Arts, Science and Commerce College, Chikhaldara, Distt. Amravati (MS)
Programme Outcomes (POs), Programme Specific Outcomes (PSOs)
and Course Outcomes (Cos)

Bachelor of Science

Programme Outcomes

PO1: To introduce the fundamentals of science education
PO2: To enrich students' knowledge in all basic sciences
PO3: To develop interdisciplinary approach amongst students
PO4: To inculcate sense of scientific responsibilities and social & environment awareness
PO5: To help students build-up a progressive and successful career in academics and industry
PO6: To motivate the students to contribute in the development of Nation

Physics

Programme Specific Outcomes

PSO1: To improve scientific attitude and to give emphasis on the development of experimental skills, data analysis, calculations, and also on the limitations of the experimental method and data and, results obtained
PSO2: To help students in understanding the concepts of Physics
PSO3: To underline the strength of equations, formulae, graphs, mathematical tools to tackle the problems
PSO4: To understand the conceptual development of the subject and thereby develop the interest in the subject. A topic on this is introduced in the Emerging Physics Course
PSO5: To improve the scientific awareness among the students. A discussion on Paradox etc. is encouraged
PSO6: To create interest in the subject and improve technological aspect through mini projects, projects, models, demonstrations, etc.
PSO7: To create interest in the subject to continue to work in the field of science in general and physics in particular
PSO8: To make students understand the role and contribution of Physics in the present day science and technology
PSO9: To motivate students to make career in Physics.

Course Outcomes

Course: Mechanics, Properties of matter, waves and oscillations

By the completion of this course the student will be able to
CO1: Understand the concepts of gravitation and planetary motions.
CO2: Describe the rotational motion of rigid body and moment of inertia, concept of liner and angular momentum.

CO3: Understand simple harmonic oscillations, damped harmonic oscillations, forced harmonic oscillations and explain the theory of simple pendulum, compound pendulum and Kater's pendulum.
CO4: Describe the concept of combination of S.H.M.'s and Lissajous figures, properties, production and applications of ultrasonic waves
CO5: Knows in details the elastic constants, properties of elastic bodies and different methods to measure elastic constants.
CO6: Introduction and explanation to kinematics of moving fluids, Bernoulli's theorem and surface of tension.

Course: Kinetic theory, thermodynamics and electric current

By the completion of this course the student will be able to
CO1: Describe details regarding kinetic theory of gases, transport phenomenon in gases like transport of mass, momentum and energy.
CO2: Explain the basic laws of thermodynamics, different thermodynamic processes, concept of internal energy, entropy and S-T diagram.
CO3: Describe Joule-Thomson effect, liquefaction of hydrogen and helium gases, thermodynamical systems, variables and relations.
CO4: Understand the motion of charge particles in electric and magnetic fields, working of mass spectrograph, linear accelerator and cyclotron.
CO5: Understand basic network theorems and construction and working of Ballistic Galvanometer; concepts of varying currents through different circuits.
CO6: Understand the concepts of alternating current with various combinations of resistor, capacitor and inductor, theory of transformer and energy losses in transformer.

Course: Mathematical background, Solid state electronic devices and special theory of relativity

By the completion of this course the student will be able to
CO1: Focuses on mathematical background and laws of electrostatics.
CO2: Explain basic terms of electrostatics, Maxwell's equations and Poynting vector.
CO3: Understand the semiconductor Physics, hall effect and semiconducting devices like diode, LED, BJT, J-FET, with emphasis on parameters and applications of OP-AMP.
CO4: Explain special theory of relativity, length contraction, time dilation and energy-mass relation.
CO5: Understand the structure of earth, types and causes of earthquakes, intensity of earthquakes, scattering, absorption and reflection of solar radiation by atmosphere and mechanism of cloud formation.

Course: Optics, Acoustics and renewable sources of energy

By the completion of this course the student will be able to
CO1: Understand geometrical optics and theory of interference of light, formation of Newton's ring, applications of Newton's rings.

CO2: Understand phenomenon of diffraction of light, Fresnel and Fraunhofer diffraction, construction and elementary theory of plan diffraction grating; use the laboratory techniques to determine wavelength of monochromatic source of light and resolving power of grating.
CO3: Understand concept of polarization of light, double refraction, production and detection of polarized light, Phase retardation plates.
CO4: Understand basic concepts, construction, working and applications of different types of LASER.
CO5: Understand the construction, types of fiber optics and role of fiber optics in communication system.
CO6: Understand the various renewable like solar energy, wind energy, ocean energy, geothermal energy, hydrogen energy system and fuel cell, solar energy storage and solar photovoltaic systems- concept, operating principle and applications.

Course: Quantum mechanics, Atomic and molecular spectroscopy, Nuclear Physics, Hybrid parameters and Oscillators

By the completion of this course the student will be able to
CO1: Understand origin of quantum mechanics. Describe concept of wave packet, Davisson Germer experiment, Heisenberg's Uncertainty principle, Thought experiment and Gamma ray microscope.
CO2: Know the Schrodinger equation and its applications, Schrodinger time dependent and time independent equations, Eigen functions and Eigen values and qualitative analysis of zero point energy.
CO3: Understand vector atom model, Stern-Gerlach experiment and different types of coupling. Know the properties and types of X-ray, experimental arrangement for Raman Effect.
CO4: Know about detection of charge particles by using G. M. counter, concept of nuclear physics like, Alpha decay, Beta decay, Concept of nuclear fission and fusion and construction of nuclear reactor.
CO5: Understand hybrid parameter, CE amplifier, Bias stability, Thermal runaway, Noise and distortion in amplifier.
CO6: Know properties, advantage and applications of negative feedback. Describe the construction and working of various types of oscillators and multivibrators.

Course: Statistical Mechanics and Solid State Physics

By the completion of this course the student will be able to
CO1: Understand basic concept of statistical mechanics, principle of equal priori probabilities and Boltzman entropy relation, Maxwell-Boltman statistics, Bose-Einstein statistics, Fermi-Dirac statistics and their applications.
CO2: Understood amorphous and crystalline solids, Diffraction of X-rays by crystals, Bragg's law, experimental determination of lattice parameters of NaCl crystal, Defects in solids.
CO3: Explain free electron theory, density of states, concept of Fermi energy and Band structure.
CO4: Explain diamagnetic, Paramagnetic, ferromagnetic materials; Classical Langevin's theory of dia and paramagnetic domains, Curie's law, Weiss's law and hysteresis.

CO5: Understand superconductors and its type, Meissner effect, Applications of superconductors, Nanomaterials, effect of reduction of dimensions on physical properties, applications of nanomaterials in different fields.

Mathematics

Programme Specific Outcomes

PSO1: Students will demonstrate an understanding of the common body of knowledge in maths and demonstrate the ability to apply analytical and theoretical skill to model and solve the mathematical problems
PSO2: Understand the nature of mathematical proofs and be able to write clear and concise proofs.
PSO3: Be able to communicate effectively in oral and written form
PSO4: Be able to write simple computer programs to perform the mathematical competition.
PSO5: Learn about application of mathematics in other field and gain experiences in mathematical modelling
PSO6: Develop the ability to read, understand and use basic definition in linear and abstract algebra and real analysis and be able to prove simple consequence of this definition
PSO7: Student learns to communicate idea effectively and to digest new information and concepts independently.
PSO8: Students are encouraged to develop intellectual and become involved with professional organization
PSO9: Communicate mathematical ideas both orally and in writing
PSO 10: Investigate and solve unfamiliar maths problems
PSO11: Demonstrate the proficiency in writing proofs

Course Outcomes

Course: Algebra & Trigonometry

By the completion of this course the student will be able to
CO1: Understand the concepts of Hyperbolic and inverse hyperbolic function , De Moivre's theorem,, and its application
CO2: Understand the concept of summation series, Gregory series, Euler's series, Machin's series, Rutherford's series,
CO3: Learn about Elements of quaternion: complex conjugate of a quaternion, norm, inverse, quaternion as a rotation operator, interpretation, a special quaternion product, operator algorithm, quaternion to matrices.
CO4: Deeply know about polynomial equation, its roots nature, solve some quadratic, biquadratic polynomial, Cardon method to solve cubic equations
CO5: Introduction and explanation of Matrices, Rank, Eigen values and Eigen vector, Caly-Hamilton Theorem etc.

Course: Differential and Integral Calculus

By the completion of this course the student will be able to Know

CO1: Definition of the limit of a function, basic properties of limits, continuous functions and classification of discontinuities.
CO2: Differentiability, successive differentiation, Leibnitz theorem, indeterminate forms and L'Hospital rule. Rolle's theorem, Lagrange's mean value theorem, Cauchy's mean value theorem , Maclaurin and Taylor series expansions.
CO3: Partial derivatives and differentiation of real valued function of two variables, homogeneous functions, Euler's theorem on homogeneous functions.
CO4: Integration of some standard form ,reduction formulae Walli's formula, quadrature, rectification,etc.

Course: Differential Equations: Ordinary and Partial

By the completion of this course the student will be able to know
CO1: Degree and order of a ordinary differential equation, linear differential equations and differential equations reducible to the linear form. Exact differential equations. Differential equations of first order and higher degree, Orthogonal trajectories.
CO2: Second order linear differential equations with constant coefficients, homogeneous Linear ordinary differential equations, reducible to homogeneous differential Equations.
CO3: Reduction of order, transformation of the equation by changing the dependent variable and independent variable, normal form, method of variation of parameters. Ordinary simultaneous differential equations.
CO4: Formation of partial differential equations, partial differential equations of the first order, total differential equation . Lagrange's method, some special types of equations which can be solved easily by methods other than the general method.
CO5: Compatible differential equations. Charpit's general method of solution, partial differential equations of second and higher orders. Homogeneous and non-homogeneous equations with constant coefficients.

Course: Vector Analysis and Solid Geometry

By the completion of this course the student will be able to know
CO1: Scalar and vector product of three vectors, product of four vectors, vector differentiation and vector integration.
CO2: Space curve t, n,b vectors, fundamental planes, curvature, torsion, Frenet Serret formulae.
CO3: Gradient, divergence and Curl, directional derivative, line integral(existence and evaluation),work done, Greens theorem.
CO4: Sphere: Different forms of sphere, section of a sphere by a plane, sphere through a given circle, intersection of sphere and a line, orthogonal sphere and condition of orthogonality.
CO5: Cone : The equation of a cone with a guiding curve, cone with vertex and origin, right circular cone. Cylinder: equation of right circular cylinder

Course: Advanced Calculus

By the completion of this course the student will be able to know

CO1: Sequence, positivity theorem, sandwich theorem, monotonic and bounded sequence, Cauchy sequence.
CO2: Series: Series of nonnegative terms, convergence of geometric series and the series Comparison tests, Cauchy's integral test, conditional convergent, Leibnitz rule,
CO3: Limit and continuity of functions of two variables,Taylor's theorem for function of two variables.
CO4: Maxima and minima of two variables, Lagrange's multipliers method, Jacobians.
CO5; Double integral (definition and evaluation technique)

Course: ElementaryNumber Theory

By the completion of this course the student will be able to know
CO1: Divisibility, Euclidean algorithm, least common multiple.
CO2: Prime numbers, the fundamental theorem of arithmetic or unique factorization theorem, Fermat numbers, linear Diophantine equation.
CO3: Congruence, special divisibility test, linear congruences, Chinese remainder theorem.
CO4: Arithmetic functions, Euler's theorem, the functions, Mobius function.
CO5: Primitive roots, primitive roots for prime, polynomial congruences, The congruence

Course: Modern Algebra: groups and rings

By the completion of this course the student will be able to know
CO1: Group: Definition, subgroups, cyclic groups,permutation groups
CO2: Cosets and normal subgroups quotient group.
CO3: Homomorphism and isomorphism Fundamental theorem on homomorphism of a group, natural homomorphism, second isomorphism theorem, third isomorphism theorem.
CO4: Ring, , subring, characterization of ring, integral domain, field, subfield and prime field.
CO5: Ideal, quotient ring, ring homomorphism.

