Course Outcome

PHYSICS

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
PHY/ S1	B. Sc. I Sem I	Co1	Discuss the basic concepts of rotational dynamics.
		Co2	Examine the phenomenon of simple harmonic motion and distinction between undamped, damped and force oscillations and the concept of resonance.
		Co3	Explain the superposition of simple harmonic motion and acquire the knowledge of Ultrasonic waves, their production, detection and applications in different field.
		Co4	Determine the constants of elasticity and relate it with appropriate things
		Co5	Interpret the postulates of special theory of relativity.
		Co6	Know the concept of Global positioning system (GPS)
		Co7	Apply the principles of measurement and error analysis.
		Co7	Develop the skills to handle various instruments with precision.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
PHY-S2	B. Sc. I Sem II	Co1	Discuss the concept of scalars & vectors and their properties.
		Co2	Develop an understanding of Gauss law and its applications to obtain electric filed in different cases.
		Co3	Formulate the relationship between electric displacement vector, electric polarization and dielectric constant.
		Co4	Distinguish between the magnetic effect of electric current, electromagnetic induction and the related laws in appropriate circumstances.
		Co5	Simplify electrical circuits by applying various network theorems.
		Co6	Make use of Multimeter for the measurement of electrical parameters and get the knowledge of electronic components and their applications.
		Co7	Estimate the power consumption of domestic appliances and carry out energy audit.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
PHY-S3	B. Sc. II Sem III	Co1	Understand about gradient, vector and curl with different fields of Mathematical background of electrostatics.
		Co2	In Magnetostatics and Maxwell's Equations students will get the idea of magnetic field due to steady current and Amperes law.
		Co3	Student will understand the basics of the solid State Electronics Devices: Semiconductor and its study.
		Co4	Will know about the detailed idea of Solid State Electronics Devices which is used in electronic circuits.
		Co5	Students will get the detailed understanding different points of special theory of relativity
		Co6	Understand the different atmospheric processes, physical processes and geological structure of earth.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
PHY-S4	B. Sc. II Sem IV	Co1	Produce the ability of learning the laws of geometrical optics and interference phenomenon.
		Co2	To know the fundamentals of optics and different diffraction phenomenon.
		Co3	Understand the phenomenon of Polarization, interference and diffraction of light and its application.
		Co4	To know the detailed information about Construction, working and application of LASER.
		Co5	Produces the ability about Construction, working and application of Fiber optics.
		Co6	Different renewable energy sources and its properties, working principle.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
PHY-S5	B. Sc. III Sem V	Co1	To know Origin of Quantum Mechanics
		Co2	To know the Schrodinger equation and its applications
		Co3	To know atomic and Molecular Spectroscopy and effects.
		Co4	To know nuclear physics: counters for the detection of charged particles.
		Co5	To know Hybrid parameters: Amplifiers and electric circuits.
		Co6	To study of the Feedbacks in amplifiers and Multivibrators

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
PHY-S6	B. Sc. III Sem VI	Co1	Students will understand the laws and concepts of Statistical Mechanics.
		Co2	Students will get the idea about Bose – Einstein statistics and Fermi- Dirac distribution of particles.
		Co3	To study about the crystallography of solids in detailed manner.
		Co4	Students will know about the Electronic properties of Materials.
		Co5	Students will know about Magnetic properties of Materials deeply manner.
		Co6	Students will know about the phenomenon of superconductivity and nanotechnology.

CHEMISTRY

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
CHE	**B.Sc. I Sem-I Chemistry**	CO1	Solve the conceptual questions using the knowledge gained by studying periodicity in atomic radii, ionic radii, ionization energy and electron affinity of elements.
		CO2	Apply concepts of acids and bases as well as non-aqueous solvents and their industrial usage.
		CO3	Compare different reaction intermediates, functional group chemistry through the study of methods of preparation, properties and chemical reactions with underlying mechanism.
		CO4	Choose correct synthetic approach to prepare derivatives of industrially important molecules
		CO5	Solve different numerical problem of varying difficulty associated with gaseous and liquid state.
		CO6	Apply the concepts from advanced mathematics to solve the derivation of different chemical formulae.
		CO7	Synthesise different types of organic compounds. Perform the process of filtration, crystallization, melting point, waste management.
		CO8	Understand the effect of orientation effect of a group, Skilfully determine the surface tension, viscosity of liquid.
CHE	**B.Sc. I Sem-II Chemistry**	CO1	Apply the knowledge gained by studying types of bonding, solvation, hybridization and molecular geometries.
		CO2	Draw the correct molecular structures, bond order and bond length.
		CO3	Synthesize commercially important compounds of varying carbon backbone.
		CO4	Choose correct synthetic approach to prepare derivatives of industrially important molecules.
		CO5	Solve numerical problems related to crystalline state.
		CO6	Acquire skills to use chemical kinetics to develop mechanism of chemical reactions.
		CO7	Analyse the given organic compound qualitatively by different tests. Prepare the derivative of the provided substance.
		CO8	Illustrate the practical skills in volumetric analysis. Differentiate types of titrations e.g. acid-base, redox, etc.
		CO9	Comprehend the kinetics of reactions and interpret the experimental data. Calculate, communicate and analyse the result.

CHE	**B.Sc. II Sem-III Chemistry**	CO1	The student will give Knowledge about MOT, concept of bond order, MO structure of homo nuclear diatomic molecules of namely He_2, H_2, N_2 and O_2, stability sequence of species of O_2 i.e. O_2, O_2^+, $O2^{2+}$, $O2^-$,$O2^{-2}$, Paramagnetic nature of O_2, Metallic bonding , VSEPR Theory.
		CO2	Introduction to volumetric analysis, titrant, titrate, end point equivalence point, indicator. Definition of standard solution, molarity normality molality mole fraction. Acid base titrations redox titrations, gravimetric analysis
		CO3	Knowledge about preparation of acetaldehyde from ethanol, ethylidene chloride and acetylene. Preparation of benzaldehyde from benzene (Gattermann-Koch reaction). Preparation of acetone from isopropyl alcohol isopropylidne chloride and propyne. Preparation of carboxylic acids.
		CO4	Knowledge about optical isomerism, element of symmetry chirality asymetric carbon atom enantiomers diastereoisomers, RS nomenclature, geometrical isomerism, conformational isomerism.
		CO5	Knowledge about Gibb's and Helmholtz's free energy function physical significance of Gibb's free energy, change in free energy derivation of vant Hoff 's equation and its application, phase equilibrium.
		CO6	Knowledge about liquid state, surface tension, determination and its SI unit. Effect of temperature on surface tension, Drop number method, application of surface tension, viscosity, electrochemistry.
		CO7	In students, develop the skill of practical and overall performance of student's life.
CHE	**B.Sc. II Sem-IV Chemistry**	CO1	Definition and classification of transition metal, general characteristics of d-block elements, extraction of elements.
		CO2	Knowledge about , inner transition elements, definition comparative study of lanthanides elements, effect on lanthanide, effect on post lanthanides, actinides, comparative study of actinides, application of lanthanides and actinides, general principles of metallurgy.
		CO3	Knowledge about polynuclar, naphthalene, reactive methylene compounds, carbohydrates.
		CO4	Knowledge about aromatic nitro compounds, nitration, nitrating agents, amino compounds, diagonium salt, amino acids and proteins.
		CO5	Knowledge about colligative properties of dilute solutions, importance of colligative properties, elevation of boiling point of ebullioscopy, depression of freezing point of cryoscopy .
		CO6	Knowledge about crystalline state or crystal, Amorphous solid, crystallography, law of crystallography, Bravais lattices and crystal systems, Number of constituent unit in the cubic unit cell, Bragg's equation and experimental methods.

		CO7	In students, develop the skill of practical and overall performance of student's life.
CHE	**B.Sc. III Sem-V Chemistry**	CO1	To understand the coordination compounds on the basis of various theories and on the basis of electronic structure and magnetic properties.
		CO2	To understand colour of coordination compounds on the basis of CFT and their applications in qualitative analysis.
		CO3	To understand concept of heterocyclic compound and design new mode of synthesis. To study the role of organometallic compound in organic synthesis.
		CO4	Know method of synthesis & their application of Dyes, Drugs and Pesticides in industry purpose.
		CO5	To study concept of photochemistry and apply this knowledge in research field.
		CO6	To understand the molecular spectroscopy concept to identify the structure of newly synthesize molecule.
		CO7	This course enables the students to acquire knowledge on synthesis of coordination compound.
		CO8	To understand the conductometric and potentiometric titration for acidic & basic substances, Colligative properties are useful to determine molar mass of unknown compound.
Course Code	**Name of the course**	**Cos**	**On successful completion of this course, the students would be able to**
CHE	**B.Sc. III Sem-VI Chemistry**	CO1	To understand concept of kinetic aspects of metal complexes, use of spectrophotometry, colorimetry, and paper chromatography technique in analytical chemistry.
		CO2	This course deals with organometallic chemistry, inorganic polymer and bioinorganic chemistry which help students to understand the role of coordination compounds in polymer chemistry and biological process.
		CO3	To understand electronic transition in electronic spectroscopy and use of IR spectroscopy for functional group determination.
		CO4	To understand the structure elucidation of organic compound using NMR and Mass spectroscopy.
		CO5	Quantum mechanics is very important branch of physical chemistry. Students utilized their knowledge to study the shapes of orbital and to find out probability and probability density.
		CO6	Students learn various concept in electrochemistry and nuclear chemistry and apply this knowledge in research field.
		CO7	To quantitatively separate organic compounds (Glycine, Phenol, Aniline, Urea from unknown sample) and to separate and identify the organic compounds using chromatographic techniques
		CO8	Explain the principle behind the physical chemistry experiments performed in the laboratory and interpret experimental results.

