathas in 17^{th} and 18^{th} century Power Politics

1. Students understand of the changing position of Dalit at conceptual and practical level of social transformation, from 19th century till today.
2. This paper also lays emphasis on Ambedkarian Movement, which marks an evolutionary phase in Dalit emancipation.
3. Students get knowledge of it highlights the constitutional rights for safeguarding the interests of the oppressed.
4. It takes into account Dalit literature, which provides space for understand of Dalit consciousness and adds new dimensions in understand ‘Dalit’.

M.A. History Part-II (Sem.-III)

HS –Core Course- 7 Ancient and Medieval Civilization of the World

1. Ancient and Medieval cultures with a view to understand the students,

2. Students were known reinterpret and present them in historical perspective.

3. Student to understand intellectual trends in the modern world to enable the student to have a better understand of Indian History in the World context.

HS- Core Course- 8 Debates in Indian History

1. Students introduced the student to some of the issues that that have been debated by historians and to introduce some perspectives with reference to Indian History.

HS- Core Course – 9 Economic History of Modern India

1. Student understands to structural and conceptual changes in Indian economy after coming of the British.
2. Students were awareness of the exploitative nature of the British rule,

3. Students understand the process of internalization by Indians of new economic ideas, principles and practices.

HS-Core Optional Course- 13 Maharashtra in the 19th Century

1. Student knows the history of modern Maharashtra from an analytical perspective; to point out to them the dialectical relationship between continuity and change in Maharashtra.
2. Students understand the ideas, institutions, forces and movements that contributed to the structural changes in Maharashtra.
3. Students understand various interpretative perspectives. To helped them in articulating their own ideas and views leading to orientation for research.
4. To introduced the student to regional history within a broad national framework

M.A. History Part-II (Sem.-IV)

HS –Core Course- 10 History of Modern India (1857 -1971)

1. Students understood the history of 'Modern' India in an analytical perspective.

2. To made them awareness of the multi-dimensionality of Modern Indian History.

3. Students were the dialectical relationship between continuity and change in India; to highlight the ideas, institutions, forces and movements that contributed to the shaping of the Indian modernity; to acquaint the student with various interpretative perspectives; to help them in articulating their own ideas and views leading to the research-orientation.

HS – Core Course-11 Intellectual History of the Modern West

1. Students were understand the concepts that are used in history, both of west Europe and India; to acquainted the student with the intellectual activity that played an important role in shaping events; the transition from medieval to modern times.

HS Core Course- 12 World after World War II (1945 – 2000)

1. To acquainted the student with the post-World War II scenario and to enable them to understand contemporary world from the historical perspective.

HS Core Optional Course- 19 Maharashtra in the 20th Century

1. To enabled the student to study the history of modern Maharashtra in an analytical perspective; to point out to them the dialectical relationship between continuity and change in Maharashtra.
2. Students were understood ideas, institutions, forces and movements that contributed to the transformation in 19th century Maharashtra.
3. To acquainted the student with various interpretative perspectives.
4. To helped them in articulating their own ideas and views leading to research orientation.
5. To introduced the student to the regional history within a broad national framework.

Department of Marathi