Course: Classical Mechanics

By the completion of this course the student will be able to know
CO1: Constraints, generalized coordinates, D'Alembert's principle and Lagrange's equations of motion.
CO2: Central force motion: Areal velocity, equivalent one body problem, central orbit, Virial theorem, Kepler's laws of motion.
CO3: Calculus of variation: functional, externals, Euler's differential equation, Hamilton's principle, procedure, least action principle.
CO4: Rigid body, generalized co-ordinates of a rigid body, Eulerian angles, Euler's theorem, finite rotations, infinitesimal rotations.

Course: Mathematical Analysis

By the completion of this course the student will be able to know
CO1: Riemann Integral monotonic functions, the fundamental theorem of integral calculus, mean value

CO2: Improper integrals and their convergence, Beta and gamma functions.
CO3: Continuity and differentiability of complex function, analytic function, Cauchy-Riemann equations, harmonic and conjugate functions, Milne-Thomson method.
CO4: Elementary function, mapping by elementary function, Mobius transformation, fixed point, cross ratio, inverse and critical points, conformal mapping.
CO5: Metric spaces, neighbourhood, limit point, interior point, open and closed sets, Cauchy sequences, completeness.

Course: Mathematical Methods

By the completion of this course the student will be able to know
CO1: Legendre's equation, Bessel's equation Strun-Liouville boundary value problem.
CO2: Fourier series, Fourier series for odd and even functions, half-range Fourier sine series and half-range Fourier cosine series.
CO3: Laplace transform: Fourier Transform

Course: Linear Algebra

CO1: Vector Space : Linear transformations Dual Spaces Inner Product Spaces Modules its Definition, example and properties

Course: Graph Theory

CO1: To understand Graph. Application of graphs, finite and infinite graphs, incidence and degree, isolated vertex, pendent vertex and null graph, isomorphism, subgraphs, walks, path and circuits, connected graphs and components, Euler graph, operation on graphs, Hamiltonian paths and circuits, travelling sales man problem. Trees, some properties of trees,Fundamental circuits, Cutsets, Some properties of cutesets, Kurutowski's two graphs, different representation of planer graph, detection of

Course: Special Theory of Relativity

CO1: To understand Review of Newtonian Mechanics. Relativistic Kinematics Geometrical representation of space- time Relativistic Mechanics Electromagnetism

Industrial Chemistry

Programme Specific Outcomes
PSO1: Make the students well-grounded in the principles and through knowledge of scientific techniques of Industrial Chemistry
PSO2: Educate and train Chemists to acquire a meaningful picture of Chemical industries
PSO3: Prepare students for professional participation in Chemical industries so as to adapt themselves to jobs which are problem solving
PSO4: Train students to be result-oriented in the chemical, petrochemical, biochemical, allied technological fields

PSO5: Environmental and Sustainability: Understand the issue of environmental context and sustainable development

Course Outcomes

Course: Mole Concept, Material Balance, Energy Balance, Fluid Mechanics, Fuel

By the completion of this course the student will be able to
CO1: Know about basic of dimension and units.
CO2: Difference between fundamental and derived quantities.
CO3: Solving the numerical problems on mole concept, material balance of chemical and non-chemical.
CO4: Explain the classification of fuel.
CO5: Describe the solid fuel as types of coal ,coal formation and coal analysis.
CO6: Understand Manufacture process processes of different product and uses from coal.
CO7: Explain the origin and classification of liquid fuel as petroleum.
CO8: Process of distillation of crude oil and uses of products.
CO9: Understand the mining of petroleum.
CO10: Understand the fundamentals & different laws of heat transfer.
CO11: Concepts of heat conduction, general heat conduction equation.
CO12: Understand classification of heat exchanger utilize in chemical industries.
CO13: Define fluid mechanics with types of fluid flow.
CO14:State and explain of equation of continuity Bernoulli's equation.
CO15: Describe the construction and working and uses of pumps, flow-meter for measuring flow-rate of fluid..

Course: Unit Operations, surface chemistry & Catalysis

By the completion of this course the student will be able to
CO1: Knows basic of unit operations actual working in chemical industries.
CO2: Different unit operation like distillation, evaporation, extraction, leaching, crystallization, drying, size reduction, mechanical separations, mixing.
CO3: Study about surface chemistry and catalysis; mechanism, applications,types.

Course: Unit processes and Process Equipments By the completion of this course the student will be able to

CO1: Utilization of unit process for organic synthesis by Nitration, Amination by reduction,Alkylation,sulphonation,halogenations,hydrolysis,oxidation,esrification.
CO2: Understand the measurements of different parameters in chemical industries.
CO3: Explain types of corrosion arises in chemical industries and its control by various method.
CO4: Use of laboratory techniques for preparations of organic product.

Course: Material Science and Industrial Pollution

By the completion of this course the student will be able to
CO1: Manufacture of ceramic, refractory's, glasses, cement, polymers with its properties and applications.
CO2: Understand water quality parameters, organic& inorganic pollutants as water pollution due to industrial effluents.
CO3: Know about the waste water treatment by primary, secondary, tertiary treatments methods.
CO4: Explain air pollution with classification and industries as source of pollution with its control methods.

Course: Chemical Process Economics, Heavy and Fine Chemicals

By the completion of this course the student will be able to By the completion of this course the student will be able to
CO1:Manufacture process with raw materials, consumption patterns, major engineering problems arises in production.
CO2: Study of essential oil with extraction methods ,its types, uses.
CO3: Explain and understand manufacture of Soya-bean oil ,refining of crude oil with its analysis.
CO4: Manufacture process of industrial gases with its uses.
CO5: Study of industrial safety measures.
CO6: In process economics included with Cost estimation, interest, depreciation, profitability of industries.

Course: Instrumental Methods of Chemical Analysis, Green Chemistry

By the completion of this course the student will be able to
CO1: Introduction and sampling of materials.
CO2: Study of Instrumental Methods of Chemical Analysis Chromatography with paper, GLC, column, ion- exchange, solvent extraction.
CO3: Study of dyes types, preparation & applications.
CO4: Goals of green chemistry, principle.
CO5: Basic components of green chemistry.
CO6: Principle, techniques, instrumentation & applications of Flame photometer, I. R. Spectroscopy and X-ray fluorescence.

Chemistry

Programme Specific Outcomes

The students completing B.Sc with chemistry will be able to
Have a firm foundation in the fundamentals and application of chemicals and scientific theories including in inorganic, organic, physical and analytical chemistry and functional knowledge of all core areas of chemistry .
PSO1: Identify and become familiar with the scope, methodology and application of modern chemistry and learn to appreciate its ability to explain various aspects.

PSO2: Understand theoretical and practical concepts of instruments that are commonly used in most chemistry fields.
PSO3: Design and carry out scientific experiments and record the results of such experiments.
PSO4: Understand safety of chemicals, transfer and measurement of chemical, preparation of solutions, and using physical properties to identify compounds and chemical reactions.
PSO5: Explain how chemistry is useful for social, economic and environmental problems and issues facing our society in energy, medicine and health.

Course Outcomes

Course: Paper I

By completion of this course the students will be able to
CO1: Describe periodic properties of elements, understand formation of ionic bonding & factors affecting ionic bond formation.
CO2: Understand electronic configuration, ionization energy, oxidation state of S and P block elements.
CO3: Identity electronic displacement taking place in the molecule by some effects, generation of reactive intermediates, their stability and reactions.
CO4: Interpret aromaticity and based on that distinguish aromatic, anti-aromatic and non-aromatic compounds, able to know the structure of benzene and its electrophilic substitution reaction.
CO5: Understand limitation of first law of thermodynamics and needs of second law of thermodynamics and know the concept of entropy.
CO6: Know the postulates of kinetic theory of gases, understand phase rule and application of phase rule on water system and sulphur system.

Course: Paper-II

By completion of this course the students will be able to
CO1: Define polarization and its application, directional nature of covalent bond, concepts of hybridization and know the theory of acids and bases.
CO2: Understand requirement of good solvent and classification of solvents.
CO3: Describe synthesis and chemical reactions of alkyl halides, aryl halides and alcohol.
CO4:Understand methods of formation of phenols, ether and epoxide and their reactions catalyzed by acid and alkali.
CO5: Identify polar and non polar molecules and know paramagnetic and diamagnetic substances.
CO6: Describe rate of reaction in terms of change in concentration and how the rate of chemical reaction changes as a function of time.

Course: Paper III

By completion of this course the students will be able to

CO1: Understand covalent bonding, metallic bonding and describe structure of molecule with regular & distorted geometry by using VSEPR theory and know about gravimetric and volumetric analysis.
CO2: Describe various reactions, acidity and reactivity involved in aldehydes ketone and carboxylic acid.
CO3: Identify importance of stereochemistry in organic chemistry & apply the knowledge gained to a variety of chemical problems.
CO4: Define work function, Gibbs free energy and application of phase equillibria in miscible and immiscible liquids.
CO5: Understand determination of surface tension, viscosity and effects of temperature on surface tension and viscosity.

Course: Paper-IV

By completion of this course the students will be able to
CO1: Understand chemistry of transition elements with reference to electronic configuration, atomic and ionic size, ionization energy and know about extraction of elements.
CO2: Define inner transition elements and know their properties and general principle of metallurgy.
CO3: Describe reactions of poly nuclear hydrocarbon, synthesis of higher acids with the help of reactive methylene compounds, constitution of glucose, conversion of glucose to fructose etc.
CO4: Know synthesis of aromatic nitro compounds, amino compounds and diazonium salts and their reactions.
CO5: Understand colligative properties of dilute solution and know to determination of molecular weight of solute.
CO6: Identity symmetry in crystal and elements of symmetry in crystals, also know the laws of symmetry.

Course: Paper-V

By completion of this course students will be able to
CO1: Understand key features of co-ordination compounds including variety of structures and know the concepts of oxidation number, coordination number, ligands, chelates and stability of complex.
CO2: Knowledge of crystal field theory to understand splitting in complexes and factors affecting in crystal field splitting.
CO3: Understand heterocyclic compounds especially about their synthesis, reactivity and application of heterocyclic compound in advanced chemical synthesis.
CO4: Classify dyes on the basis of structure and mode of application, preparation and uses of dyes, drugs and pesticides.
CO5: Understand photochemical and thermal reactions by interaction of radiation with matter.
CO6: Identify the electric and magnetic properties of radiation and know the spectroscopic techniques for understanding the atomic structure and structure of molecule.

Course: Paper-VI

By completion of this course students will be able to

CO1: Understand thermodynamic and kinetic stability of complexes and geometry of complexes. Know about spectrophotometric technique for determination of concentration of metal ion. Define and classify chromatographic techniques.
CO2:Know basics of organometallic chemistry, inorganic polymers and bio-inorganic chemistry.
CO3: Identify structure of compound by use of electronic spectroscopy and infrared spectroscopy and know how to interpret spectra.
CO4: Understand the phenomena of Nuclear Magnetic Resonance spectroscopy and mass spectrometry.
CO5: Understand limitation of classical mechanics at molecular length scales and difference between classical and quantum mechanics.
CO6: Identify inter conversions of chemical energy and electrical energy by knowing electrochemistry and application of radio isotopes in industry, agriculture, medicine & biosciences.