ZOOLOGY

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
B.Sc.	B.Sc. SEM I Zoology	CO 1	Develop a deeper sense with respect to phylum Protozoa to Echinodermata relation to taxonomy, classification, body organization and general characteristics this strengthens students' capability in basic zoology.
		CO 2	Grasp various the Systematic positions from Protozoa to Echinodermata their pathogenicity and its epidemiology
		CO 3	Describe unique characters and recognize life functions of Protozoa, Porifera, Coelenterate, Helminthes, Arthropoda, Annelida, Mollusca and Echinodermata.
		CO 4	Improve ability and apply Knowledge of Non-chordates for its execution in Agriculture especially with the phylum Arthropoda.
		CO 5	Implement an extensive idea about economic and ecological significance of various non-chordates phylum's in human life.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
	B.Sc. SEM II Zoology	CO1	Know what the chordates are
		CO2	Learn about the different phylum of chordates.
		CO3	Confidently explain the general characters and classification of Protochordates upto class Mammalia.
		CO5	Explain the origin and evolutionary relationship in different subphylums of chordates.
		CO6	Describe specific features of Protochordates upto class Mammalia.
		CO7	Recognize and differentiate life functions of Protochordates upto class Mammalia.
		CO8	Understand Migration in fishes and birds , parental care in Amphibians and Poisonous and non-poisonous snakes.
		CO9	Explain the adaptations in Birds and Mammals.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
B. Sc.	B.Sc. SEM III Zoology	CO1	Protochordates Amphioxus, Digestive system and feeding, Excretory organs, gonads- Affinities of Amphioxus..
		CO2	Affinities of Agnatha alimentary canal and digestive glands, Respiratory organ and mechanism of respiration, Circulatory System Structure and working of Heart, major arteries and veins, Lateral line receptors, Migration in fishes Types, causes and significance.
		CO3	Amphibia external, characters. Respiratory organsCirculatory system; Structure of Heart, major arteries and veins, urinogenital system.. Parental care in amphibia.
		CO4	Class Reptilia- Calotes versicolor- circulatory systemStructure of Heart, major arteries and veins. Urinogenital system, snake venom and anti-venom,
		CO5	Class Aves -Respiratory system, urinogenital system. Flight adaptations, Migration in birds. Primitive mammals: salient features of Prototheria and Metatheria, Morphology of mammalian endocrine glands. Aquatic mammals.
		CO6	Describe Evolution, Direct and indirect evidences of evolution, Darwinism, Lamarkism and modern concept of organic evolution. Study of Adaptive radiations in mammals and Evolution of man

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
B.Sc.	B.Sc. SEM IV Zoology	CO1	Concept Interaction of genes. Mendel`s laws of hereditary–Monohybrid Laws of dominance, law of segregation. Dihybrid cross–Law of independent assortment. Types of linkage, linkage group, arrangement of linked genes, and significance of linkage.
		CO2	Mitotic and meiotic, Mechanism, Types, theories, Significance, Factors affecting crossing over–Darlington's theory, breakage and exchange theory, and copy choice theory. Single, double and multiple crossing over.
		CO3	Multiple alleles. Multiple alleles in relation to eye color in Drosophila. Blood group in man, Erythroblastosis foetalis.
			CO4 Sex determination, Chromosomal Theory in animals, Autosomes and sex chromosomes, Sex determination. Genic Balance Theory. Environmentally and hormonally controlled sex determination.

		CO5	Genetic disorders, Sex linked genetic disorders and their inheritance in man. Haemophilia and color blindness. Ecology: concept and scope, Abiotic, Biotic factors. Ecosystem: Terrestrial, Aquatic, Fresh water.
		CO6	Genetic Screening, Gene probe and DNA analysis. Genes in Human Heredity - Inheritance of eye, Skin color. Recessive genes and consanguineous marriages Genetic counselling, Birth control measures (male and female).Kinds of twins, Significance of twins study.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
B.Sc.	B.Sc. SEM V Zoology	CO1	Structure of Respiratory Organs: Gills, Lungs. Transport, Exchange of Gases. Neurophysiologic Control of Respiration. Circulation: Blood-Coagulation factors, Blood Group, Rh - factor.
		CO2	Muscle Physiology: Types, E.M. Structure, Chemical Composition. Muscle Contraction.
		CO3	Nerve Physiology: Neuron E. M. Structure and Types. Conduction of Nerve Impulse, Resting, Action Potential, Neurotransmitters, Synapse and Synaptic Transmission. Chemical Co-ordination: Endocrine System, Hormone and their Physiological Role. Hormonal Disorders.
		CO4	Reproductive Physiology: Estrous and Menstrual Cycle, hormonal control of reproduction in male and female. Structure and physiology of Mammalian Placenta. Homeostasis and Conservative regulation.
		CO5	Agricultural Zoology: Economic Importance of Insects. Beneficial Insects. Harmful Insects.
		CO6	Aquaculture: Scope, Importance and present status in India. Fresh water fish culture. Fish Products and byproducts

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
	B.Sc. SEM VI Zoology	CO1	Explain Genetic Material (DNA And RNA).Experiments to prove DNA as genetic material, Types of DNA and RNA.
		CO2	DNA Replication, Concept of Genes. Genetic Diseases.
		CO3	Genetic Code, Protein Synthesis and Gene Regulation.

		CO4	Mutation: Types, Theory, Molecular Basics of Mutation. Blotting Techniques, PCR. DNA fingerprinting.
		CO5	Biotechnology: Genetic Engineering, Recombinant DNA Technology. Gene Cloning.
		CO6	Immunology: Types, Immunological Techniques.

BOTANY

CLASS	COURSE	COs	OUTCOME (STUDENTS WILL BE ABLE TO……)
B. Sc. I, 1S	**Diversity Of Microbes , Phycology, Mycology and Phytopathology**	CO 1	Understand microbial diversity, reproduction and economic importance.
		CO 2	Differentiate the microbes, algae and fungi on the basis of morphology, cellular organization, nutrition and metabolic activities.
		CO 3	Classify and identify the various algal genera.
		CO 4	Classify and identify the various fungal genera.
		CO 5	Systematize the plant diseases and their pathogens
		CO 6	Apply understanding of microbial diversity, phycology and mycology for teaching primary to high school students

CLASS	COURSE	COs	OUTCOME (STUDENTS WILL BE ABLE TO……)
B. Sc. **I, 2S**	**Bryophytes, Pteridophytes, Gymnosperms And Morphology Of Angiosperms**	CO 1	Demonstrate on understanding of Archegoniate, Bryophytes, Pteridophytes and Gymnosperms.
		CO 2	Identify and classify plants from Bryophytes, Pteridophytes and Gymnosperms.
		CO 3	Develop critical thinking on morphology, anatomy and reproduction of Bryophytes, Pteridophytes and Gymnosperms.
		CO 4	Acquire skill of collection and preservation of Bryophytes, Pteridophytes and Gymnosperms

CLASS	COURSE	COs	OUTCOME (STUDENTS WILL BE ABLE TO……)
B. Sc. II, 3S	**Angiosperm Systematics, Anatomy And Embryology**	CO 1	Concept and types of biodiversity and biodiversity conservation.
		CO 2	Origin, nomenclature and classification of Angiospermic plants
		CO 3	Systematic study of some selected plant groups and their economic importance.
		CO 4	Tissue types in plants, characteristic features of different plant parts in different plant groups. Primary and secondary growth in plants.
		CO 5	Microsporogenesis, megasporogenesis, fertilization, types of embryo & endosperms.

CLASS	COURSE	COs	OUTCOME (STUDENTS WILL BE ABLE TO……)
B. Sc. II, 4S	**Cell Biology, Genetics And Biochemistry**	CO 1	Cell concept and structural and functional details of different cell organelles.
		CO 2	Chromosomal morphology, types, structural and numerical aberrations, Mendelism and interaction of genes.
		CO 3	Concept of linkage & crossing over, gene mutations and extra nuclear genomes
		CO 4	Concept, nomenclature and characteristics of enzymes and structure and functions of carbohydrates.

CLASS	COURSE	COs	OUTCOME (STUDENTS WILL BE ABLE TO……)
B. Sc. III, 5**S**	**Plant Physiology And Ecology**	CO 1	Properties, importance of water, absorption and transport of water, transpiration and mineral uptake.
		CO 2	Details of photosynthesis and respiration.
		CO 3	Nitrogen metabolism, growth, senescence and abscission.
		CO 4	Photoperiodism, vernalization and plant movements.
		CO 5	Concept of environment, ecological factors, atmosphere, soil formation, soil biota and ecological adaptations in hydrophytes and xerophytes.

CLASS	COURSE	COs	OUTCOME (STUDENTS WILL BE ABLE TO……)
B. Sc. III, 6S	**Molecular Biology And Biotechnology**	CO 1	Historical account of DNA as genetic material, Structure & properties of DNA, DNA replication, DNA packaging and repetitive, satellite DNA and transposons.
		CO 2	Concept of Gene, gene expression and endomembrane system.
		CO 3	Gene regulation in prokaryotes & eukaryotes, protein structure & folding mechanism, protein sorting and targeting.
		CO 4	Tools and techniques of r-DNA technology, Restriction enzymes, Gene cloning methods and gene amplification.
		CO 5	Basics of plant tissue culture and tissue culture techniques.
		CO 6	Applications of biotechnology in agriculture, medicine and industry.

