B.Sc Chemistry (Honours)

B.Sc. Program outcomes listed as follows:

COURSE OBJECTIVES & COURSE OUTCOMES

S.No.	COURSE OBJECTIVES	COURSE OUTCOMES
1.	**B.SC (H) Chemistry - ISTSEMESTER**	
	Paper-I: Inorganic Chemistry	
	1. To define the atomic structure with the help of different principles. 2. Define VSEPR theory, VBT, MOT. 3. Explanation of classification of elements in periodic table and their properties. 4. Description of ionic solids, types of ions, coordination numbers. 5. Define Linnet theory and its formula.	1. Understand the concept of atomic structure with different principles or theories and is able to calculate the effective nuclear charge. 2. Introduced the concept of hybridization, VSEPR theory and is able to find the type of hybridization or shape of different molecules or ions. 3. Understand the concept of the classification of s,p,d and f elements and their trends in periodic table. 4.Understand the concept of ionic structures , types of ions and packing of ions in crystals size effects.
	Paper-II: Physical Chemistry	
	1. Explanation of Real and ideal gas, kinetic gas and Vander waal's equation and their derivations. 2. Explanation of Gaseous State, Surface Chemistry and Colloidal States. 3. Description of solid state of compounds, X-ray diffraction of crystals. 4. To explain the structure of liquids, liquid crystals and theory of liquids.	1. Understand the concept of real and ideal gases and different laws of gases. 2. Understand the concept of surface chemistry and colloidal states. 3. Understand the concept of the solid state of compounds, X-ray diffraction of crystals. 4. Understand the concept of liquid

		crystals and its theory.
	Paper-III: Organic Chemistry	
	1. To explain the structure and bonding of organic molecules. 2. Explanation of stereochemistry of organic compounds 3. Discussion of mechanism of organic reactions. 4. To explain the purification of organic compounds with different chromatography techniques . 5. To define Alkanes and cycloalkanes.	1. Understand the concept of hybridization, hyperconjugation, aromaticity of organic molecules 2. Introduced the concept of stereochemistry of different organic molecules 3. Understand the mechanism of different organic reactions. 4. Able to know about how to purify an organic compound with different chromatography techniques. 5. Introduced the concept of alkanes and cycloalkanes.
	Paper: Maths	
	1.Define Set, Relation and functions, Relation between the roots, Nature of the roots of an Equation 2. Descarte's rule of signs, Permutation and combinations, Logarithms, Exponential series 3. DefineLogarithmic series, Trigonometric Functions, Limit of a function, L' Hospital's rule 4. Define Continuous functions, Derivative of a function, Logarithmic differentiation 5. Define Indefinite integrals of standard forms, Integration by parts ,Reduction formulae	1. Introduced the concept of set, relation and function and be familiar with the statements and proofs of the standard results. 2. Understand the concept of limit of a function and be able to calculate limits of standard functions and construct simple proofs involving this concept. 3. Introduced the concept of continuity and be familiar with the statements and proofs of the standard results about continuous real functions.

		4. Understand the concept of the differentiation and Integration be familiar with the statements and proofs of the standard results about differentiable real functions.
	Paper: Zoology	
	1.General characters reproduction in protozoa.Origin of metazoa . General characters and structural organization of Sycon. General characters and polymorphism in Cnidaria. 2.Structure ,general characters and life history of Fasciola and Ascaris and its parasitic adaptation. 3. General characters and adaptive radiation in polychaeta.General characters and larval forms of crustacea metamorphosis in insecta. 4General characters and torsion and detorsion of mollusca. General characters and water vascular system and larval forms of Echinodermata.	1. To understand about characters of (microscopic organism) protozoan . Their origination and to learn in detail the structure and body design of (Sycon)Porifera.To understand body features of Cnidaria and its different forms like polyp,blastostyle and medusa. 2.To understand features of common worms ,their adaptation and life cycle. 3.To understand the process of transformation in insect. To know about larval forms, adaptation in polychaeta. 4.To understand the characters of Mollusca and to lean about torsion. To understand the concept of Watervascular system in Echinodermata.
	Paper: Physics	
	1. Students will have proficiency in the fundamental concepts of classical mechanics. 2. To develop the understanding of the complex physical phenomena related to motion of complicated mechanical system. 3. To consolidate the deep understanding of the theory of kinematics and dynamics of system of	1. Students will be able to define and describe basic mechanical concepts related to discrete and continuous mechanical systems. 2. To justify variational principle to real physical problems. 3. Students will have the basic understanding of electrostatic and magnetostatic. 4. To get to know how to elaborate the