Botany

Programme Specific Outcomes

PSO1: Provide knowledge of the medicinal plants of Melghat region to the students and promote them to use them as earning source
PSO2: Motivate the Botany students for exploration of Melghat flora
PSO3: Preserve the rare medicinal plants of the Melghat region
PSO4:Create recognized laboratory for the students of Botany and provide guidance to the research students
PSO5: Create awareness about plant propagation
PSO6: Develop open natural laboratory for the students of Botany

Course Outcomes

Course: Diversity and Applications of Microbes and Cryptogams

CO1: Study of cryptogamous plants and their diversity in aquatic ecosystem
CO2: To study the role of fungi in food industry
CO3: diversity of fungi in forest ecosystem
CO4: investigation on diversity of bryophytes and pteridophytes
CO5: industrial value of aquatic algae ,fungi

Course: Gymnosperm, Morphology of Angiosperms and Utilization of plants

CO1: To bring investigation on paleobotanical study in India
CO2: Taxonomical and economical study of gymnosperms
CO3: Systematic study of plants and their classifications
CO4: Phytitaxonomical study of angiosperm
CO5: Economical importance of spices, timber and Bamboo

Course: Angiosperm systematic, anatomy and embryology

CO1: Exsitu and insitu conservation of flora in forest ecosystem
CO2: Role of anatomy in classification of plants and their phylogeny study
CO3: Role of embryolofy in classification of plants
CO4: Plants systematic and their classifications

Course: Cell biology, Genetics and Biochemistry

CO1: Role of cell biology and its fumction
CO2: Role of gemetics in plant classification
CO3: To study the biochemistry of plants
CO4: Role of enzymes in Industries

Course: Plant physiology and Ecology

CO1: To study the physiological characters of wild and cultivated plants
CO2: To study the role of environmental factors on photosynthesis
CO3: Ecological and environmental study of flora in forest ecosystem
CO4: Investigation the effects of environmental factors in trends in succession
CO5: Food chain and food web in ecosystem

Course: Molecular biology and biotechnology

CO1: Role of DNA and transposable elements in plants
CO2: Concept of gene
CO3: Tools and techniques of recombinant DNA technology
CO4: Cloing vectors
CO5: Gene transfer techniques
CO6: Tissue culture techniques
CO7: Fermentation technology- Bakery and alcohol production
CO8: health care edible vaccines
CO9: Plant kingdom in detail
CO10: Diversity of Plants with respect to habitat, nutrition and ecological status.
CO11: General knowledge about Viruses
CO12: Understood what is TMV and HIV
CO13: Basic knowledge of Bacteria
CO14: Role of microbes in Agriculture, Medicine, and industry.

Geology

Programme Specific Outcomes

PSO1:Study Geology with an aspect to develop students' interests for Geology as a subject of study
PSO2: Acquire the knowledge of various kinds of rocks, minerals and fossils in the lab

PSO3: Develop students' sense of inquisitiveness by allowing them to guess about the past geological events
PSO4: Enhance students' perception about geographical and geological aspects of India
PSO5: Provide great opportunities of career and employment
PSO6: Field Visits to introduce and develop field based Geological skills and knowledge
PSO7: Protection and Preservation of Geological heritage

Course Outcomes

Course: General Geology, Physical Geology, Mineralogy, Crystallography & Field Geology

Upon successful completion of the course, students will be able to
CO1: Understand the basic idea about geology, branches, scope and origin of the earth system.
CO2: Explain the age determination methods and constitution of earth.
CO3: Understand the rock weathering process.
CO4: Describe and interpret the development of landforms and geologic structures made by the various agents like rive, wind, glacial etc.
CO5: Understand and explain the volcanism and earthquakes theory.
CO6: Understand the concepts of how minerals form and criteria to identify common minerals and
CO7: Learn to describe the physical and optical properties of minerals.
CO8: Explain the crystal system
CO9: Understand and use of basic tools for the field work.

Course: Igneous, Sedimentary and Metamorphic Petrology

Upon successful completion of the course, students will be able to
CO1: Explain and describe the formation, classification, structure and structure of igneous rocks.
CO2: Explain and describe the formation, classification structure and structure of sedimentary rocks.
CO3: Explain and describe the formation, classification, structure and structure of metamorphic rocks.
CO4: classify and identify the Igneous, sedimentary and metamorphic rocks
CO5: Describe the depositional environment of sedimentary rocks.
CO6: Understand the chemical composition of Igneous, sedimentary and metamorphic.

Course: Ore geology, Igneous petrology, metamorphic petrology and paleontology

Upon successful completion of the course, students will be able to
CO1: Understand and describe the general idea about ore, classification and ore deposits processes.
CO2: explain the concept of phase rule and component systems

CO3: Describe the distribution of igneous rock in time and space and also explain the variation diagrams.
CO4: Explain the petrographic provenances.
CO5: Classify and identify the Phylum Echinodermata, Foraminifera, Anthozoa and Trilobita.
CO6: Understand the stratigraphy , palaeogeographic and palaeoclimatic reconstruction

Course: Ore geology, Geomorphology, Metamorphic Petrology and Stratigraphy

Upon successful completion of the course, students will be able to
CO1: Understand the origin distribution and uses of metallic and non-metallic ore minerals
CO2: Understand the petroleum and coal deposits in India
CO3: Understand and explain the various marine and non-marine environmental of depositions
CO4: Describe the metamorphic processes.
CO5: Describe and explain the Classification, geographic distribution, lithological characteristics, fossil contents and economic importance of various statigraphic groups.

Course: Structural geology, Plate tectonic and Hydrogeology

CO1: Upon successful completion of the course, students will be able to
CO2: Understand the basic geological field instruments.
CO3: Describe and identify the various geological structures formed during the depositional and non-depositional activities.
CO4: Understand and explain interior of the earth.
CO5: Explain the concepts of Isostasy.
CO6: Describe evidences of continental drifting and types of plate tectonic
CO7: Explain the components, occurrence and distribution of Groundwater
CO8: Explain and identify Groundwater Provinces of India

Course: Structural geology, Remote sensing and Geophysical exploration

CO1: Upon successful completion of the course, students will be able to
CO2: Describe the various structural features.
CO3: Understand and identify the types of folds.
CO4: Understand and identify the phtogrametry elements
CO5: Understand the prospecting and exploration-criteria for searching of ore.
CO6: Describe the various exploration methods.

Computer Science

Programme Specific Outcomes

PSO1: Effectively communicating computing concepts and solutions to bridge the gap between computing industry experts and business leaders to create and initiate innovation
PSO2: Effectively utilizing their knowledge of computing principles and mathematical theory to develop sustainable solutions to current and future computing problems.

PSO3: Exhibiting their computing expertise within the computing community through corporate leadership, entrepreneurship, and/or advanced graduate study
PSO4: Developing and implementing solution based systems and/or processes that address issues and/or improve existing systems within in a computing based industry.
PSO5: Information on Emerging Trends: Give information about software design and development practices to develop software applications in emerging areas such as Cloud and High performance computing, Data analytics and Cyber security.
PSO6: Successful Career and Entrepreneurship: The ability to employ modern computer languages, environments, and platforms in creating innovative career paths to be an entrepreneur, and a zest for higher studies.

Course Outcomes

Course: Fundamentals of Information Technology and C Programming

By the completion of this course the student will be able to
CO1: Be aware of the history of the discipline of Computer Science and understand the conceptual underpinnings of the subject.
CO2: Understand the nature of the software development process, including the need to provide appropriate documentation.
CO3: Understand the working of computers, networking and programming languages like C.
CO4: Analysis of different functions, syntaxes, flow and types of programming languages and be able to program fluently in one or two programming languages.
CO5: Understand standard techniques for solving a problem on a computer, including programming techniques and techniques for the representation of information.
CO6: Understand the importance and the nature of operating systems and compilers.

Course: Web Technology and Advanced Programming in C

By the completion of this course the student will be able to
CO1: Understand the basics of websites.
CO2: Understand different elements used in creation of web pages.
CO3: Application of different styles on web pages using CSS.
CO4: Understand data transfers using XML.
CO5: Understand C programming in depth by knowing concepts of arrays, pointers, etc.
CO6: Understand working of functions, structures and file handling in C Programming.

Course: Object Oriented Programming with C++ and Web Technology

By the completion of this course the student will be able to
CO1: Explore the ways of programming with different logic than traditional ways.
CO2: Get the knowledge of Object Oriented Programming concept.
CO3: Program with different programming languages effectively in languages like C++.
CO4: Design web pages using scripting languages like HTML, CSS.

CO5: Understand basics of Computer Networks and Data Communication.

Course: Advanced C++ and Web Designing

By the completion of this course the student will be able to
CO1: Learn and understand different Object Oriented Programming features using C++.
CO2: Know Inheritance, Polymorphism in C++ and usage.
CO3: Understand structures of XML and connection with data.
CO4: Understand use of CSS in XML.
CO5: Understand and application of XML Schema on web pages.

Course: RDBMS and Visual Basics

By the completion of this course the student will be able to
CO1: Understand basics of database management system.
CO2: Identify different models in database and knowing the differences in it.
CO3: Understand the Structured Query Language to interact with databases.
CO4: Understand basics of Visual Basic to get knowledge of Event Driven Programming.
CO5: Create Menu Driven Programs in Visual Basic.
CO6: Understand Internal Functions in Visual Basic.

Course: PL/SQL and Advanced Visual Basics

By the completion of this course the student will be able to
CO1: Learn about the built-in functions ins SQL.
CO2: Understand the basics of PL/SQL and Transactions.
CO3: Understand the securities applied on databases.
CO4: Understand different aspects of Visual Basic like, Dialog box controls, Forms and File Handling.
CO5: Program with different programming languages effectively in languages like Visual Basic and as backend tool like Oracle.
CO6: Proficient in problem solving using different programming languages.

Food Science

Programme Specific Outcomes

PSO1: Understand basic concept of unit operation
PSO2: Understand basic chemistry, Nutrients, Nutrition, Balance diet
PSO3: Understand the food quality and their control
PSO4: Understand the food processing and food preservation
PSO5: Understand about good hygienic practices to develop good quality products
PSO6: Perform theoretically and practically as per laboratory standards in the area of food chemistry, biochemistry of food, food adulteration, food microbiology, food processing and food preservation

PSO7: Describe the History of different author related to curriculum contents
PSO8: Understand about malnutrition problem and their related deficiency disorders

Course Outcomes

Course: Basic Chemistry of Foods

By the completion of this course the student will be able to
CO1: Define food science with its multidisciplinary reorganization
CO2: Know basic principles and concepts of nutrition, food groups and sources
CO3: Describe food components, with emphasis on proteins, carbohydrates and lipids
CO4: Explain the chemistry, properties and reactions of various food components
CO5: Understand physical properties of food, units & dimensions, mole concept and unit operations
CO6: Use the laboratory techniques common to basic and applied food chemistry

Course: Nutritional Biochemistry of Foods

By the completion of this course the student will be able to
CO1: Describe the biochemistry process and the relationship of the consumption of foods to nutritional status and health
CO2: Understand the process of digestion & absorption and the various reactions involve in metabolism of various constituents of food
CO3: Evaluate the changes in biological function of food components after digestion and the metabolism
CO4: Describe the biological functions and importance of enzymes
CO5: Evaluate the biological functions of foods for health in addition to nutritional values
CO6: be able to use the laboratory techniques common to applied food biochemistry and biological assay

Course: Food Microbiology

By the completion of this course the student will be able to
CO1: Identify the important pathogens and spoilage microorganisms in foods and the conditions under which they will grow.
CO2: Identify the conditions under which the important pathogens are commonly inactivated, killed or made harmless in foods.
CO3: Utilize laboratory techniques to identify microorganisms in foods.
CO4: Explain the role and significance of microbial inactivation, adaptation and environmental factors (i.e., aw, pH, temperature, etc.) on growth and response of microorganisms in various environments.
CO5: Identify the cultivation, enumeration, staining techniques of microorganisms
CO6: Understand the microbiology of some important food groups

Course: Food Preservation and Quality Control

By the completion of this course the student will be able to

CO1: Understand the quality factors of food and the factors causing the spoilage and methods to control deterioration and spoilage.
CO2: Explain the principles of food preservation
CO3: Identify the food adulteration and explain government regulations required for the manufacture and sale of food products
CO4: Understand the methods of food safety like HACCP
CO5: Explain new trends in properties and uses of various packaging materials and laws of food labeling

Course: Food Processing I

By the completion of this course the student will be able to

CO1: Understand objectives and various methods of cooking
CO2: Explain principles of food hygiene and sanitation
CO3: Indentify sensory evaluation of food
CO4: Manufacture and use food processing techniques of various cereals and legume based food production
CO5: Manufacture bakery products and understand oil and fat processing
CO6: Understand food additives and speciality foods such as functional food

Course: Food Processing II

By the completion of this course the student will be able to

CO1: Understand types of milk and manufacturing methods of various milk products
CO2: Manufacture various products from fruits & vegetables and the methods of preservation of fruits & vegetables
CO3: Understand the various methods of preservation and processing of animal produces such as eggs, meat, poultry and fish
CO4: Explain and understand the production of alcoholic and non alcoholic beverages
CO5: Understand principles of fermentation, its use in food processing and preservation
CO6: Manufacture various Indian and oriented fermented food products
Explain the spices, their importance in food and the processing