MATHEMATICS

Course Code	Name of the Course	COs	On successful completion of this course, the students would be able to
DSC-I	B.Sc. I SEM I MATH Paper I : Algebra and Trigonometry	CO1	Find inverse and normal form of matrices.
		CO2	Evaluate the characteristic equation, Eigen value and corresponding Eigen vector of a given matrix
		CO3	Evaluate relation between the roots and coefficients of equations.
		CO4	To study application of De Moivre's theorem.
		CO5	Compute summation of trigonometric series.
DSC-II	B.Sc. I SEM I MATH Paper II: Differential and integral Calculus	CO1	Define limit and study the basic properties.
		CO2	Classify continuity and discontinuity of the functions.
		CO3	Solve the differentiability and L'Hospital rule with their applications.
		CO4	Describe the geometrical applications of mean value theorems.
		CO5	Evaluate the reduction formulae for integration.
DSC-III	B.Sc. I SEM II MATH Paper III: Ordinary Differential Equations	CO1	Solve first order differential equations using different techniques.
		CO2	Solve higher order differential equations and orthogonal trajectories.
		CO3	Calculate complementary function and particular integral of the second order differentialEquation.
		CO4	Describe the different methods to solve second order differential equations.
		CO5	Illustrate applications of differential equations.
DSC – IV	B.Sc. I SEM II MATH Paper IV: Vector Analysis and Geometry	CO1	Interpret the vectors, their products, differentiation and integration.
		CO2	Determine curvature and torsion.
		CO3	Apply the concepts of divergence, curls which are useful in physics.
		CO4	Describe the different forms of sphere and properties.
		CO5	Discuss the equations of cone and cylinder
GIC	B.Sc. I SEM II : Numerical Ability-I	CO1	Restate the ideas and concept of HCF & LCM of number and also find square root &cube roots.
		CO2	Illustrate the problem on numbers, ages, percentage, and profit and loss.
		CO3	Analyze ratio and proportion, time, work and distance.
		CO4	Outline the problems on train, simple interest, compound interest, area measurement.

		CO5	Create the Bar graphs, Pie charts and Line graphs
	B.Sc. II SEM III MATH Paper V: Advanced Calculus	CO1	Students learn about sequence and their convergence using different test
		CO2	They have the knowledge of calculating the sum of infinite number of terms
		CO3	Students know that how to work on functions of two or more variables.
		CO4	Students aware about the application of extremum value problem to solve industrial, society problems.
		CO5	To solve the double and triple integrations.
	B.Sc. II SEM III MATH Paper VI: Elementary Number Theory	CO1	Students learn about divisibility, prime numbers, congruence, quadratic reciprocity, Diophantine.
		CO2	Learn methods and techniques used in number theory.
		CO3	Write programs / functions to compute number theoretic functions.
		CO4	Use mathematical induction and other types of proof writing techniques.
		CO5	Students are able to effectively communicate mathematics.
	B.Sc. II SEM IV MATH Paper VII: Modern Algebra: Group and rings	CO1	Have knowledge of algebraic structures groups, rings.
		CO2	Know definition of homomorphism, isomorphism, and natural homomorphism.
		CO3	Algebra of ideals, prime ideal, principal ideal, and quotient rings.
		CO4	Knowledge of ring, integral domain, field.
		CO5	Extend group structure to finite permutation group.
	B.Sc. II SEM IV MATH Paper VIII: Classical Mechanics	CO1	CO1 Knowledge of degree of freedom generalized coordinates and constraints.
		CO2	CO2 Knowledge of solving the problems of motion of a system of particles.
		CO3	CO3 Kepler's problem to know the universe.
		CO4	CO4 Variation techniques for extremum.
		CO5	CO5 Different principles to study motion of particles.
		CO6	CO6 To study motion of a rigid body.
	B.Sc. III SEM V MATH. Paper IX: Mathematical Analysis	CO1	To solve examples of improper integral.
		CO2	Students will be introduced to the concept of continuity of complex functions
		CO3	Students will have a working knowledge of differentiability for complex functions and be familiar with the Cauchy - Riemann equations.

		CO4	Students will be introduced to metric spaces, cauchy sequences.
		CO5	Understand purpose and functions of the gamma and beta functions.
	B.Sc. III SEM V MATH Paper X: Mathematical Methods	CO1	Students will have full knowledge of Legendre's equation.
		CO2	The students are expected to learn Bessel's equation, generating function for Jn (x), Sturm Lowville boundary value problem.
		CO3	Understand Fourier series.
		CO4	Apply Laplace transform to solve ordinary and partial differential equation.
		CO5	To understand Fourier transform
	B.Sc. SEM VI MATH Paper XI: Linear Algebra	CO1	Identify and construct linear transformations of a matrix.
		CO2	Characterize linear transformations as onto, one-to-one.
		CO3	Solve linear systems represented as linear transforms.
		CO4	Express linear transforms in other forms, such as matrix equations, and vector equations.
		CO5	Characterize a set of vectors and linear systems using the concept of linear independence
	B.Sc. SEM VI MATH Paper XII: Special Theory of	CO1	To understand the concept of space and time in Minkoskian geometry and be able to calculate metric coefficient.
		CO2	Introduced to the concept of time dialation and length contraction.
		CO3	To understand the concept of the velocity and acceleration of particle.
		CO4	Knowledge of covariant and contravariant vector.
		CO5	To calculate Fij

M.Sc.: CHEMISTRY

Course Code	Name of the Course	Cos	On successful completion of this course, the students would be able to
CY101	M.Sc. I (Sem-I) Inorganic Chemistry	CO1	Predict the nature of bond and its properties through various electronic structural methods; bondingmodels.
		CO2	Recognize and assign symmetry characteristics to molecules and objects.
		CO3	Understand and analyze structure-property correlation of coordination compound.
		CO4	Correlate magnetic properties of complexes with strength of ligand field
		CO5	design new coordination compounds based on a fundamental understanding of their electronicproperties
		CO6	appreciate specialized and advanced topics in inorganic and coordination chemistry
CY102	M.Sc I (Sem-I) Organic Chemistry	CO1	Implement rules of aromaticity to organic molecules
		CO2	Sketch organic molecules in different projection formula and assign its configuration.
		CO3	Apply their understanding about the organic reactions of industrial significance with respect to the chemo- selectivity, regioselectivity and enantioselectivity
		CO4	Analyze the product distribution and the stereochemistry of various organic products
		CO5	Evaluate the organic reactions based on the influence of the substituents on substrate molecule.
		CO6	Design organic reactions in order to achieve the required product(s).
CY103	Msc I (Sem-I) Physical Chemistry	CO1	Understand basic concepts and theories for quantum mechanics, surface chemistry, thermodynamics and electrochemistry
		CO2	Apply the concepts of quantum mechanics to solve higher order problems associated with shapes, size and energy of atomic entities.
		CO3	Develop the methodologies to identify and use colloidal substances and micelles.
		CO4	Implement and build theoretical and experimental processes using thermodynamics and electrochemical concepts
		CO5	Solve numerical problems associated with quantum mechanics, thermodynamics, and electrochemistry
CY104	Msc I (Sem-I)	CO1	Appraise specific analytical technique based on sample and target analyte

	Analytical Chemistry-I	CO2	Develop analytical ability and critical thinking in selection of statistics and their use in making interpretation meaningful and productive
		CO3	Understand the principles of chromatographic techniques.
		CO4	Correlate the use of indicator used in different types of titration.
		CO5	Explore electroanalytical techniques based on conductance and emf measurements.
CY201	M.Sc. I (Sem-II) Advanced Inorganic Chemistry	CO1	recollect the principles of electronic structure, bonding and reactivity of coordination complexes
		CO2	understand the concept of synthesis and stability of transition metal organometallic complexes
		CO3	develop the possible catalytic pathways leading to desired products
		CO4	apply the principles of transition metal coordination complexes in understanding functions of biological systems
		CO5	identify the medicinal applications of inorganic compounds
		CO6	unravel and interpret the photochemical properties of coordination complexes
CY202	M.Sc. I (Sem-II) Organic Chemistry	CO1	Predict the orientation and stereochemistry of the product of addition reaction
		CO2	Predict the orientation and stereochemistry of the product of elimination reaction
		CO3	Apply enolate chemistry to achieve molecular complexity
		CO4	Design organic reactions in order to achieve the required product(s).
		CO5	Formulate green chemistry synthesis to increase atom economy
CY203	M.Sc. I (Sem-II) Physical Chemistry	CO1	Understand basic and advanced level statistical thermodynamics, reaction kinetics, photochemistry and nuclear-chemistry
		CO2	Apply the concepts of statistical thermodynamics and reaction kinetics to solve complex problems.
		CO3	Demonstrate the ability to use chemical dynamics to solve problems associated with enzyme kinetics, fast reactions and complex reactions
		CO4	Implement and build theoretical models for reaction rates, thermodynamics and nuclear phenomena
		CO5	Solve numerical problems associated with statistical thermodynamics, reaction kinetics, photochemistry and nuclear chemistry