	particles. 4. To formulate the skills to solve problems quantitatively	methodologies and techniques appropriate to classical mechanics
	Paper: Botany	
	1.TO define an introduction to Biodiversity ranging from Microbes (Viruses and Bacteria), to Fungi, including diverse plant groups (Algae and Archegoniates-Bryophytes, Pteridophytes and Gymnosperms). 2. To enable students to understand and appreciate the relevance of Microbes and Plants to environment (ecological significance) and human well-being (economic importance). 3.To Develop an understanding of Evolution of Plant forms and the consequent Biodiversity. These are instrumental in creating awareness on the threats to biodiversity and sensitizestudents towards the Conservation of Biodiversity for sustainable development. 4. To study the organization of cell, cell organelles and biomolecules (i.e protein, carbohydrate, lipid and nucleic acid) to gain knowledge	1. Students understand the diversity of lower plant and their distinct features. 2 Understand the algal diversity and its industrial application. 3Understand knows about distinct classes of Lichen and their utilization 4 Understand the Fungal diversity and their application in various industries. Also know how to Cultivate the mushroom and their values. Knows about character, classification nd utilization of bryophyte at industrial evel
	Paper: English	
	1.To enhance the level of literary and aesthetic experience of students and to help them respond creatively. 2. To provide the students with an ability to build and enrich their communication skills. 3. To help them think and write imaginatively and critically.	1. Apply the concepts of accurate English while writing and become equally at ease in using good vocabulary and language skills. 2. Understand the importance of pronunciation and apply the same day to day conversation.

	4. To sensitize students to the language, forms and types of poetry, fiction, prose,and drama.	3. Able to spot the common grammatical errors related to Sentence Structure, Preposition, Concord, Relative and Conditional Clauses, and Parallel Structures. The learner should be efficient to construct a context-determined text in addition to learning Technical Writing Skills
2.	**B.SC Medical - IIndSEMESTER**	
	Paper: Inorganic Chemistry	
	1. Comparative study of s-block elements. 2. Chemistry of analysis of various groups of basic and acidic radicals. 3. Comparative study of p-block elements. 4. Discussion of different oxides, hydrides, oxyacids, halides formed by p-block elements . 5. Dscussion of chemistry of p-block elements.	1. Understand the Comparative study of s-block elements. 2. Understand the Comparative study of p-block elements. 3. Understand the Chemistry of analysis of various groups of basic and acidic radicals 4. Understand the concept of different oxides, hydrides, oxyacids, halides etc. formed by p-block elements.
	Paper: Organic Chemistry	

	1. To explain chemical and physical properties of alkenes. 2. To explain chemical and physical properties of cycloalkenes, dienes and alkynes. 3. Discussion of mechanism of organic reactions. 4. To explain the chemical reaction of arenes and aromaticity 5. Discussion about polyhalogen compounds.	1. Understand the concept of dienes, alkynes, polynuclear hydrocarbons. 2. Introduced the concept of different aromatic reaction mechanism. 3. Understand the mechanism of different organic reactions. 4. Able to know about how to purify coal and petroleum. 5. Introduced the concept of alkenes and cycloalkenes.
	Paper: Physical Chemistry	
	1. Discussion on Chemical kinetics and its scope. 2. To discuss Electrical transport conduction in metal and in electrolyte solutions 3. Description of Electrochemistry-I & II. 4. To explain the Thermochemistry and chemical energaties 5. To discuss about laws of thermodynamics.	1. Understand the concept of chemical kinetics. 2. Understand the concept of Electrochemistry. 3. Understand the concept of Thermochemistry 4. Understand the concept of Determination of degree of dissolution..
	Paper: PHYSICS (OPTIONAL)	