Petrochemical Science

Programme Specific Outcomes

PSO1: Study of technical subject with traditional subjects with an aspect to develop students' employability
PSO2: Acquire the knowledge of various practical related to petroleum such as flash point, fire point, smoke point, distillation of various petroleum products
PSO3: To review of scenario of petroleum and petrochemical industries
PSO4: Develop students' employability through subject knowledge
PSO5: Conduct field and industry visits for professional growth

Course Outcomes

Course: 1S Petrochemical Science

By the completion of this course the student will be able to
CO1: Know basic principles and concepts of petro chemistry
CO2: To know knowledge of fuel and petroleum industries
CO3: Basic concept in formation, exploration and drilling of petroleum
CO4: To understand composition and classification of petroleum
CO5: To know various operation conducted in petroleum refinery
CO6: Basic quality monitoring and laboratory test

Course: 2S Petrochemical Science

By the completion of this course the student will be able to
CO1: To study overview of petrochemical industries
CO2: Understand the basic feed stocks and gas purification technique utilized in petrochemical industries
CO3: Understand methods of separation and purification of gases in to individual constituent
CO4: Understand steam reforming process with their definition, reaction reactivity
CO5: To know synthesis gas production through various process
CO6: To study various uses of synthesis gas with their processes

Course: 3S Petrochemical Science

By the completion of this course the student will be able to
CO1: To understand cracking technology for petroleum with definition, reaction, mechanism and operating condition
CO2: Under stand thermal cracking processes like vis-breaking, coking, steam cracking, and production of primary petrochemical feed stocks
CO3: Understand catalytic cracking with their reaction, mechanism and operating condition and catalyst
CO4: Understand various catalytic cracking process with their process flow
CO5: Understand separation technique like extractive distillation and selective extraction. Oxo synthesis process for production of alcohol
CO6: Understand reforming process and separation of aromatics from petroleum stocks

Course: 4S Petrochemical Science

By the completion of this course the student will be able to

CO1: Understand manufacture of various petrochemicals with respect to their chemistry, process parameter, catalyst used, process floe and their uses they are as following

Ethylene Derivative I

- Vinyl chloride monomer, Vinyl acetate monomer, Acetaldehyde, Ethanol

Ethylene Derivative II

- Ethylene oxide, Ethylene glycol, Ethanol amine

Propylene Derivative

- Propylene oxide, Isopropyl alcohol, Acetone, Acrylonitrile, Acrylamiade

Butadiene Derivative

- Isoprene, Adipic acid, Sulpolane, Chloroprene

Benzene Derivative

- Phenol, Aniline, Caprolactum

Xylene Derivative

- Terepthalic acid, Dimethyl terapthalete, phthlic anhydride

Course: 5S Petrochemical Science

By the completion of this course the student will be able to

CO1: Understand basic concept in polymerization like definition, classification of polymer, methods of polymerization, polymerization technique

CO2: Understand ethylene and propylene based polymer with their chemistry, process parameter, catalyst and flow scheme

CO3: Understand C4 based(ie butylenes, butadiene, isoprene) polymer with their chemistry, process parameter, catalyst and flow scheme

CO4: Understand vinyl and styrene based polymer with their chemistry, process parameter, catalyst and flow scheme

CO5: Understand condensation polymer with their chemistry, process parameter, catalyst and flow scheme

CO6: Understand wax / Bitumen / Grease with manufacture process and uses

Course: 6S Petrochemical Science

By the completion of this course the student will be able to

CO1: Understand basic instrumental technique for petroleum and petrochemical product characterization Spectroscopy I involved definition, principal, theory, working and application of UV – Visible IR

CO2: Understand basic instrumental technique for petroleum and petrochemical product characterization Spectroscopy II involved definition, principal, theory, working and application of NMR and Mass

CO3: Understand basic instrumental technique for petroleum and petrochemical product characterization chromatography involved definition, principal, theory, working and application of GLC, HPLC, GC

CO4: Understand various catalyst used in petroleum and petrochemical industries

CO5: Know the future of petrochemical

CO6: Understand introduction of pollution control in petroleum and petrochemical industries with basic concepts

Apiculture

Programme Specific Outcomes

PSO1: To create awareness in Melghat region about Honey Bee Keeping
PSO2: To provide opportunities of employment and self employment
PSO3: To know and popularize various methods for successful Honey Bee Keeping and promote related research activities
PSO4: Reduction of tribal migration for employment and provide ample and permanent employment opportunities to the local tribal people
PSO5: To cultivate plants necessary for successful Honey Bee Keeping project with the help of varied flora richly available in Melghat and Maharashtra

Course Outcomes

Course: General/Basic Entomology

By the completion of this course the student will be able to
CO1: Understand & identification the insects.
CO2: He can classify beneficial & harmful insects.
CO3: Acquire the knowledge of basic classification of insects.
CO4: Identify the honey bees, there types, sub species & cast differentiation.
CO5: Understand the importance of honey bees & there behavior.
CO6: Identify the bee diseases, pest, & predators.
CO7: Acquire the knowledge of different methods of bee breeding.
CO8: Acquire the knowledge to establishing of breeding apiary.
CO9: Learn about selection criteria of bees for better performance.
CO10: Understand the method of preparing mating nuclei.

Course: Beekeeping

By the completion of this course the student will be able to
CO1: Understand selection of bee species for beekeeping.
CO2: Acquire the knowledge of required equipment for beekeeping.
CO3: Acquire information about site selection, required climatic condition, seasonal management for establishment of Apiary.
CO4: Getting knowledge & skill of honey bee colony handling & its periodic inspection.
CO5: Understand important ways of migration of bee colonies.
CO6: Methods for extraction of different bee products.

Course: Bee Products

By the completion of this course the student will be able to

CO1: Knowledge of physical & chemical properties of bee products.
CO2: Acquire knowledge of composition of bee products.
CO3: Understand importance, application & value addition of bee products.
CO4: Knowledge & skill of analysis of bee products & quality control.
CO5: Raw material, secretion & formation of different bee products in bee colony by bees.

Course: Processing Of Bee Products

By the completion of this course the student will be able to
CO1: Understand objectives of processing of different bee products.
CO2: Methods of processing of bee products.
CO3: Precaution, safety, sanitation during processing.
CO4: Unit process in honey processing.
CO5: Importance of processing of bee products.
CO6: Acquire the knowledge of packing of bee products.

Course: Bee Botany

By the completion of this course the student will be able to
CO1: Got the knowledge of bee flora.
CO2: Identify the bee plants.
CO3: Knowledge of wild, cultivated, horticultural, ornamental, agricultural bee flora.
CO4: Biogeographical distribution of bee flora of India.
CO5: Flowering season of different bee plants.
CO6: Acquire the knowledge of classification of flora & morphology of flower.
CO7: Potential nectar & pollen yielding plants.
CO8: Preparation of flowering calendar for specific region.
CO9: To identify the dearth period of specific region.

Course: Extension, Marketing & Concern Organisation

By the completion of this course the student will be able to
CO1: Acquire the knowledge about Government & semi-government organizations working in the field of beekeeping & its research, extension.
CO2: understand legal & standard provision for beekeeping, processing, & use of bee equipments.
CO3: Knowledge of marketing of bee products in indigenous market as well as its exporting.
CO4: Student would understand how to maintain his financial transaction in beekeeping enterprises.

M.Sc. Environmental Science.

Programme Outcome (PO):

PO1- To introduce master's degree programme in science especially in Environmental Science.

PO2- This programme has also been envisaged to fill the requirement of technical manpower in various sectors in India and elsewhere.

PO3- To acquire deep knowledge, practical experience about the subject.

PO4- To inculcate qualities in the student to acquire to fulfil their expectations about their career.

Programme Specific Outcomes (PSO):

PSO1— The curriculum has been designed to attract young minds to choose a career in broad areas of Environmental Science and applications.

PSO2 To understand the concept of Environment, environmental science, its interdisciplinary nature, and interaction between the disciplines like ecology, biodiversity, microbiology, geology, chemistry etc.

PSO3 -To understand basic environmental issues at local, regional and global level.

PSO4- To understand the kinds of pollution, heir sources impact, monitoring and control strategies.

PSO5- To give experience of monitoring and analysis pollution through practical sans dissertation.

PSO6- To learn about the concepts and modern technology like Remote Sensing, GIS, computers applications, modelling statistical techniques in environmental monitoring, conservation, and management.

PSO7- To acquire knowledge of environmental assessment, audit, and environmental management system.

PSO8- To understand the aspects of environmental effects, environmental toxicology, and hazardous waste management.

PSO9- To acquire knowledge of hygiene and safety in industrial indoor environment.

PSO10- To learn about policies of environment and to acquire knowledge of environmental legislation.

PSO11- To acquire knowledge, mini experience by doing environmental - monitoring/assessments /related projects, through dissertation and Project Report.

PSO12- Through practical and field visits/ excursions, student will have an experience of environmental analysis, handling of sophisticated instruments and exposure to natural environment and industries.

PSO13- After the completion of this program, career opportunities are open to students in the sectors of – Industries, Pollution Control Boards, Research Institutes, Education, Environmental Consultancies, Environmental Consultant, Environment Related NGO's, Environmental Journalism, Environmental Expert in Assessments and audits etc.

Course Outcomes

After completion of the course, students will know and be able –

Course-I – Environmental Science – An Interdisciplinary Approach

CO 1. To understand basic issues in environmental sciences.
CO 2. To understand energy transfer and material balance in earth system.
CO 3. To describe dynamicity of elements occurs earth and environmental geology
CO 4. To understand issues of urban environment and impact of intensive agriculture.
CO 5. To understand importance and economics of minerals.

Course II - Concept of Ecology and Biodiversity

CO 1. To describe concept and types of ecology and its relation to other science and relevance to society.
CO 2. To understand population ecology, its dynamics distribution and carrying capacity.
CO 3. It describes to understand concept, mechanism and modes of ecology succession and . detail concept of community ecology.
CO 4. To know about types, levels, causes of loss of biodiversity and its conservation.
CO 5. To understand biodiversity conservation measures, policies and regarding acts .

Course III – Environmental Chemistry.

CO 1. Basics of chemistry to learn environmental process.
CO 2. To understand greenhouse gases, ozone depletion, acid rain and photo chemical smog in atmosphere.
CO 3. To learn about various pollutants releases from different types of industries.
CO 4. To understand statistical treatment and analysis of environmental data.
CO 5. Understand various instruments and equipment used for environmental analysis.

Course IV – Geodynamics and Energy Resources.

CO 1. Understand kinds of dynamics in ecosystem and biomass productivity in ecosystem.
CO 2. To understand cycles and seasons in earth system.
CO 3. Focus on various natural hazards and environmental impact of mining.
CO 4. Understand kinds of utilization of conventional and energy resources.
CO 5. Students can understand nonconventional energy resources, eco technology for sustainability.

Course V–Bioinformatics in Environmental Analysis.

CO 1. Understand biostatics, types and representation of data, their analysis and concept of probability.
CO 2. To explain function in probability, principle, and concepts of tests.
CO 3. To apply statistical test to environmental data for further interpretation of data.
CO 4. To understand importance of environmental modelling and its importance in environmental decisions and policy making. The understanding of natural system and how they react in changing conditions.
CO 5. Understand history, types, basic software and to learn about environmental modelling.

Course VI – Environmental Microbiology

CO 1. To understand micro-organism in ecosystem, methods and types of microbial culture and their preservations.
CO 2. To know microbiology of marine water, fresh water, sewage water, air and soil. Students also learn the role of micro-organism in decomposition of industrial waste and in biogeochemical cycle.
CO 3. To understand microbiology of food, food spoilage, processing and preservation of food and how Micro-organism is the source of food.
CO 4. To understand the use of micro-organisms in production of medicines, organic, fuels, beverages and recovery of product.
CO 5. To understand infectious diseases, water and air borne diseases, their transmission. Control of micro-organisms.