Cy204	MSc II (Sem-II) Analytical Chemistry	CO1	Select most suitable modern chromatographic technique for separation of analyte from matrix.
		CO2	Explain various types of columns and detectors used in chromatography
		CO3	Determine pKa value of indicator using potentiometry
		CO4	Summarize principles and applications of molecular absorption and molecular emission spectroscopy
		CO5	Design experiments based on spectrophotometry and polarographic analysis
Course Code	Name of the Course	Cos	On successful completion of this course, the students would be able to
2121	MSc II (Sem-III) Spectroscopy-I	CO1	Introduction and detail study of important spectroscopic techniques such as UV and visible spectroscopy, IR, Mass and NMR spectroscopy.
		CO2	From UV and visible spectroscopy, students are able to identify conjugations in organic compounds & IR spectroscopy enables the students to identify various functional groups present in a molecule
		CO3	Fragmentation pattern of organic compounds using Mass spectroscopy helps the students to solve the structure of simple molecules.
		CO4	^{1}HNMR & ^{13}CNMR helps the students to identify number of hydrogen and carbon atoms and their connectivity
		CO5	Combining data of all above techniques helps the students to solve the structure of unknown compound
2122	MSc II (Sem-III) Analytical Chemistry (Thermal & Electroanalytical Chemistry)	CO1	To introduce instrumentation of various techniques
		CO2	To know the various analysis methods
		CO3	Separation of single/binary/ternary systems quantitative analysis
		CO4	Discovery of new chemical compounds
		CO5	To know different chemical reactions & Different titration methods for analysis
2125	MSc II (Sem-III) Organic Chemistry	CO1	Students get exposed to oxidation/reduction reactions and different types of oxidizing and reducing agents.
		CO2	Students get familiar with the synthesis and reactivity of polynuclear hydrocarbons, preparation of different ring system and non-aromatic compounds

	(Organic Synthesis -I)	CO3	Constructions of carbon-carbon bonds using name reactions are discussed
		CO4	Several important name reactions useful for various organic transformations are discussed with mechanism
		CO5	Students are able to understand the mechanisms of important name reactions
2126	MSc II (Sem-III) Organic Chemistry (Natural Product -I)	CO1	This paper helps the students to gain knowledge about the important organic compounds present in nature
		CO2	Detailed study of carbohydrates and lipids
		CO3	Classification, chemical properties, isolation, synthesis and structure determination of alkaloids and terpenoids
		CO4	Occurrence, nomenclature, synthesis and structure determination of steroids and hormones
		CO5	Classification, occurrence and chemistry of vitamins and natural pigments are discussed
2141	MSc II (Sem-IV) Spectroscopy-II	CO1	Students would be able to understand various spectroscopic techniques
		CO2	Principles of various spectroscopic techniques such as Raman, Photoelectron, X-ray, Electron diffraction, Neutron diffraction, Electron spin resonance and Mossbauer spectroscopy can help the students for understanding the subject well.
		CO3	Applications of the above spectroscopic techniques can help the students to implement them in industries
		CO4	Fragmentation pattern of organic compounds using Mass spectroscopy helps the students to solve the structure of simple molecules.
		CO5	Implementation of various spectroscopic methods like UV and visible spectroscopy, IR, Mass and NMR spectroscopy for structure elucidation of organic compounds & the students would be able to solve the structures of simple organic molecules
2142	MSc II (Sem-IV) General Analytical Chemistry	CO1	Students would be able to understand different instrumental techniques used in chemistry
		CO2	Students get information how to analyze and measure trace quantities of organic and inorganic components from a given complex mixture
		CO3	Students can determine composition of moisture, fats, carbohydrates, vitamins, anti-oxidants, toxins, preservatives, etc in food samples

		CO4	Topic on food analysis helps the students to get jobs in food industries
		CO5	Students get knowledge on fuel analysis and also how poisonous material such as lead, mercury, arsenic can be estimated in biological samples
2145	MSc II (Sem-III) Organic Chemistry (Organic Synthesis -II)	CO1	Students get exposed to different type of reagents used in various name reactions
		CO2	Applications of organometallics in organic synthesis help the students to understand various carbon-carbon bond forming reactions
		CO3	Students get familiar with important heterocyclic structures, their reactivity and chemistry involved
		CO4	The topic on retro synthesis helps the students to design the synthetic pathway of important organic molecules
		CO5	Protection and deprotection techniques are important for designing the synthesis of organic compounds
2146	MSc II (Sem-III) Organic Chemistry (Natural Product -II)	CO1	Students get information about various aspects of drugs, general terminology related to medicinal chemistry
		CO2	Students can understand important types of biological targets and their interactions with drugs
		CO3	Detailed procedures involved in drug discovery program especially designing of drugs can be understood
		CO4	Students get exposed to the synthesis of important biologically active compounds available in the market
		CO5	Apart from drugs, students get information on synthesis and application of other organic products such as polymers, dyes and agrochemicals

M. Sc. ZOOLOGY

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
	M.Sc. SEM -I 1ZOO1	CO1	Find out the taxonomic characters of the different animals and apply for forming the zoological names of the animals in biosystematics.
		CO2	Classify invertebrates by using different methods and can develop different cladogram and pyelogram
		CO3	Compare different systems in all phyla of Nonchordates and compare it with evolutionary significance of it. They know about the transition occurred with time scale. They can explain digestive, respiratory, circulatory, excretory, and reproductive and nervous system from Protozoa to Hemichordata.
		CO4	find out distinguished mechanism of the different system function and the change in their mode of function if any throughout the invertebrate series
		CO5	Identify various larval forms of invertebrates like of Porifera, coelenterate, helminthes, Annelida and Crustacea
	M.Sc. SEM -I 1ZOO2	CO1	Describe different types of taxonomic characters and rules and operative principles of International Code of Zoological Nomenclature and designate zoological names.
		CO2	Distinguish the endoskeletal system of Protochordates and Chordates and replacement of the cartilaginous structure by bones.
		CO3	Study different systems throughout the vertebrate series as per their adaptations in different habitat and their successive modifications.
		CO4	Explain structure and functioning of sense organs of mammals.
		CO5	Learn migration avenues of Fishes and Birds, their types, benefits, routes, threats etc.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
	M.Sc. SEM -I 1ZOO3	CO1	Study spermatogenesis and oogenesis in eukaryotes.
		CO2	Determine different events and their mechanisms during fertilization and its consequent changes

		CO3	Learn assisted reproduction techniques to overcome infertility.
		CO4	Understand Ex vivo and In vivo gene therapy etc
		CO5	Learn about contraception and methods
	M.Sc. SEM -I 1ZOO4	CO1	Describe cell specification and differentiation in whole vertebrate series.
		CO2	Study different body axis formation in Drosophila, Amphibia and Chick etc.
		CO3	Learn about Human Aging and Senescence and factors affecting it.
		CO4	Describe Biology of sex determination.
		CO5	Study stem cells, their properties, types markers and disorders etc
Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
	M.Sc. SEM -I 1ZOO5	CO1	Understand comprehensive anatomy of different systems of animals with available resources like C.D./chart/ models/ Video 9 clippings/ PPT/ Preserved dissected specimens etc.
		CO2	Prepare permanent mountings of various material
		CO3	Collect photographs of the fauna of the local region or selected field
		CO4	Classify the specimen by the salient features they carry
		CO5	Compare the bones throughout the vertebrate series
	M.Sc. SEM -I 1ZOO6	CO1	Realize the importance of animal ethics in laboratories
		CO2	Compare the structural differences of the reproductive organs of male and female animals.
		CO3	Analyze the events of oogenesis and spermatogenesis through histological preparations
		CO4	Distinguish between the developmental/metamorphic events in the life cycle of frog, Chick and Lymnea.
		CO5	Count the sperms and analyse semen for fructose contents

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
	M.Sc. Sem -Ii 2zoo1	CO1	Understand and Compare Biomembranes and extracellular matrix.
		CO2	Compare various type cell surface and intracellular receptors cells
		CO3	Analyse types of Cell Signalling pathways and Cell cycle control.
		CO4	Describe cytoskeleton in the form of microfilaments and microtubules.
		CO5	Determine secretory pathways in eukaryotic
	M.Sc. Sem -Ii 2zoo2	CO1	Apply principles and uses of techniques in Biology.
		CO2	2. Find principles and applications of advanced microscopes and compare their uses.
		CO3	Adopt different microbiological techniques.
		CO4	Know cryotechniques and cryopreservation of cells, tissues and organisms.
		CO5	Study Radioisotope and mass isotope techniques in biology.
	M.Sc. Sem -Ii 2zoo3	CO1	Study histology and histophysiology of different endocrine glands.
		CO2	Study classification of hormones and their actions at cellular as well as genetic level
		CO3	Study regulation of the processes in organism by hormones..
		CO4	Describe synthesis, transport and metabolism of steroid and nonsteroid hormones.
		CO5	Study hormones of different endocrine glands and relative diseases.
		CO6	Study hormone replacement therapy and neuroendocrine mechanisms in different animal
	M.Sc. Sem -Ii 2zoo4	CO1	Study environment and their biotic and abiotic interactions.
		CO2	Describe population ecology in terms of diversity indices along with growth curves, demes and dispersal. 18
		CO3	Study community ecology, ecological succession, ecosystems.
		CO4	Describe environmental pollution and effects on nature, global warming global dimming.
		CO5	Study conservation biology through sanctuaries, National parks, Project Tiger and Biosphere reserves.