	1.To introduce basic semiconductor devices, rectifiers and transistors and study their characteristics. 2. To study the process of amplification and different types of biasing circuits. 3. To study principle and working of Hartley oscillator 4. To understand the fundamentals of lasers and their diversified applications.	1. Ability to analyze PN junctions in semiconductor devices under various condition 2. Analyze the characteristics of different electronic devices such as diodes, transistors etc., and simple circuits like rectifiers, amplifiers etc., 3. To give understanding of various types of amplifier circuit. 4. To describe basic properties of laser and its application in field of medicine and industry.
	Paper: ZOOLOGY (OPTIONAL)	
	1.Introduction and origin of chordates. General features and phylogeny of Protochordata 2.General features of living agantha. Osmoregulation,Migration and Parental care in fishes. 3.Origin and evolution of terrestrial ectotherm and parental care in amphibia. Poisonous and non poisonous snakes in india. 4.Flight adaptations and mechanisms of flight and migration in aves. Origin of Mammals and humans.	1. To understand the origin of vertebrates and to know the structural plan of chordates.To know about all the divisions of protochordates and their phylogeny. 2. To understand the general features of jawless animals. And to learn about migration and parental care in fishes. 3. To know about evolution of ectotherms.To understand parental care in amphibian. To learn about poisonous and non poisonous snakes of India. 4. To understand flight adaptations and flight mechanism in birds. Origin of humans.
	Paper: MATHS (OPTIONAL)	

	1.Define matrix, inverse of a matrix, operations on matrices, Simultaneous equations: method of substitution and elimination. 2. Define groups and simple properties of groups, Subgroups, cosets, Normal subgroups, Quotient groups. 3. Define Cartesian Coordinates, Distance between two points, Various forms of the equation of a line. 4. Define Laplacian operator, Gradient, divergence and curl of sums and product and their related vector identities.	1. Introduced the concept of matrix and be familiar with the statements and proofs of the standard results. 2. Understand the concept of determinant of a matrix and be able to calculate inverse of a matrix. 3. Introduced the concept of group and be familiar with the statements and proofs of the standard results about groups. 4. Understand the concept of scalars and vectors and vector Integration be familiar with the statements and proofs of the standard results about vectors.
	Paper: BOTANY (OPTIONAL)	
	1. To know about various aspects of plant water relation. 2. To educate the students about the mechanism and physiology life processes in plants. 3. To Focus on the plants nutrients uptake and photosynthesis. 4. To illustrates knowledge of stress adaptations in biological systems. 5. To deliver molecular understanding of primary and secondary metabolic process. 6. To present perspectives of the current tools for application in biological system for biotechnological research. Demonstrate the concept using different activities for building capacity.	1. A pervasive understanding on the kingdoms of bio molecules, metabolites and pathways that are the prerequisites and consequences of physiological phenomenon for further manipulations. 2. Acquaintance with mechanistic view on the plant environment interactions. 3. Development of integrative approach for visions in biological problems.
	ENGLISH	
	1.To enhance the level of literary and aesthetic experience of students and to help them respond creatively. 2. To provide the students with an ability to build and enrich their communication skills. 3. To help them think and write imaginatively and critically. 4. To sensitize students to the language, forms and types of poetry, fiction, prose,and drama.	1.Apply the concepts of accurate English while writing and become equally at ease in using good vocabulary and language skills. 2. Understand the importance of pronunciation and apply the same day to day conversation. 3. Able to spot the common grammatical errors related to Sentence Structure, Preposition, Concord, Relative and Conditional Clauses, and Parallel Structures. The learner should be efficient

		to construct a context-determined text in addition to learning Technical Writing Skills