Course VII – Air and Noise Pollution.

CO 1. Sources, classification, nature and types of air pollutants.
CO 2. Major global air pollution issues and control strategies.
CO 3. Effect of air pollutant on living beings and property, air pollution monitoring equipment.
CO 4. Meteorology related to behaviour of air pollutants in atmosphere - plume behaviour, dispersion etc.
CO 5. Effects of the noise pollution on human, noise levels, standards, and their control.

Course VIII – Water Pollution.

CO 1. The physical, chemical, biological characteristics of water and waste water, its sampling, analysis and quality standards. Students also understand water quality indices, prevention and control treatment to waste water.

CO 2. Sources of water pollution and criteria to dispose water in to marine water.

CO 3. Effluent water characteristics its pollution potential of different industries.

CO 4. Natural and manmade water sources and the micro life in it. Exploitation of water resources.

CO 5. Effects of water pollution on living beings. Bio indicators, speciation and toxicity of specific pollutants.

Course IX – Terrestrial Pollution.

CO 1. Sources, composition and types of solid waste.

CO 2. Handling, transportation, processing and disposal of solid waste. Physicochemical and biological properties of it.

CO 3. Environmental effects and hazards associated with mining operations to society, agricultural land and occupation.

CO 4. Pollution from power generating projects/ installations, fuel burning, agro-waste burning and from various chemical industries.

CO 5. Solid waste, treatment process technology and modern trend in solid waste management.

Course X- Remote Sensing GIS and Computer Applications.

CO 1. EMR and interaction of EMR with atmosphere, applications of remote sensing in natural resources and environmental management.

CO 2. EMR and remote sensing, types, characterisation and elements of remote sensing, importance of satellite orbits and sensors in remote sensing.

CO 3. Aerial photography, its types, film types, interpretation of aerial photographs. Applications of remote sensing in natural resources, mapping and planning.

CO 4. History, classification and application of computer. Statistical tools and probability.

CO 5. GIS, objective elements and advantages, in environmental management. Data models and structures.

Course XI- Environmental Impact Assessment and Audit

CO1 –Concept, scope and objectives of Environmental Impact Assessment, environmental policies and EIA guidelines.

CO2- Methodologies for impact assessment, impact types, impact identification classification, advantages and disadvantages of EIA methodology.

CO3- Basic components of EIA and importance of public participation in it.

CO4- Preparation and writing of EIA for specific projects. Eco management in various sectors; ecotourism, eco labelling etc.

CO5- Scope, objectives, procedure guidelines of environmental auditing. Audit tools and environmental statements.

Course XII – Pollution Control Technology

CO 1. Control methods of gaseous and particulate pollutants. Control of automobile pollutants.
CO 2. Primary and secondary sewage and effluent water treatment, sludge treatment and its disposal.
CO 3. Advanced waste water treatment, operation monitoring and designing of Effluent Treatment Plant (ETP), waste water treatment in specific industry and concept of Common Effluent Treatment Plant (CETP) and Public Owned Treatment Plant (POTP) .
CO 4. Sources and effects of radiation, noise levels, unit, effects and control of noise.
CO 5. Types, treatment, reuse and disposal of solid waste.

Course XIII – Environmental toxicology and hazardous waste management

CO 1. Toxicology types, toxicity and its evaluation.
CO 2. Bioassay techniques for assessment of toxicity and toxicant determination techniques from food and water.
CO 3. Classification of toxicants and mode of action; as chemicals, pesticides, heavy metal and plant toxins.
CO 4. Types of hazardous waste on the basis of their source and its management.
CO 5. Treatment and disposal of hazardous waste.

Course XIV – Industrial Hygiene and safety

CO 1. Need of industrial Safety, its rules and regulations, safety committee and its role.
CO 2. Risk and hazard analysis methodologies and hazard control.
CO 3. Specific industrial hazards and their safety.
CO 4. Industrial hygiene, Environmental stresses, chemical hazards.
CO 5. Occupational Health- related disease and prevention. Personal Protective Equipment and their types

Course XV – Nature Conservation and Environmental Management.

CO1- Conservation of Natural Resources and biodiversity, watershed management and rain water harvesting.

CO2- Environmental Biotechnology especially for management of and utility of Waste.

CO3- Non-conventional energy resources with special reference to India.

CO4- Implementation of Environmental Management system by providing standard for Industrial Manufacturing , its procedure for registration , certification accreditation Standards .

CO5- Concept, principal and barriers to sustainable development. Environmental issues related to Industries and urban area.

Course XVI- Environmental Policies and Legislation.

CO1- Concept, need types and role of Environmental Education. Role of Government and NGO in environmental education.

CO2- Levels, methods and current problems in environmental education.

CO3- Indian environmental movements and societies and controversies related to some projects.

CO4- Global environmental strategies and awareness programmes by global institutions for environmental conservation.

CO5- Laws for the wild life protection, forest, Air, Water and Hazardous waste management.

Arts, Science and Commerce College, Chikhaldara, Distt. Amravati (MS)
Programme Outcomes (POs), Programme Specific Outcomes (PSOs)
and Course Outcomes (Cos)

Bachelor of Arts

Programme Outcomes

PO1: Provide knowledge and understanding of various fields of study in core disciplines in the humanities and social sciences
PO2: Develop critical and analytical skills to the identification and resolution of problems within complex changing social, linguistic and literary contexts
PO3: Understanding of the general concepts and principles of selected areas of study outside core disciplines of the humanities, social sciences and languages
PO4: Follow independence in learning appropriate theories and methodologies with intellectual honesty and an understanding of ethical and human values
PO5: Encourage students to analyze the problems and apply their knowledge for remedies thereof
PO6: Enhance student's skills of effective communication and language learning i.e. reading, writing, listening and speaking another language with fluency and understand its cultural value
PO7: Become well informed and updated member of the community and responsible citizens
PO8: Work with self esteem, self reliance, self-reflection and creativity to face adversities in the work and personal life

English

Programme Specific Outcomes

PSO1: Make students English Language proficient to improve their employability
PSO2: Train them in the use and application of English language to overcome their day to day difficulties, and to improve their communication skills
PSO3: Tribal can preserve and popularize their language and culture through English language and literature
PSO4: Imbibing moral and human values through study of language and literature
PSO5: Give them a broader picture of the world through making them learn English language and literatures of the world
PSO6: Introduce them with technological advancement in English language

Course Outcomes

These outcomes are applicable to all semesters
By the completion of this course the student will be able to
CO1: Learn analysis of the text from prose passages for understanding and interpreting the contents
CO2: Prose passages will help improve language skills like listening, reading, writing and speaking
CO3: They will develop imaginative and creative thinking by reading and reciting poetry
CO4: Language activities will promote effective use of language in day to day life and enhance professional and communication skills

CO5: Learning English Grammar, vocabulary, writing skills would make them language proficient
CO6: The course content will enable rational thinking along with learning life skills.

Marathi

Programme Specific Outcomes

PSO1: To make students learn various literary streams, their nature, scope etc.
PSO2:To go through the contemplation by numerous thinkers on human life, values, and human problems expressed in Marathi.
PSO3: To enhance empathy, inclusiveness, tolerance and human values
PSO4: To make the students study multi disciplinary aspects of Marathi
PSO5: To learn about Marathi culture with its variety and plurality vis a vis Indian culture
PSO6: To develop commutation skills
PSO7: To motivate students to make career in Marathi.

Course Outcome

By the completion of this course the student will be able to

These outcomes are applicable to all semesters
CO1. Develop Attitude of Literary Forms.
CO2. Develop Reading, Writing & Communication Skills of Students.
CO3. Get the students introduced with interdisciplinary aspects of Marathi .
CO4. Information about Literary Theory.
CO5. Get the students introduced with various streams of Marathi
CO6. Information about the history of MODERN Marathi Literature.
CO7. Make the students learn Marathi Linguistics & Grammar.

Hindi

Programme Specific Outcomes

PSO1: Promote Hindi as our national language and a symbol of nationality
PSO2: Make students understand its simplicity and lucidity
PSO3: Study and understand Literature in Hindi and significance of its translation
PSO4: Popularize Hindi and promote people to adopt Hindi along with their mother tongue
PSO5: Study Hindi along with local tribal languages
PSO6: Promote regional language translation with the help of study of Hindi

Course Outcomes

These outcomes are applicable to all semesters
By the completion of this course the student will be able to

CO1: Students will understand the various aspects of Hindi Language and literature.

CO2: Students will learn Grammar to understand, read and speak Hindi fluently
CO2: Hindi is a national language and students will understand and comprehend its significance and relevance.
CO3: They will learn Hindi language and its usage in day to day and professional life.
CO4: Students will develop imaginative and language skills during study of Hindi and Hindi literature.

Economics

Programme Specific Outcomes

PSO1: To study economics theories and principles and see their applications
PSO2: Understand and study the Indian economy & economy of Maharashtra
PSO3: Understand and study monetary policies of India
PSO4: Determine economic variables including inflation, unemployment, poverty, GDP, balance of payments
PSO5: Understand the behavior of financial and money markets
PSO6: Understand the functions of commercial bank, central bank, co-operative bank, credit society
PSO7. Understand gains from international trade & trade policy
PSO8. Understand concept of inflation and deflation
PSO9. Understand objectives & functions of IMF, World Bank, WTO
PSO10.Understand New trends in banking sector like ATM, Debit card, credit card, e-marketing, cashless transaction, Mobile banking, RTGS, NEFT etc.
PSO11.Understand concept of demography, its nature & scope, theories of population
PSO12.Understand the importance of population studies
PSO13. Understand the concept of fertility & mortality

Course outcomes

By the completion of this course the student will be able to

Course: Micro Economics

On completion of the course, students will be able to
CO1. Understand about fundamental concepts of economics
CO2. Understand economic approach
CO3. Know role of market in real life.
CO4. Understand the theory of oligopoly & duopoly

Course: Economy of Maharashtra

On completion of the course, students will be able to
CO1. Understand nature of Maharashtra economy
CO2. Understand population & economic development
CO3. Understand infrastructure and economic development
CO4. Understand role of agriculture in Maharashtra economy

Course: Macro Economics

On completion of the course, students will be able to

CO1. Understand macro economic analysis
CO2. Understand national income
CO3. Understand classical & Keynesian theories of output and employment.
CO4. Understand consumption & Investment function
CO5. Understand International trade theories
CO6. Understand gains from international trade & trade policy
CO7. Understand concept of inflation and deflation

Course : Banking

On completion of the course, students will be able to

CO1. Understand types of banks
CO2. Understand concept of credit creation
CO3. Understand functions of various banks
CO4. Understand objectives & functions of NABARD
CO5. Understand concept of IMF, World Bank, WTO
CO6. Understand objectives & functions of IMF, World Bank, WTO
CO7. Understand new trends in banking sector like ATM, Debit card, credit card, e-marketing, cashless transaction, Mobile banking, RTGS, NEFT etc.

Course: Indian economy

On completion of the course, students will be able to

CO1. Understand main features of Indian economy
CO2. Understand the concept and types of economic planning
CO3. Understand new economic reforms
CO4. Understand importance of agriculture in Indian economy
CO5. Understand the concept of agriculture marketing
CO6. Understand the concept of subdivision & fragmentation of land
CO7. Understand the concept of industrial dispute
CO8. Understand India's foreign trade
CO9. Understand concept the of poverty and unemployment
CO10.Understand relation between population and Environment
CO11. Understand types of pollution and its remedies
CO12. Understand concept of global warming

Course: Demography

On completion of the course, students will be able to

CO1. Understand the concept of demography, its nature & scope
CO2. Understand the theories of population
CO3. Understand the importance of population studies
CO4. Understand the concept of fertility & mortality
CO5. Understand the concept & types of migration
CO6. Understand the concept, nature & causes of urbanization
CO7. Understand the effects and remedies of urbanization
CO8. Understand evaluation of population policy in India

Political Science

Programme Specific Outcomes

After graduation the student will be able to

PSO 1: Understand the contribution of the main traditions of western and Indian political thinkers to political thought.