		CO6	Study toxicological effects of pesticides and remedial aspects of it.
		CO7	Study Inter-Government Policy/Protocol for Climate change, Intellectual Property Rights and Environment Impact Assessment Processes.
	M.Sc. Sem -Ii 2zoo5	CO1	separate and determine molecular weights of protein by gel electrophoresis
		CO2	. CO2 Prepare histochemical demonstration of lysosomes by acid phosphatase activity
		CO3	Prepare histochemical demonstration of DNA by Fuelgen technique and DNA/RNA by MGPY Technique
		CO4	Prepare histochemical demonstration of carbohydrate by PAS reaction
		CO5	Separate Amino acid by Paper chromatography.
		CO6	Investigate bacterial growth and different microbial preparations
	M.Sc. Sem -Ii 2zoo6	CO1	Study human hormonal disorders
		CO2	Analyze parameters of different soil samples
		CO3	Analyze parameters of different water samples
		CO4	Calculate Diversity indices (Shannon, Simpson)
		CO5	Determine RQ
		CO6	Identify Freshwater Plankton from water samples
		CO7	Perform Qualitative analysis of Pollution indicators
	Sem III Paper IX Molecular Cytogenetics- I	CO 1	Mutation: Basic features, Adaptation versus mutation, Phenotypic Effects of mutation. Molecular basis of gene mutation.
		CO 2	Somatic Cell Genetics, Radiation hybrid panels and gene mapping, Epigenetics.
		CO 3	Genome Organization, Mobile DNA, Genetics of Cancer, Relationship of cell cycle to cancer, Tumor suppressor genes.
		CO 4	Human Cytogenetic, Numerical abnormalities of human chromosomes and related syndromes, Human metabolic disorders. Structural abnormalities of human chromosomes and related syndromes.
		CO 5	Mitochondrial DNA and human diseases, Genetic Counseling, Carrier detection, Fetal analysis (amniocentesis and chorionic villus sampling), Pedigree analysis.
		CO 6	Microbial genetics, Bacteriophages, Extra chromosomal inheritance.

	Paper – X Molecular Cytogenetics-II	CO7	Molecular Cytogenetic Techniques, DNA fingerprinting: DNA sequencing, Polymerase chain reaction (PCR), Fluorescence in situ hybridization (FISH).
		CO 8	Genome Analysis, Functional genomic. Population Genetics, Genetics of quantitative traits in populations.
		CO 9	Population Genetics, Genetics of quantitative traits in populations.
		CO10	Molecular Phylogenetic, Nucleic acid phylogeny, Protein phylogeny Mitochondrial DNA and evolution. Genetic code, Prokaryotic and eukaryotic translation
	Paper-XI (Elective Paper-I) Animal Physiology -I	CO1	CO11 Muscle Physiology, Ultra structure of skeletal muscle, Muscle proteins, Physical and Chemical Properties skeletal muscles. Channels.
		CO2	CO12 Ultra Structure of neuromuscular junction (motor end plate), Muscular disorders.
		CO3	CO13 Nerve Physiology, Ultra structure of neuron.
		CO4	CO14 Electrical properties of nerve, Action potential, Resting potential, Depolarization and Repolarization.
		CO5	CO15 Ultra structure of synapse, Types of neurotransmitters, Role of calcium, sodium and potassium
	Paper - Xii Elective Paper - Animal Physiology -Ii	CO6	CO16 Receptor Physiology & Pathways, Mechano receptors, Photo receptors, Thermo receptors, Chemo receptors, Electro receptors, Magneto receptors, Equilibrium receptors.
		CO7	CO17 Physiology of High altitude, Respiratory changes, Exercise at high altitude.
		CO8	CO18 Physiology of Exercise, Physiology of Excretion, Histophysiologies of excretion, Urine formation, Ultra filtration, Reabsorption, and Secretion.
		CO9	CO19 Structure and mechanism of action of Hypothermic hormones (TRH, GnRH). Role of kidney in pH regulation and water salt regulation.
		CO10	CO20 Foetal Physiology, Neonatal Physiology, Introduction to Sociophysiology, Honey and lac productions in insects Pheromones in insects and mammals, Physiology underlying fear and anxiety in animals and parental care in Primates.
	Practical	CO1	Simple muscle curve Effects of temperature and calcium, Estimation of serum creatinine, serum urea. Qualitative analysis of urea. Experiments on Blood
		CO2	Cardio dynamics; kymograph record of heart beat in site effects of Drugs on heart action, Study of estrus cycle using vaginal smear in female rat, Estimation of genomic DNA in fish, reptiles, birds and mammals.

		CO 3	Quantities estimation of calcium, phosphorus sodium and potassium, Separation and identification of amino acids by paper and thin layer, chromatography- ground and two dimensional chromatography.
	Semester Iv Paper - Xiii Biochemistry	CO 1	Explain Biomolecules pH, pK, acids, bases, buffers, and isomerization. Muscle proteins, Respiratory proteins.
		CO 2	Amino acids and Proteins Structure and chemistry of amino acids, Essential and non-essential amino acids Ornithine cycle, Protein structure , folding & Conjugated proteins
		CO 3	Nucleic Acids ,Structure of DNA, Triplex and quadruplex DNA, Structural polymorphism of DNA, Circular DNA and super coiling, Structure, types and functions of RNAs.
		CO 4	Carbohydrate metabolism, Glycolysis, regulation & energetics TCA cycle & regulation. Gluconeogenesis, Glycogenesis & glycogenosis.
		CO 5	Lipid Metabolism, Ketone bodies – Structure, biosynthesis and functions.
	Paper Xiv Enzymology And Biostatistics	CO 1	Structure, Classification, nomenclature & kinetics. Kinetics of single substrate and bisubstrate enzyme catalyzed reactions, cooperativity.
		CO 2	Enzyme: Categories & Functions. Enzymes involved in energy production, Enzymes involved in biodegradation.
		CO3	Enzyme: Functional diversity & applications. Coenzymes, mechanism of action, Enzymes involved in protein synthesis Enzymes involved in free radical formation, cell signaling, nucleic acid metabolism.
		CO4	Biostatistics, Diagrammatic representation of data (Line graph, Bar diagram, Pie diagram), Standard deviation, Standard error.
		CO5	Biostatistics, chi square test as a test for goodness of fit Analysis of variance (ANOVA),correlation analysis, correlation types and methods to study correlation, significance test of correlation coefficient Regression analysis, kinds of regression analysis (regression line, regression equations),Estimation of allele frequency (dominant and co-dominant cases),Examples on Hardy Weinberg equilibrium.
	Paper - Xv Animal Physiology – Iii	CO1	Physiology Nervous System, Functional compartmentalization of brain: a) Fore brain, b) Mid brain, c) Hind brain, Reflex arc and types of reflexes.
		CO2	Physiology of learning, Mimicry, Bioelectricity, Audio signals, Echolocation Organs and physiology.
		CO3	Homeostasis Physiology Water contents and distribution. Components of Homeostatic Control system. Reflexes, Local Homeostatic Responses.
		CO4	Adaptation and Acclimatization. Biological Rhythms, Balance in the Homeostasis of chemicals. Basic thermoregulatory mechanism in poikilotherms and Endotherms.

		CO5	Patterns of Nitrogen excretion among different animal Groups. Liver is important in the storage and Homeostasis of Iron. Factors destabilizing homeostasis mechanism fever, Diabetes mellitus and diarrhea. Homeostatic mechanism of minerals.
	Paper - Xvi Animal Physiology - Iv	CO6	Digestion, Absorption, Utilization of Protein, Carbohydrate and Lipid. Histophysiologies of gastric gland, Secretory Functions of the Alimentary Tract. Gastrointestinal Function
		CO7	Physiology of Respiration Anatomical and physiological organization of respiratory system. Mechanism of respiration breathing movements and the exchange of respiration, Respiratory gases at pulmonary surface. Transport of gases by blood. Oxygen dissociation curve, Co2 dissociation curve
		CO8	Physiology of Circulation Anaemia and polycythemia, platelets and Blood substitute. Regulation of heart beat and blood pressure Role in oxygen transport, their physiological significance, Transport of CO2. Origin and conduction of cardiac impulse.
		CO9	Anatomy and histology of mammalian heart .Structure & function of Myogenic and neurogenic heart .Cardiac output Cardiac cycle, sound Pace Maker system
		CO10	Blood pressure and its regulation, Factors that affects blood pressures. Electro cardiograph, and interpretations of ECG. Lymph- composition, Formation Functions of lymph ,Structure and functions of lymph node
	Animal Physiology - Iv Practical	CO1	Properties of saliva. Isolation and identification of rumen microorganisms. Estimation of rumen ammonia and blood urea under various physiological conditions. Normal and abnormal constituents of urine.
		CO2	Microscopic examination of urine. Preparation and examination of blood smear to study blood cells. Differential leucocytes count.
		CO3	Histochemical demonstration of Carbohydrates, Proteins, Lipids Nucleic acids, Acid and alkaline phosphatase. Qualitative analysis of urea, ketone bodies and salts.

M. Sc. Mathematics

Course Code	Name of the Course	COs	On successful completion of this course, the students would be able to
DSC-I	**M.Sc I (Sem-I): Real Analysis**	CO1	Restate the ideas and concept of Riemann – Stieltjes integral with some of its properties and apply the fundamental theorem of integration.
		CO2	Apply the Weierstrass M-test, Abel's and Dirichlet's tests for uniform convergence of sequences.
		CO3	Differentiate between uniqueness theorem for power series, Abel's limit theorem and Tauber's first theorem.
		CO4	Recognize the functions of several variables, linear transformation, partial and higher order derivatives in an open subset of R.
		CO5	Demonstrate the inverse function theorem, implicit function theorem and solve problems on maxima and minima of a function
DSC-II	**M.Sc. I (Sem-I): Advanced Abstract Algebra**	CO1	Recall the concepts of cosset and normal subgroup and to prove elementary propositions involving these concepts.
		CO2	Recognize different types of subgroups such as normal subgroups, cyclic subgroups and understand the structure and characteristics of these subgroups.
		CO3	Demonstrate the homomorphism, Sum and direct sum of ideals, maximal and prime ideals, nilpotent and nil ideals.
		CO4	Translate the transition of important concepts of homomorphism's and isomorphisms from discrete Mathematics to advanced abstract Mathematics.
		CO5	Interpret the Definition and examples of modules and Sub modules, quotient modules, completely reducible modules and free modules.
DSC-III	**M.Sc. I (Sem-I):Complex Analysis**	CO1	Identify Cauchy integral formula apply to find the value of function at inside point of the region.
		CO2	Express the function in series of positive and negative power of variable in a given region.
		CO3	Record the concept of singularities to find integral of complex valued function on some simple connected region and multi connected region.
		CO4	Apply the residue theorem to compute several kinds of real integrals.
		CO5	Recognize about everywhere differentiable function and they will learn how it helps them to decide analyticity of function

DSC-IV	**M.Sc. I (Sem-I): Topology – I**	CO1	Identify the cardinal and ordinal numbers and their role in building up the topology.
		CO2	Demonstrate the concepts such as topological spaces, open and closed sets, interior, closure and boundary.
		CO3	Categories some important concepts like continuity, compactness, connectedness, projection mapping etc and prove related theorems.
		CO4	Relates the basic concepts of countability axiom, separation axioms and convergence in topological spaces.
		CO5	Distinguish between the regular, normal and completely regular spaces.
DSE-V	**M.Sc. I (Sem-I): Advanced Discrete Mathematics-I (Optional)**	CO1	Design the graphs, paths, circuits, cycles and subgraphs.
		CO2	Determine Circuit, Fundamental Circuit, cut sets, fundamental cut sets of the graph.
		CO3	Illustrate chromatic number
		CO4	Describe introductory computability theory its techniques.
		CO5	Apply graph theory to grammars and languages.
DSE-V	**M.Sc. I (Sem-I): Differential Geometry (Optional)**	CO1	Discuss the local intrinsic properties of a surface, curves on a surface, surfaces of revolution.
		CO2	Design arguments in the geometric description of family of curves and surfaces in order to establish basic properties of geodesics.
		CO3	Apply Geodesics theorem and restate the Gaussian Curvature, Surface of constant curvature, conformal and Geodesic mappings.
		CO4	Recognize the tensor calculus, tensor product of vector spaces, transformation formulae, contraction special tensors, and inner product.
		CO5	Apply covariant differentiation, of tensors and use absolute derivation of tensorial forms and tensor connexion
DSC-I	**M.Sc. I (Sem-II): Measure And Integration Theory**	CO1	Analysis Lebesgue outer measure, regularity and Lebesgue measurability
		CO2	Explain integration and non-negative function, the general integral, Riemann and Lebesgue integrals
		CO3	Demonstrate the concepts of four derivatives, differentiation and integration
		CO4	Discuss the measure and outer measure
		CO5	Express completion of measure, measure spaces, Holder and Minkowski inequality
DSC-II		CO1	Recall the concepts of Eigen values, Eigen vectors and polynomials.

	M.Sc. I (Sem-II): Advanced Linear Algebra and Field Theory	CO2	Explain quadratic form, linear transformation, canonical and normal form.
		CO3	Describe the concepts of algebraic extension of fields.
		CO4	Discuss normal and separable extension of Group.
		CO5	Understand the concepts of Galois theory and its application.
DSC-III	**M.Sc. I (Sem-II): Integral Equations**	CO1	Understand the type of integral equations.
		CO2	Categorize Volterra integral equations of first and second kinds.
		CO3	Determine the solution of Fredholm integral equations of the second kinds.
		CO4	Define the concepts of iterated kernels and reciprocals kernels.
		CO5	Explain solution of Volterra integral equations of second kinds
DSC-IV	**M.Sc. I (Sem-II): Topology–II**	CO1	Categorize some important concepts of metric spaces.
		CO2	Restate the ideas and concepts of complete metric spaces.
		CO3	Interpret the definition and examples of product spaces.
		CO4	Express the function and quotient spaces.
		CO5	Discuss the metrization and paracompactness.
DSE-V	**M.Sc. I (Sem-II): Advanced Discrete Mathematics-II (Optional)**	CO1	Develop the logical tools among the students.
		CO2	Interpret the concepts of Semigroups and Monoids.
		CO3	Categorize the concepts of Lattice and sublattice.
		CO4	Apply the Boolean algebra to switching circuits
DSE-V	**M.Sc. I (Sem-II): Riemannian Geometry (Optional)**	CO1	Discuss the properties of Christoffel symbols, divergence, gradient and Laplacian.
		CO2	Demonstrate the concepts of parallel vector field.
		CO3	Interpret the concepts of curvature tensor.
		CO4	Categorize some concepts like Ricci tensor, curvature invariant and Einstein tensor.
		CO5	Summarize the concepts of Riemannian curvature , space of constant curvature, intrinsic symmetric and killing vectors
Paper-XI (301)	**M.Sc.-II (Sem-III):**	CO1	Appreciate how functional analysis uses and unifies ideas from vector spaces, the theory of metrics, and complex analysis.

	Functional Analysis-I	CO2	Understand and apply fundamental theorems from the theory of normed and Banach spaces, including the Hahn-Banach theorem, the open mapping theorem and the closed graph theorem.
		CO3	Appreciate the role of Inner product space.
		CO4	Understand and apply ideas from the theory of Hilbert spaces to other areas.
		CO5	Understand the fundamentals of spectral theory, and appreciate some of its power.
Paper-XII (302)	**M.Sc.-II (Sem-III): Advanced Mechanics**	CO1	Derived the Lagrange's equation and Hamilton principle.
		CO2	Understand the concept of Legendre's transformation and apply to derive the Hamilton's Equation.
		CO3	Understand the concept of canonical transformation and apply to derived Poisson's Identity.
		CO4	Demonstrate knowledge and understanding of Perturbation Theory.
Paper-XIII (303)	**M.Sc.-II (Sem-III): Operations Research**	CO1	Solve many financial decision making problems by using linear programming technique.
		CO2	Explain the graphical solution of linear programming problem by different method.
		CO3	Develop all skill and technique of problem solving.
		CO4	Acquire the knowledge and understanding of Queuing system.
		CO5	Define and illustrate Game and strategies.
Paper-XIV (304)	**M.Sc.-II (Sem-III): Fluid Dynamics –I (Optional)**	CO1	Develop appreciation properties of fluids.
		CO2	Derived Euler's equation, Bernoulli's equation and Discuss the case of steady motions under conservative body forces.
		CO3	Apply concepts of mass, momentum and energy conservation to flows,
		CO4	Prove Milne- Thomson Circle theorem and derived some application.
		CO5	Understand the concept of elements of thermodynamics and explain Entropy-Maxwell's Thermodynamics relation.
(305)	**M.Sc.-II (Sem-III) (305): General Relativity (Optional)**	CO1	Familiar with the fundamental principles of the general theory of relativity. They shall know the meaning of basic concepts like the equivalence principles, inertial frames and time dilation.
		CO2	Understand the concept of constant relative motion of different bodies in different frames of reference.
		CO3	Solve Einstein's field equations for static spherically symmetric problems and for isotropic and homogeneous cosmological models.

		CO4	Find out the Schwarzschild Exterior and Schwarzschild Interior solutions.
		CO5	Give a mathematical description of gravitational waves in context of Einstein's relativity.
(306)	**M.Sc.-II (Sem-III): Difference Equation-I (Optional)**	CO1	Invert z-transforms using partial fractions or residues where appropriate
		CO2	Solve constant coefficient linear difference equations using z-transforms
		CO3	Understand the key aspect in the inversion of the z-transform as well as demonstrating the use of partial fractions.
		CO4	Find out the solution of first order difference equation by successive calculation.
		CO5	Understand the concept of Asymptotic methods, apply into linear and nonlinear equation.
(307)	**M.Sc.-II (Sem-III) :(Advanced Complex Analysis (Optional)**	CO1	Explain Riemann mapping theorem and derived Weierstrass factorization theorem.
		CO2	Understand Gamma and Zeta functions, their properties and relationships.
		CO3	Understand the Harmonic functions on a disc and concerned results.
		CO4	Explain the relationship between Poisson-Jensen's formula and Derived Hadamard's factorization theorem.
		CO5	Acquire the knowledge of range of analytic function and derived theorems.
(308)	**M.Sc.-II (Sem-III): Banach Algebra-I (Optional)**	CO1	Understand and illustrate the concept of Banach algebra.
		CO2	Define Spectral radius and derived Spectral mapping theorems.
		CO3	Understand and illustrate C* - algebra.
		CO4	Described the C* - algebra and its properties.
Paper-XVI (401)	**M.Sc.-II (Sem-IV): Functional Analysis-II**	CO1	Define and illustrate the concept of reflexivity of Hilbert space.
		CO2	Understand the fundamentals of spectral theory, and appreciate some of its theorems.
		CO3	Understand the statement and proofs of important theorems and be able to explain the key steps in proofs, sometimes with variation.
		CO4	Define and illustrate the projection operators.
Paper-XVII (402)	**M.Sc.-II (Sem-III): Partial**	CO1	Find solutions of partial differential equations and determine the existence, uniqueness of solution of partial differential equation.
		CO2	Find out the complete integral by Charpits method and also find the particular integral, singular integral