PSO 2: Understand the processes and dynamics of Indian government and politics. It will also familiarize with the vital contemporary emerging issues of centre-state relation, political parties, emergence of new leadership at different levels, demand for autonomy movement, ethnic conflicts etc.

PSO 3: Acquaint with the diverse political systems especially the developed countries including USA, China and Switzerland.

PSO 4: Understand the women's Political Participation, issues and problems.

PSO 5: Understand the problems and prospects of rural development of India

PSO 6: Political Science is a social science discipline that not only studies government & state but, at the same time, applies empirical theory & scientific methods to the analysis of political matters.

PSO 7: As the world today revolves round political as well as economic considerations, a formal degree of Political Science has the utmost practical applicability. Its subject matter is concerned with the everyday life of an individual living in a society and state.

PSO 8: Political Science is the study of political behavior, governance and power and how these are shaped by institutional settings and by the ideas, interests and resources of political actors.

PSO 9: A degree in political science not only enables students to enhance their grasp of the basic structures and processes of governmental systems, public policies and political forces that directly impact their lives, but also help them analyse political problems, arguments, information and theories and to apply methods appropriate for accumulating and interpreting data applicable to this discipline.

PSO 10: Above all, it aids students in becoming informed citizens by amplifying knowledge on their entitlement to the rights and duties within a state.

Course Outcome

By the completion of this course the student will be able to

B. A. I- Semester .I-

Couse - Indian Constitutional Provisions and Local Self Government

CO1: Characteristic of Indian Constitution, Preamble, Fundamental Rights.

CO2: Directive Principal of State Policy, Fundamental Duties, Citizenship

CO3: President, Vice President, Prime minister

CO4: Parliament- loksabha, Rajyasabha

CO5: Judicial System of India-Supreme Court, High Court

B. A. I- Semester II

CO1: Election Commission of India- structure, power and Function

CO2: State Executive- Governor, Chief Minister, council of Minister

CO3: State Legislature- structure, power and Function

CO4: Local self Government

CO5: Women Political Participation in Panchyat raj, Nagpur Pact, Right to Information Act

B.A.II- Semester III

Course-Selected Constitution and International Relation (UK, USA & China)

CO1: Salient features of the constitution of UK, Crown, Prime minister, and Cabinet
CO2: House of Lords, House of Commons-Composition and function, Role of opposition, shadow cabinet
CO3: Salient features of the U.S. Constitution, President, Cabinet, Vice president.
CO4: Legislature of USA- Congress, Senate-composition and power, function, House of Representative-composition, power and function, Supreme court-composition, power and function
CO5: south Asian Association for Regional Co-operation (SAARC)

B.A.II- Semester IV

CO1:Salient features of the constitution of China, national people's congress, Standing committee- composition, power and function
CO2: President-appointment, role and function, State Council-composition, power, function, Prime minister-appointment, role and function, role of communist party.
CO3: UN, Charter, objectives, principle, General Assembly-composition, work.
CO4:UN- Security Council, General secretary -appointment, work, International Court-composition.
CO5: India –China relation, Tibet issue, role of china in UN, impact of Chinas good on Indian market.

B.A.III- Semester V

Course- Modern concepts and policy in politics

CO1: Leadership-meaning, factors, role
CO2: Reservation –policy, meaning, nature, reservation in Parliament, Politics
CO3: Nationalism-meaning and nature, factors, present situation of nationalism.
CO4: Communalism-meaning, role present situation
CO5: Terrorism-meaning definition, types, laws for prohibition

B.A.III- Semester VI

CO1: Concept of state- Aristotle-state classification, M.K. Gandhi-Ramrajya concept
CO2: Concept of Democracy-Walter Bagehot, Abraham Lincoln, Dr. Ambedker
CO3: Nationalism- Niccolo Machiavelli, Swami Vivekananda, V D Sawarker
CO4: Nationalism- karl Marx, Jawahrlal Nehru, Ram Manohar Lohiya
CO5: Behaviouralism and Sourvereignty-David Eston, Gabriel Almond, John Austin

Department of Sociology

Programme Specific Outcomes

PSO1: Introduce students to social institution, organizations and their nature, work and utility.
PSO2: Introduce students to basic concept of Sociology E.g. Society, Social Group, Role and Status.
PSO3: Introduce students about social movement, structure and functions of social movement.
PSO4: Create awareness among students about domestic violence against women.
PSO5: Create awareness among students about various social problems their nature and causes and to study and find out remedies.

PSO6: To teach students about social values and norms and cultivate ideal citizens.
PSO7: To create awareness among students about social Integration and humanity.
PSO8: To introduce students to tribal society and culture, their problems and develop positive attitude towards them.

Course Outcomes

By the completion of this course the student will be able to

Course 1: Introduction of Sociology

CO1 : Knowing about subject matter of Sociology. Relationship with other social sciences
CO2 : To understand Sociology as a Applied science.
CO3 : Knowing about the basic concept of Sociology. E.g. Society, Community, Social Group, Social structure.
CO4 : To understand the Status and Role, Social Norms, Importance of Norms.
CO5 : Knowing about social control, social conformity and deviation.

Course 2: Introduction of Sociology

CO1 : To understand the culture, elements of culture, socialisation ,agencies of Socialisation.
CO2. : To understand the social Institution. e.g. Family, Marriage, Religion.
CO3 : Knowing about social movement and causes of social movement.
CO4 : To understand the social stratification, Social change and factors of social change.

Course 3: Social problem in India

CO1 : To understand the meaning and nature of social problem, perspective of social problem.
CO2 : Social problem in India. E.g. Dowry, Domestic violence against women, divorce.
CO3 : Knowing about the population problem in India and effect of population explosion.
CO4 : To understand the contemporary rural problems in India. e.g. Migration, Unemployment. Farmer suicide.
CO5 : Knowing about Alcoholism and effect of Alcoholism on family, drugs addiction

Course 4: Social problems in India

CO1 : To understand the current social problems. e.g. Corruption.
CO2 : Knowing about problems of Terrorism and white collared crime.
CO3 : Knowing about problems of Weaker section in India. e.g. SC, ST and Women.
CO4 : To understand the Problem relating to Urbanization. e.g. Slum, Crime and juvenile diligence.
CO5 : To understand the Intolerance ,riots, crime.

Course 5: Social Anthropology

CO1 : Knowing about Primitive society and Importance of social Anthropology in India
CO2 : To understand the methods of social Anthropology. e.g. Field, Historical, Comparative and Function method.
CO3 : To understand the Geographic distribution, Racial classification and Linguistic classification in India.
CO4 : Knowing about tribal Religion : Origin of the Religion, Shaman and Priests.
CO5 : To understand the Economy of tribal and Economical life of tribal.

Course 6: Social Anthropology

CO1 : Knowing about the tribal social life e.g. family life, marriage life.
CO2: knowing about the Clan and function of Clan.
CO3 : To understand the Tribal Dormitory system and present position of Dormitory.

CO4 : Knowing about the Tribal problems. e.g. Poverty, Indebtedness, Land alienation , Agrarian issue, Exploitation
CO5 : To understand the Tribal development approaches, obstacles of the tribal development

History

Programme Specific Outcomes

PSO1: Perceive various sources to study of Ancient India
PSO2: Perceive influence of political support on religion
PSO3: Perceive socio-economic, religious situation under the Maurya to Harshwardhan
PSO4: Understand emergence of feudal system in Indian Society
PSO5: Understand the administrative setup of Sultanate from central to local level
PSO6: Know the system of trade and commerce during the period of Sultanate
PSO7: Grasp territorial expansion of Mughal empire
PSO8: Understand early political awakening in Indian freedom struggle
PSO9: Identify the social institutions of late nineteenth century
PSO10: Understand the Diplomatic conferences during the war period

Course outcomes

B. A. First Year - I Semester
(History of India from Earliest Times 1205)
On completion of the course students will be able to,

CO1: Perceive various sources to study of Ancient India, Understand the glory of Indian History in the age of Harappan civilization, Comprehend the history of Vedic period, Understand the philosophy of Jainism and Buddism and Perceive influence of political support on religion
CO2: Know about the Mauryan Empire and Perceive socio-economic, religious situation under the Maurya.
CO3: Comprehend about the Gupta period, Understand emergence of feudal system in Indian Society and Understand the History of Satvahans, Shungas, Kushans and Hunas,
CO4: Understand the Harshavardhan and Patronage to Buddhism, Know about the Sangam age, the Cholas, Pallavas and Chalukyas and Understand early difficulties of Arab and Turks Invasion and its Impact in India.
CO5: Understand the Education in Ancient India, Understand the Position of women in Ancient India, Know about the Judicial Administration in Ancient India and Perceive various Art and Architecture in sources to study of Ancient India .

B.A. First Year- Semester II
(History of India From 1206 A. D. to 1525 A.D.)
On completion of the course students will be able to,
CO1: Understand the Foundation of Delhi Sultanate and Administration and Understand early difficulties of Sultans in India
CO2: Grasp territorial expansion of Sultanate period, Understand the administrative setup of Sultanate from central to local level and Understand the aspects of fiscals and monetary system under the sultanate
CO3: Understand the Bahamani Kingdom and Understand the rise and expansion of Vijaynagar Empire.
CO4: Understand political structure during Sultanate Period and Know the state of Society and Social Status of Woman.

CO5: Know the system of trade and commerce during the period of Sultanate, Understand the nature of village community and the relationship between the different sectionsof society and Grasp the attitude of emperors towards religion under the regime of Sultanate.

B. A. II year- Semester III

History of Maratha- Mughal

On completion of the course students will be able to,

CO1: Understand the political situation of India on the eve of Babar's invasion, Grasp territorial expansion of Mughal Empire, Understand the emergence and consolidation of Sher Shah, Understand the administrative set up of Mughals, Understand the inspiration behind the establishment of Swarajya, Explain the reasons behind Chatrapati Shivaji's early conflicts with the regional lords and theoutsiders and Comprehend the basic features of Mansabdari and change in it during 17^{th} century

CO2: Know the system of trade and commerce during the period of Mughals, Understand the nature of village community and grasp the aspects of fiscals and monetary system of Mughals.

CO3: Understand Maratha history, Identify the importance Shiviji Maharaj & Sambaji- Mughal Freedom Movement, Distinguish the detail account of Maratha society and Understand Maratha rule.

CO4: Understand early political Maratha freedom struggle, Identify the Rajaram & Tarabai, Understand various phases of Maratha movement and Comprehend the socio-religious scenario and the social reformation.

CO5: Maratha Administration and Understand the evolutionary processes of constitutional developments.

B. A. II year -Semester IV

History of India (From 1526 to 1947)

On completion of the course students will be able to,

Co1 : Understand modern Indian history, Identify the importance and the legacy of Freedom Movement and Distinguish the detail account of British raj as well as its overall impact on the Indian society.

CO2: Understand some of the early resistance to British rule, Understand early political awakening in Indian freedom struggle and Identify the social institutions of late nineteenth century.

CO3: Understand various phases of national movement and Comprehend the socio-religious scenario and the social reformation.

CO4: Grasp the details of freedom movement under the Mahatma Gandhi's Leadership and Gasp the details of Freedom Movement Under Subash Chandra Bose & Abinav Bart

CO5: Understand the evolutionary processes of constitutional developments.

B. A. Part III Semester V

History of Modern Europe

(From 1780 to 1918)

On completion of the course students will be able to,

CO1: Learn about the causes and aftermaths of the French revolution and Understand the factors responsible for the end of Monarchy in France

CO2: Understand the rise of Napoleon and how Meternic dominated the European politics and Understand the foreign policy of Germany under Bismark and Kaiser William II

CO3: Describe the Historical process which leads to rise of nationalism in Europe and Learn about the Causes and effects of first world war.

CO4: Describe the policies of US's Fourteen points of president Woodrow Wilson and Evaluate the Russian Revolution and the first experiment of the communist government.
CO5: Understand the League of Nations Aims, Objectives and structure.

B. A. Part III Semester VI
History of Modern Europe (From 1918 to 1965)
On completion of the course students will be able to,

CO1: Describe the policies of Hitler and Describe the policies of Mussolini.
CO2: Explain the aftermaths of the World War II on the world politics and Understand the Diplomatic conferences during the war Period.
CO3: Understand the United Nations Organization.
CO4: Understand how Russia and America emerged as superpowers on the verge of cold war and Understand the Military Alliances NATO, SEATO, CENTO.
CO55: Learn the Non- Aligned movement and the Third world, origin and progress.

Arts, Science and Commerce College, Chikhaldara, Distt. Amravati (MS)
Programme Outcomes (POs), Programme Specific Outcomes (PSOs)
and Course Outcomes (Cos)

Bachelor of Commerce

Programme Outcomes

PO1: To build conceptual foundation and application skills in the areas of Accountancy, Finance, Management, research and higher education
PO2: To sharpen the students analytical and decision making skills
PO3: To provide the students with a unique ability to manage accounts, peopleand organizations across the world with a combination of B.Com Degree
PO4: To build life skills through value based education and service oriented programs
PO5: To provide the students a competitive edge in the job market by equipping them with financial and management accounting techniques covering the technical areas that accountants are required to master

Programme Specific Outcomes

Principles of Business Organization/ Principles of Business Management

PSO1:	Identify major business functions of accounting, finance, information systems, management, and marketing
PSO2:	Describe the relationships of social responsibility, ethics, and law in business
PSO3:	Explain forms of ownership, including their advantages and disadvantages
PSO4:	Identify and explain the domestic and international considerations for todays business environment
PSO5:	Identify and explain the role and effect ofgovernment on business
PSO6:	Describe the importance and effects of ethical practices in business and be able to Analyze business situations to identify ethical dilemmas and ethical lapses
PSO7:	Explain the banking and financial systems, including the securities

Monitory System and Indian Financial System

PSO1: Identify the principles behind the workings of the financialsystem
PSO2: Demonstrate knowledge about the evolution of financial markets and various credit instruments; and the evolution of money andits functions
PSO3: Analyze the operations of equity and debt (bond) markets including interest- rate movements
PSO4: Demonstrate an understanding of the history, evolution, structure, operations and regulation of modern central banking and financial systems together with the design and conduct of monetary policy, with particular focus on the Asia-Pacific
PSO5: Demonstrate an understanding of the principles of modern commercial banking and operational issues within a globalised economic system

Accounting

PSO1: Introduction to the real/ practical way of Accountancy.
PSO2: To enable students with computerized accounting skills through MS-Excel and Tally to bring out a good Book-keeper in them.
PSO3: Trying to bring out a good accountant.
PSO4: Students should be able to find out the profitability of the business, cost efficiency
PSO5: Explain the basic nature of a joint stock company as a form of business organization and the various kinds of companies based on liability of their members
PSO6: Describe the types of shares issued by a company; explain the accounting treatment of shares issued at par, at premium and atdiscount including over subscription.
PSO7: Outline the accounting for forfeiture of shares and reissue offorfeited shares under varying situations.

Economics

PSO1: Use Supply and Demand curves to analyze the impact of Taxes etc. on consumer surplus and market efficiency
PSO2: Apply the concept ofopportunity cost
PSO3: Employ marginal analysis for decision making
PSO4: Analyze operation of market under varying competitive conditions
PSO5: Analyze causes and consequences of on employment inflection andgrowth
Business Environment:
PSO6: Imparting them the specific knowledge of BusinessEnvironment
PSO7: Analyze the political, social, economical, technological and other configurations that supports cross-border trade
PSO8: Apply an understanding of the nature of the multinational firm as institutional structure for the conduct of the cross-border trade and investment
PSO9: Analyze the key decisions that multinational firms make in relation to the choice of markets and entry strategies

Statistics

PSO1: Mathematical knowledge to analyze and solve problems
PSO2:Statisticalreasoningand inferential methods, modeling and itslimitations
PSO3: interpreting and communicating the result of a statisticalanalysis
PSO4:Dataanalysisusingstatisticalcomputingtools and softwarePSO5:Enhancingconfidencethroughproblem- solving method

Computer and Information Technology

PSO1: Study the history of the discipline of computer and understand the conceptsof the subject
PSO2: Understand the nature of the software development process, including theneed to provide appropriate documentation
PSO3: Understand the working of computers, networking and programminglanguages
PSO4: Analysis of different functions, syntaxes, flow and types of programming languages and be able to program fluently in one or two programming languages
PSO5: Understand standard techniques for solving a problem on a computer, Including programing techniques and techniques for the representation of information
PSO6: Explore the ways of programming with different logic than traditional Ways
PSO7: Designing WebPages using scripting languages like HTML,CSS and XML
PSO8: Understanding databases and operating it with SQL andPL/SQL

Business Regulatory Framework and Company Law

PSO1: Critically review the Indian legal system and institution relevant to commercials actors and advisors and argue its relevance in managing contemporary business organizations
PSO2: Critically examine the general areas of contact and corporate law andregulation encountered by commercial in local and global settings
PSO3: Comment on the impact of political, economic and technological factorscontributing to Income Tax and Audit:
PSO4: Provide basic knowledge of Income Tax and Audit
PSO5: Introduction to the real or practical field of Income Tax andAudit
PSO6: Make a good Tax Consultant or an Auditor

Essentials of E-Commerce

PSO1: Analyzing the impact of e-commerce on business models and strategyPSO2: Recognize and discuss global E-commerce issues
PSO3: Assess electronic payment systems
PSO4: Growth in entrepreneurship skill of the students

B.Com I- Semester I:-

Course outcomes

Course: Principles of BusinessOrganization

On successful completion of this course students will be able to

CO1: Study the forms of business organization and understand the basic concepts and recent trends in commerce, Trade & business practices.Understand the functioning of trade associations and study the industrialization.

CO2: Explain the concept of e-commerce, online booking systems, online booking procedure of railways, airlines, tourist and religious places, hotels and entertainment industry, make students familiar with the mechanism of conducting business transactions through electronic media understand the methodology of online business dealings using e-commerce infrastructure.

CO3: Understand the co-operation to study the concept and principles of co- operation, study the various types of cooperatives in India.

CO4: Explain forms of ownership, including their advantages and disadvantages, identify and explain the domestic and international considerations for today's business environment: social, economic, legal, ethical, technological, competitive, and international and identify and explain the role and effect of government on business.

Course: Advanced Accountancy (ADV)

CO-1- Student would learn the Basics of Advanced Accountancy & record Accounting Transactions in Journal, Ledger Posting, Prepare Trial- Balance andRectify the Errors if any.

CO-2- Student would learn to keep various types of Subsidiary Books like Purchase Book,Sales Book etc. and maintain Various Types of Cash Book.

CO-3- Student would learn to prepare Final Accounts of Individuals.

CO-4. Student would Learn Various Methods of Depreciation and Solve Problems on-Straight line Method and Reducing Balance Method.

CO-5. Student would be able to prepare all types of Bank Reconciliation Statements.In and all Trying to bring out a good Accountant within themselves.

CO- 6. The student should be able to find out the profitability of the business, costefficiency.

Course: Computer Fundamentals and Operating System-I:-

CO-1- Understand basic concepts and terminology of information technology and havea basic understanding of personal computer.

CO-2- Acquire knowledge about generation of computers and types of computers and knowledge of hardware/software methods and tools.

CO-3- Know about different versions in windows operating system and understandtypes of operating system and booting process.

CO-4- Learn types of virus and how to protect the data from virus. Identify uses of spreadsheets in accounting application.

CO-5-Understand the applications of power point presentation and types of slides.

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Course: Principles of Business Economics

CO1:Describe and explain how micro economics models can be used to consider fundamental economics choices of households and firms.
CO2: Describe and explain how macroeconomics models can be used to analyses theeconomy as a whole.
CO3: Describe and explain how Government policy influences microeconomicsoutcomes.
CO4: Interpret and use economic models diagrams and tables, use them to analyseseconomic situation.
CO5: Be able to evaluate the effects of Law of Demand, Law of VariableProportion.

B. ComI Semester II

Course: Computer Fundamentals and Operating System

CO-1- Operating System Basics: Introduction, Main Functions, Structure, Types. Concepts of Popular Operating Systems: MS DOS, WINDOWS, UNIX, LINUX, MACINTOSH. Window 7: Introduction, Features, Types and Elements of Windows.
CO-2- Operating System [Advance]: Program and Features: Installing and uninstalling various programs, accessories. Functions of OS- Management of CPU, File, I/O Device, Data, Security.
CO-3- Modern communications: FAX, Voice mail, E-Mail, Teleconferencing, Video conferencing,
File exchange; Bandwidth; Modem; Network Topologies, types and Architecture.
CO-4- Word Processing working with Table and Graphics: [MS-WORD 2007] Procedure and Application of Mail Merge.
CO-5- PowerPoint Presentation: Working with MS-PowerPoint 2007: Concept ofPresentation, MS-PowerPoint Screen.

Course: Principles of BusinessManagement

CO1: Discuss and communicate the management evolution and how it will affect future managers, Observe and evaluate the influence of historical forces on the current practice of management and Identify strengths, weaknesses, opportunities, and threats of information technology for businesses.
CO2: Practice the process of management's four functions: planning, organizing, leading, and controlling, Identify and properly use vocabularies within the field of management to articulate one's own position on a specific management issue and communicate effectively with varied audiences.
CO3: Explain how organizations adapt to announce certain environment and identify techniques managers use to influence and control the internalenvironment.
CO4: Evaluate leadership styles to anticipate the consequences ofeach leadership style.
CO5: Gather and analyze both qualitative and quantitative information to isolate issues and formulate best control methods.

Course: Financial Accounting (FAC)

CO-1. Students would be able to prepare Accounts of Non-Trading Institutions.CO-2. Students would be able to prepare Accounts of Co-operative Societies.
CO-3. Students would be able to prepare Accounts of AgricultureFarms.
CO-4.Studentswouldbe able to prepare Accounts of Hire purchases and Installment purchase.
CO-5. Student would be able to understand Law`s of Insolvency and prepare accounts of Insolvency of Individuals.

Course: BusinessEconomics

CO1: Be familiar with introductory canonical models of consumer and macroeconomy. CO2: Have a basic understanding of the operation of a modern economy.
CO3: Be able to evaluate the effects of Government interventions in individualmarkets and in the macroeconomy.
CO4: Analyze operation of markets under varying competitivecondition. CO5: Analyze operation of factor pricing.

B.Com II Semester III

Course: Company Accounting

CO1:	This course shall enable the students to develop awareness and train themin Corporate Accounting in conformity with the Provisions of Indian Companies Act 1956 and Indian Accounting Standards.
CO2:	Explain the students basic nature of a joint stock company as a form of business organization and the various kinds of companies based on liability of theirmembers, the types of shares issued by a company, accounting treatment of shares issued at premium and at discount including oversubscription, forfeiture of shares and reissue of forfeited shares under varying situations, understand the meaning of debenture and explain the differencebetween debentures and shares. Describe various types of debentures;record the journal entries for the issue of debentures at par, at a discount and at premium;
CO3:	Student would learn to prepare Final Accounts of Companies, Valuation of Goodwill Super profit method and Capitalization method and Valuation of shares Intensive Value, Market Value and Fair Value.
CO4:	Student would learn to prepare Accounting for Liquidation of companies– Preparation of Liquidator's Final Statement of Account.Accounting for Amalgamation, Absorption and External Reconstruction of companies – Calculation of purchase consideration.
CO5:	Students will be able to explain the Concept of Fund, What is flow ofFund, Rules of Fund flow statement, Schedule of changes in working capital, Statement of sources and Application of Fund.

Course: Monitory System

CO1: Explain the evolution of money and its nature and functions of money, Explain how information about the future can reduce the uncertainty associatedwith future monetary value, and Explain the concept ― value of money‖

CO2: identify the principles behind the workings of the financial system, theIndian Banking System, the role of development banks in India. To study the law and practice of Banking System in India, study the recent trends in Indian Banking System

CO3: Assess the responses of the economy to both monetary and fiscal policy, Explain the basic purposes of the monetary and financial systems. Identify the marketsfor stocks, bonds, derivatives, and currencies.