	Differential Equation	CO3	Solve simple eigenvalue problems of Sturm-Liouville type.
		CO4	Classify partial differential equations into Linear equation, Semi linear, Quasi-linear and nonlinear equations.
		CO5	Understand the Dirichlet problem, Neumann problem and apply to solve problem for half plane.
		CO6	Derived the Heat conduction problem and prove Kelvin's inversion theorem.
Paper-XVIII (403)	**M.Sc.-II (Sem-IV): Numerical Analysis**	CO1	Demonstrate understanding of common numerical methods and how they are used to obtain approximate solutions to otherwise intractable mathematical problems.
		CO2	Apply numerical methods to obtain approximate solutions to mathematical problems.
		CO3	Derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations.
		CO4	Analyze and solve several errors and approximation in numerical methods.
		CO5	Apply several methods to solve Curve Fitting and Interpolation questions and its related techniques
Paper-XIX (404)	**M.Sc.-II (Sem-IV): Fluid Dynamics-II**	CO1	Apply scientific method strategies to fluid mechanics to analyses qualitatively and quantitatively the problem situation, propose hypotheses and solutions.
		CO2	Understand the compressibility effects in real fluids and derived the one, two, three dimensional wave equation.
		CO3	Define and illustrate Viscous Flow, apply to solve problems.
		CO4	Understand concept of Magneto hydrodynamics and derived Maxwell's electromagnetic field equation.
		CO5	Acquire the knowledge of boundary layer and apply to solve problems.
(405)	**M.Sc.-II (Sem-IV): Relativistic Cosmology (Optional)**	CO1	Derived De-sitter model and Explain Einstein Field equation with cosmological term.
		CO2	Understand De-sitter model, there derivatives, properties and comparison with the actual universe.
		CO3	Explains the cosmological principle, Hubble's law, Weyls Postulate and Steady State Cosmological Models.
		CO4	Study the motion of particle and light rays in R-W model.

		CO5	Understand and apply the knowledge of gravitational waves in curved space time.
		CO6	Show how the Friedman-Robertson-Walker metric is an exact solution to the Einstein equations.
		CO7	Describe the key ideas behind cosmology and the expanding universe.
(406)	**M.Sc.-II (Sem-IV): Difference Equation-II (Optional)**	CO1	Know the important theorems and their application.
		CO2	Successfully obtain the series solution of various types of linear and nonlinear differential equations
		CO3	Find out the solution of second order difference equation by successive calculation.
		CO4	Explain the boundary value problem for linear and nonlinear equation.
		CO5	Find out the solution of partial differential equation.
(407)	**M.Sc.-II (Sem-IV): Lie Groups (Optional**	CO1	Study the structure theory of Lie group and prove the theorem.
		CO2	Define and illustrate the concept of Topological groups.
		CO3	Understand the knowledge of transformation of Lie groups.
		CO4	Explain the Taylor's theorem for Lie groups.
		CO5	Explain the relationship of Maurer-Chartan forms and prove the converse of Lie first and second theorems.
(408)	**M.Sc.-II (Sem-IV): Banach Algrebra-II (Optional)**	CO1	Derived spectral theorems and apply concept of C* - algebra.
		CO2	Understand and acquire the knowledge of strong, weak operator topologies.
		CO3	Prove Kaplansky Density theorems and understand the concept of commutant.
		CO4	Apply Kaplansky's formula and explains various types of projections

Political Science

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
BA	B. A. I SEM I Pol. Sci.	**CO:1**	Characteristics of Constitution of India, Preamble, Fundamental Rights
S1		**CO:2**	Indicators of State Policy, Fundamental Duties, Citizenship
		CO:3	Information about President, Vice President, Prime Minister position
		CO:4	Detailed information about Parliament - Lok Sabha, Rajya Sabha
		CO:5	To know the details of Judicial System of India-Supreme Court, High Court

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-2	B. A. I SEM II Pol. Sci.	**CO:1**	Election Commission of India - Structure, Powers and Functions
		CO:2	To know the detailed information about State Executive- Governor, Chief Minister, Council of Ministers
		CO:3	To know the detailed information about State Legislature- Structure, Powers and Functions of Local Self-Government
		CO:4	To know the detailed information about Political participation of women in Panchayat Raj, Nagpur Pact in creation of Maharashtra
		CO:5	To increase the awareness of Right to Information Act

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-3	B. A. II SEM III Pol. Sci.	**CO:1**	To know the Background of the British Constitution
		CO:2	To know the Information about Parliament
		CO:3	Information on the US Constitution
		CO:4	Information on the US Legislature
		CO:5	Information on South Asian SAARC Association

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-4	B. A. II SEM IV Pol. Sci.	**CO:1**	Information about the Constitution of China
		CO:2	To know the Information about the Central Legislature
		CO:3	Able to Identify the nature of the United Nations
		CO:4	Significance of UN component
		CO:5	Able to know the Information on United Nations Affiliated Organizations

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-5	B. A. III SEM V Pol. Sci.	**CO:1**	To know the importance about Leadership
		CO:2	To know the importance and Identification of reservation
		CO:3	To know the Importance of Nationalism
		CO:4	To know the meaning of communalism
		CO:5	To know the meaning and Identification of terrorism

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-6	B. A. III SEM VI Pol. Sci.	**CO:1**	To know the Importance of Political Concepts of Aristotle and Mahatma Gandhi
		CO:2	Dr. Ambedkar Dr. An account of Bezot and Abraham Lincoln's democracy
		CO:3	Importance of Nationalism: Swami Vivekananda Swami. Veer Savarkar
		CO:4	Introduction to Socialism by Karl Marx and Jawaharlal Nehru
		CO:5	Importance of Behaviorism by David Easton and John Austin

SOCIOLOGY

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-1	B. A. I SEM I Sociology	**CO:1**	Learns basic concepts of society, community and religious aspects.
		CO:2	Know the nature of sociological study.
		CO:3	Knows the social structure and its various components.
		CO: 4	Understand social perspectives.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-2	B. A. I SEM II Sociology	**CO:1**	Understands culture and social institutions.
		CO:2	Learn Person-Society-Socialization.
		CO:3	Know the characteristics and types of different cultures.
		CO:4	Learn about social and cultural movements

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-3	B. A. II SEM III Sociology	**CO:1**	Understands social problems especially in rural areas.
		CO:2	Understand the issue of health and education.
		CO:3	Learns about issues of culture, caste and religion

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-4	B. A. II SEM IV Sociology	**CO:1**	Understand civic social issues.
		CO:2	Know the problem of population.
		CO:3	Learn about corruption, crime and types of crime.
		CO:4	Understand the problems of slum areas.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-5	B. A. III SEM V Sociology	**CO:1**	Understand the basics of social anthropology
		CO:2	Learn about the characters in primitive society
		CO:3	Understands methods of studying social anthropology.
		CO:4	Understands tribal religion, tribal society and tribal economics in India.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-6	B. A. III SEM VI Sociology	**CO:1**	Understand the social life of tribal in India
		CO:2	Learn about tribal totemism and the dormitory system
		CO:3	Know the problems of tribals and their development.

Geography

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-1	B. A. I SEM I Geography	**CO:1**	To create awareness of physical factors in student life
		CO:2	The student knows the importance of solar energy
		CO:3	The student knows about local time and standard time
		CO:4	student develop their interior of the earth knowledge
		CO:5	To create awareness about earthquake causes

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-2	B. A. I SEM II Geography	**CO:1**	The student develops their knowledge about rocks.
		CO:2	The student knows about the importance of riven in his life
		CO:3	the student knows about glacier work
		CO:4	Students know the work of winds and create a landscape
		CO:5	The student knows how to affect the physical element of our life.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-3	B. A. II SEM III Geography	**CO:1**	To create awareness about the climate
		CO:2	The student knows about the structure of the atmosphere
		CO:3	The student knows about the importance of atmospheric pressure
		CO:4	The student knows about the type of rain
		CO:5	Students know about the causes of pollution

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-4	B. A. II SEM IV	**CO:1**	The student knows the significance of the ocean
	Geography	**CO:2**	Student develop their ocean surface knowledge
		CO:3	The student knows the distribution of temperature on earth
		CO:4	The student knows about the circulation of the ocean
		CO:5	The student knows about the importance of ocean deposits

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-5	B. A. III SEM V	**CO:1**	To create awareness of physical diversion in India
	Geography	**CO:2**	The student knows the drainage system of India
		CO:3	The student knows about soil and crops type in India
		CO:4	Student develop their knowledge about the distribution of the population
		CO:5	To create awareness about the distribution and conservation of Minerals

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-6	B. A. III SEM VI	**CO:1**	To create awareness of the drainage system of Maharashtra
	Geography	**CO:2**	The student knows about the climate of Maharashtra
		CO:3	Students develop their knowledge of major crops in Maharashtra
		CO:4	Student develop their knowledge about Maharashtra minerals
		CO:5	To create awareness of Maharashtra's population density and tourist places.