Course: Auditing (AUD)

CO-1. Students would understand Basic Concepts of Auditing, Types of Audits, Audit Programme, Audit Books, Routine checking and Vouching.
CO-2. Students would understand the power and duties of Company Auditor &preparation of Audit Report.
CO-3. Student would understand the Special Audit of Banking, Insurance and Non-Profit Companies & Educational Institutes.
CO-4. Make students good auditors

Course: Information Technology and Business Data Processing

CO-1- Students would learn concept and use of data in computing. Concept and Advantages of Data Processing, Application of Data Processing in Business.
CO-2- Students will study database concept, objectives, need of database, database users. Data warehousing Concept, need and advantages of data. Data Mining Concept, Advantages and Applications of Data Mining,
CO-3- Students would understand Database management system concept, characteristics, objectives, advantages, limitations, components of DBMS, DBMS Models, architecture of DBMS.
CO-4- Students will try to learn Spreadsheet Package MS-Excel 2007 / Higher: Introduction, components of spreadsheet; windows spreadsheet basics: concepts, sheet Tabs: working in Worksheet.
CO-5- They will understand formulas, functions and chart in Excel: Introduction to formulas, functions and categories of functions. Working with common Excel functions: Chart in Excel: Introduction, types, creating and formatting, saving & printing.

Course: Busine ss Mathematics
CO-1- Student would be able to understand natural numbers, integers H.C.F.& L.C.M.on two or more integers. Linear equation in one and two variables method with application.
CO-2- Acquire knowledge to calculate Percentage, Discount, Commission andBrokerage.
CO-3- Calculate the Average, Profit and Loss.
CO-4- Learn Mathematics of Finance: Simple Interest, Compound Interest.
CO-5- Learn Ratio and Proportion: Ratio and percentage concept of proportion. Simple and Compound proportion, Direct and inverse proportion.

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B.Com II- Semester IV

Course : Indian Financial System

CO1: Demonstrate an understanding of the history, evolution, structure, operations and regulation of commercial banking, central banking and financial systems together with the design and conduct of monetary policy.
CO2: Outline the structure and functions of the Indian financial system.
CO3: Illustrate the functioning of financial market and government security market in the development of Indian financial system.
CO4: Evaluate the functioning of different financial institutions.

Course ; Income Tax

CO-1. Students would understand basic Concepts of Income Tax.
CO-2. Student would be able to compute Tax liability on various Heads of Income like Salary, House Property, Business and profession, Capital Gain & other sources.
CO-3. Student would be able to compute Tax liability on various Heads of Income, & understand Tax Management & Tax Administration. In and all to Make students good Tax Consultants

Course : Information Technology and Business Data Processing

Students will learn and understand

CO-1- Information Concept, Data v/s Information, Uses of Information within and outside the Organization. Information Technology: Introduction, Uses in Business and Various Fields.
CO-2- Computerized Accounting Package: Computerized Accounting: Concept, Advantages and Limitation, Manual Vs Computerized Accounting.
CO-3- Accounting Software Tally 9.0 / Higher: Introduction, Features, Company info,Menu, Gateway of Tally Menu, Button Bar, Status Bar, Calculator.
CO-4- Working in Tally Company Creation: Accounts only and Accounts with inventory. Groups and Ledgers: Concept, Creation, Display, Alternation & Deletion. Vouchers, Transaction.
CO-5- Reports and Advanced Features in Tally: Reports Display and Printing: Balance Sheet, Profit & Loss Account, Ratio Analysis, Stock Summary, Trial Balance, Day Book and Account Book Data Export & Import: ODBC .Indian Tax System

Course : Business Statistics

CO-1- Learn Statistics as a subject, Descriptive Statistics- Compared to inferentialStatistics, Types of data, Collection, Tabulation and presentation of statistical data.**CO-2-** Learn Index Numbers, Construction of Index Number.
CO-3- Learn Analysis of Universal Data : Construction of a frequency of distribution,concept of central tendency & their measures, Mean , Median, Mode.

CO-4- Learn Concept of Dispersion, Absolute and Relative measures of dispersionSkewness.
CO-5- Learn Co-efficient of correlation _Karl Pearson`s _formula. Calculation of Co-efficient of correlation in grouped and ungrouped data. Probable error.

Course: Corporate Accounting

CO1:	This course shall enable the students to develop awareness and train themin Corporate Accounting in conformity with the Provisions of Indian Companies Act 1956
CO2:	Students would Learn to prepare Banking Final Accounts &Insurance Company Final Account,
CO3:	Students would Learn to prepare Valuation of Goodwill Super profitmethod and Capitalization method and Valuation of shares IntensiveValue, Market Value and Fair Value.
CO4:	Students would Learn to prepare Valuation of Shares: Meaning of share, need, characteristics, method of valuation of Shares Problem on followingmethods. 1) Net Asset Method 2) Yield Method.
CO5:	Student would Learn to prepare Accounting for Liquidation of companies– Preparation of Liquidator's Final Statement of Account.

B.Com III- Semester V

Course : Business Environment (BEM)

CO-1. Students would be able to understand the concept, importance, nature, scope, components and current scenario of Indian Business Environment.
CO-2. Students would be able to understand role and characteristics of Agriculture inIndia, Agriculture marketing, APMC, NABARD, Current trends like Crop insurance scheme, Kisan credit card and MSP
CO-3. Students would be able to understand the Role and pattern of Industrialization, Small scale, cottage and micro industries, Industrial sickness, Industrial Policy, 2013
CO-4. Students would be able to understand Nature, Contribution, Scope and Coverage of Indian Service Sector, IT Services, Tourism and Hospitality Industry, Right to Disconnect.
CO-5. Students would be able to understand the importance of foreign trade, Balance of Trade and Balance of Payment, Foreign trade policy, FDI and FII

Course : Internet & World Wide Web-I (IWWW-I)

CO-1- Students would be able to understand the meaning of Network and Topologies, Types of Networks, Network Models,
CO-2- Students would be able to understand the Concept of Internet, Internet enabled services, Mechanism of Internet, Open System Interconnected Reference Model (OSIRM)

CO-3- Students would be able to understand the Electronic Mail, To create New e-mailID, Sign-in , sending and deleting e-mail, uses and features of G-Mail, Password and Captcha.
CO-4- Students would be able to understand the World Wide Web Consortium (W3C), Architecture of WWW, exploring the WWW, Meaning of Website, Portal, URL and Hyperlink.
CO-5- Students would be able to understand Designing of Website, Webpage, HTML,Versions of HTML, Explanation of structure of the home page, HTML Basic Tags.

Course: Cost Accounting:-

CO-1- Understand various costing systems and its accounting.
CO-2- Analyze and provide recommendations to improve the operations of organizations through the application of Cost accounting techniques
CO-3- Evaluate the costs and benefits of different conventional and contemporarycosting systems
CO-4- Differentiate methods of schedule costs as per unit of production.Differentiate methods of calculating stock consumption
CO-5- Identify the specifics of different costing methods. Analyze cost-volume-profit techniques to determine optimal managerial decisions. Apply cost accounting methods for both manufacturing and service industry.

Course: Business Regulatory Frame work

CO-1- Understand Indian Contract Act,1872. Essentials and Classification of Contracts. Proposal, Performance of Contract. Consequences and Remedies of Breach of Contract. **CO-2-** Understand Special Contacts:-Indemnity & Guarantee, Bailment and Pledge,Agency and Agent, Termination of Agency.
CO-3- Understand Sales of Goods Act, 1930 and Consumer Protection Act, 1986: Principles, Conditions and Warranties, Ownership, Consumer, Importance, Objectives of Consumer Protection Act.
CO-4- Understand Negotiable Instrument Act, 1881: Introduction, Characteristics, Promissory Note, Bill of Exchange, Cheque, Draft endorsements, Crossing of Cheque, Acceptance, Dishonour
CO-5- Understand Goods and Services Tax Act, 2016, CGST, SGST and IGST, Input Tax Credit, Rate of GST, .Basic Procedures, Powers of GST Officer, Offences, Penalties and Appeals.

Course: E-Commerce
Students will learn and understand

CO-1- Basics of e-commerce: meaning, essential components, four basic models/ concepts of ecommerce, operational scheme, benefits, limitations. E-commerce v/s traditional commerce.
CO-2- E-commerce in India: history of Internet, initiation of internet in India, growth of internet users, current scenario in India, FDI policy about e-commerce and future e-

commerce in India.
CO-3- Retail E-commerce: concepts of B2C, C2B and C2C, consumer's shopping procedure on internet, disintermediation and re-intermediation in B2C, E-auction procedure and benefits.
CO-4- B2B e-commerce: meaning and characteristics, key technologies, E- marketplace models of B2B- supplier oriented, buyer oriented and intermediary oriented marketplace.**CO-5-** e-Payment and e- Banking: Indian Payment Models, e-payments options: EFT, credit cards and debit cards, use of mobile applications for e-payment, meaning of e- banking, online banking services, benefits, future of online financial services in India

B.Com III- Semester VI

Course : Economics of Development(EOD):

CO-1- Students would be able to understand Concept and Indicators of Economic Development, Economic Underdevelopment, Economic Growth.
CO-2- Students would be able to understand Economic Growth Models like Harrod and Domer Model, Classical theories of development of Smith, Ricardo, Marx and Theory of capitalistic development.
CO-3- Students would be able to understand vicious circle of poverty, theory of circular causation, theory of unlimited supply of labor, Big Push Theory of Development.
CO-4- Student would be able to understand the concept of Balanced Growth and Unbalanced Growth, Duseanbari effect , Roddan approach, Nerk approach.
CO-5- Students would be able to understand concept of Development of human and financial capital.

Course : Internet & World Wide Web-II (IWWW-II)

CO-1- Students would be able to understand the concept of Web browsing and history,types, functions and features of web browser.
CO-2- Students would be able to understand Web Dictionary, Search Engines likeGoogle, Bing and Yahoo and guidelines for effective searching.
CO-3- Students would be able to understand Social Networking Websites like Facebook, Instagram and Twitter, Meaning and features of mobile applications likeBHIM, WhatsApp
CO-4- Student would be able to understand Google Drive, Google Classroom andGoogle Forms.
CO-5- Student would be able to understand MS Front page express, using it to createwebpage.

Course : Management Accounting

CO-1- Apply management accounting and its objectives in facilitating decision making. Apply and analyze different types of activity-based management tools through the preparation of estimates.
CO-2-Analyzecost-volume-profittechniquesto determine optimal managerial

decisions.
CO-3- Perform cost variance analysis and demonstrate the use of standard costs inflexible budgeting.
CO-4- Prepare analyses of various special decisions, using relevant managementtechniques. Calculate various accounting ratios, reports and relevant data. Prepare a master budgetand demonstrate an understanding of the relationship between the components.
CO-5-Prepare Cash Flow and Funds Flow statements, this helps in planning for intermediate and long-term finances.

Course : Company Law

CO-1- Understand definition, silent features of company, Act 2013. Formation of company, stages of formation, Functions, Duties and liabilities of promoter, Types of company.
CO-2- Understand Incorporation of company, Prospectus, MOA , Article of company**CO-3-** Share capital of company, Types of share and debenture, Issue of shares, Allotment, calls and forfeiture, transfer & transmission of share, share certificate and share warrant.
CO-4- Understand securities market, history of Stock Exchange, functions of BSE and NSE its importance. Primary and secondary market: components of primary markets, D-Mat Account
CO-5- Understand company secretary and company meetings : appointment, duties and responsibilities of CS, types of company meeting, notice , agenda and proceedings. voting methods, quorum.

Course : E-Commerce-II

CO-1- Understand Internet e-commerce Business Models: Social media, advertising, retail, hybrid, merchant, informational, drop-shipping and revenue model.
CO-2- Understand B2C Internet Marketing, meaning of online marketing, online marketing strategies, marketing channels, internet branding, online publishing and advertising.
CO-3- Understand B2B Online Marketing, Use of internet based electronic data interchange (EDI), procurement reengineering, just in time delivery, online marketing issues.
CO-4- Understand the Meaning of e-governance and e-government, Objectives of E-governance, private sector interface in E Governance, concepts of G2B, Business to Government B2G,C2G.
CO-5- Understand application of Internet EDI in E-governance, E-governance in India, E-Governance models.