ECONOMICS

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-1	B. A. I SEM I	**CO:1**	Introduction of economics, micro and macro
	Economics	**CO:2**	demand and the law of demand: the law of supply
		CO:3	Concept of production cost and revenue
		CO:4	market structures
		CO:5	The factors of production

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-2	B. A. I SEM II	**CO:1**	Characteristics of geographical economics
	Economics	**CO:2**	population of Maharashtra
		CO:3	Importance of Agriculture in Maharashtra
		CO:4	The infrastructure of industry in Maharashtra
		CO:5	Economy of Vidarbha

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-3	B. A. II SEM III	**CO:1**	Introduction of Macroeconomics
	Economics	**CO:2**	Concept of national income
		CO:3	money and value of money
		CO:4	Inflation concept causes and effect
		CO:5	Production and employment

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-4	B. A. II SEM IV	**CO:1**	Definition and function of commercial bank
	Economics	**CO:2**	Function and introduction of RBI: monitory policy of RBI
		CO:3	Co-operative bank and Nabard
		CO:4	IMF and world bank
		CO:5	Centralization of online real-time exchange: ATM

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-5	B. A. III SEM V	**CO:1**	Indian economy and planning
	Economics	**CO:2**	Agriculture in the Indian economy
		CO:3	India's foreign trade
		CO:4	Poverty and unemployment
		CO:5	environment and pollution

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-6	B. A. III SEM VI	**CO:1**	Introduction of demography
	Economics	**CO:2**	Fertility and mortality
		CO:3	Migration population
		CO:4	Urbanization of population
		CO:5	population and development

COMPULSORY ENGLISH

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-1	B. A. I SEM I	**CO:1**	Role of Education in national integration.
	English	**CO:2**	Importance of Empathy and Sympathy in Life.
		CO:3	Importance of Parts of Speech in knowing all types of grammar.
		CO:4	How to write a letter and CV.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-2	B. A. I SEM II	**CO:1**	The student develops their knowledge about rocks.
	English	**CO:2**	The student knows about the importance of riven in his life
		CO:3	the student knows about glacier work
		CO:4	Students know the work of winds and create a landscape

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-3	B. A. II SEM III	**CO:1**	What is most important in life to become successful.
	English	**CO:2**	True Love.
		CO:3	Type of sentence.
		CO:4	How to make conversation effective on the telephone.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-4	B. A. II SEM IV	**CO:1**	Various views of people regarding beggars in society.
	English	**CO:2**	Concept of true freedom.
		CO:3	How to respond, appreciate, and congratulate others.
		CO:4	How to transfer sentences.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-5	B. A. III SEM V	**CO:1**	Concept of Swaraj.
	English	**CO:2**	Importance of life adjustment.
		CO:3	An ancient tradition of bangles.
		CO:4	How to develop thoughts.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-6	B. A. III SEM VI	**CO:1**	Place of quality handmade products. In the time of advertisement.
	English	**CO:2**	Cash between traditional and rational things.
		CO:3	How nature can get us peace.
		CO:4	How to write various types of reports.

COMPULSORY MARATHI

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-1	B. A. I SEM I	**CO:1**	A literary taste developed
	Marathi	**CO:2**	The connection between literature and culture was realized
		CO:3	Saint literature was introduced
		CO:4	Literary language style was introduced

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-2	B. A. I SEM II Marathi	**CO:1**	It helped to take root of scientific approach
		CO:2	The relationship between literature and farmers was realized
		CO:3	The moral role of historical figures was learned from literature
		CO:4	Realized the literary value

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-3	B. A. II SEM III Marathi	**CO:1**	A social vision of language development was created
		CO:2	Literary comprehension ability increased
		CO:3	Different aspects of life in literature were understood

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-4	B. A. II SEM IV	**CO:1**	Feminist literature in literature was introduced
	Marathi	**CO:2**	Various means of public education were known
		CO:3	It helped to create national unity

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-5	B. A. III SEM V	**CO:1**	Got information about farmers' problems
	Marathi	**CO:2**	Saint work was introduced
		CO:3	Realized the diversity of cultural life

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-6	B. A. III SEM VI	**CO:1**	Different currents in literature were known
	Marathi	**CO:2**	The legacy of social reformers was known
		CO:3	The variety in the eloquence of the saints was known
		CO:4	The literature of Bakhar was introduced
		CO:5	The ancient style of language was understood

HOME ECONOMICS

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-1	B. A. I SEM I Home Eco.	**CO:1**	Home economics subject change information is known
		CO:2	Gained knowledge on how to do household management
		CO:3	Understand how to make decisions while doing any work
		CO:4	Understand how to decorate flowers
		CO:5	Understand how to use color

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-2	B. A. I SEM II Home Eco.	**CO:1**	Informed about the needs of family accommodation
		CO:2	Gained knowledge about operationalization
		CO:3	Learned about furniture
		CO:4	Realized the importance of water
		CO:5	Information on self-employment received

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-3	B. A. II SEM III Home Eco.	**CO:1**	Diet and nutrition were introduced
		CO:2	Power is understood as the productive factor
		CO:3	Learned about bodybuilding factor
		CO:4	Learn about protective and controlling nutrients
		CO:5	Understanding about balanced diet

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-4	B. A. II SEM IV	**CO:1**	How to treat with diet
	Home Eco.	**CO:2**	Learn how diseases occur
		CO:3	learned the importance of cooking food
		CO:4	Realized the importance of food protection
		CO:5	Learned how food was adulterated

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-5	B. A. III SEM V	**CO:1**	Learn about human development
	Home Eco.	**CO:2**	The information about the immature child came to be known
		CO:3	Learned about causal development and physical development
		CO:4	Gained knowledge about language development
		CO:5	Importance of Discipline

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-6	B. A. III SEM VI.	**CO:1**	Understand information about genetics
	Home Eco	**CO:2**	Learned about personality development
		CO:3	Learned about disabled children
		CO:4	Learned about the teenage boy
		CO:5	Learn about parenting

MARATHI LITERATURE

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-1	B. A. I SEM I MLT	**CO:1**	Information about the types of materials is known
		CO:2	The literary form of the novel is known
		CO:3	Language style of literature was introduced
		CO:4	Poetry was introduced

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-2	B. A. I SEM II MLT	**CO:1**	The drama became a literary form
		CO:2	The dialogue style of the play became familiar
		CO:3	Realized the spirit of Arvachan poetry

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-3	B. A. II SEM III MLT	**CO:1**	Medieval literature was introduced
		CO:2	The story became poetic
		CO:3	Social life in the world of literature was seen
		CO:4	Abhang is a form of poetry

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-4	B. A. II SEM IV MLT	**CO:1**	Autobiography as a literary form was introduced
		CO:2	Ancient Marathi literature was introduced
		CO:3	Ancient Marathi language was introduced
		CO:4	Dalit life was introduced

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-5	B. A. III SEM V MLT	**CO:1**	The nature of literature is known
		CO:2	The process of literature creation is understood
		CO:3	Understand the purpose of literature
		CO:4	Realized the literary values of narrative literature

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-6	B. A. III SEM VI MLT	**CO:1**	Translated literature was introduced
		CO:2	Learned the nature and uses of language
		CO:3	Understand the process of language formation
		CO:4	Autonomy understood
		CO:5	Swaneem thoughts were introduced

HISTORY

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-1	B. A. I SEM I History	**CO: 1**	Students gain knowledge about the weakness of India's political and defense system during Akbar's invasion and the establishment of Mughal rule in India.
		CO: 2	A study of the freedom struggle of the Marathas against the Mughals proves that the people of the state are the ultimate power and authority and can defy any brutal regime.
		CO: 3	From the life of Shivaji Maharaj, the students know how a great state can be created with the force of great will, strong determination, intellectual strategy and passion for the welfare of the people in the state.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-2	B. A. I SEM II History	**CO:1**	A study of the British Empire highlights various important aspects. Students know how the modern era began after the rise of the British Empire in India.
		CO:2	The British brought education and awareness to India which encouraged Indians to fight for their freedom.
		CO:3	Educated Indians of the time developed many social institutions and brought about social reforms.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-3	B. A. II SEM III	**CO:1**	Students get to know the great freedom struggle done by Mahatma Gandhi with his principle of non-violence.
	History	**CO:2**	The study of the British socio-political system gives the students the knowledge of how it paved the way for the formation of our own Indian Constitution.
		CO:3	The French Revolution teaches students how to overthrow the brutal rule of an emperor and establish a republic.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-4	B. A. II SEM IV	**CO:1**	How a common man rose to the highest position of king and ruled most of Europe can be deduced from the great history of Napoleon of France.
	History	**CO:2**	Bismarck's study teaches that a divide and rule policy can lead to a great empire.
		CO:3	Bismarck's study teaches that a divide and rule policy can lead to a great empire.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-5	B. A. III SEM V History	**CO:1**	The Russian Revolution of 1917 shows how the organization of peasants and workers could end the brutal rule of the Tsars.
		CO:2	Hitler's lessons learned how dictatorships can be overthrown by Allied forces.
		CO:3	India's rich history and heritage can be traced back to the ancient culture and civilization of Harappa.

Course Code	Name of the course	Cos	On successful completion of this course, the students would be able to
S-6	B. A. III SEM VI History	**CO:1**	A study of Vedic culture reveals how then India was riddled with caste, caste and gender discrimination; Superstition and religious bigotry. As a result, Mahavira Jain and Lord Buddha gave rise to new religions that were more liberal and compassionate.
		CO:2	A king learned from the fall of Vijayanagara and the battle of Talikot that if he fought against many enemies at once, his own destruction was inevitable.
		CO:3	A study of ancient and medieval history reveals the status of women in India as degrading, marginalized and secondary to a different past.