Program/Course outcomes

B.A., B.Com., B.Sc. Honours/Program

Programme Name: B.Sc. Program course (CBCS) with ***CHEMISTRY***

Programme Outcomes

Course Outcomes:

	Course Code	Course Name	Course Outcomes
SEM - I	**DSC I: Theory**	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic Hydrocarbons	**CO-1** Students will be able to apply the concepts of basic quantum chemistry in understanding and explaining the atomic structure, chemical bonding. **CO-2** Will be able to explain structure and physical/ electronic properties of simple inorganic molecules **CO-3** Will develop fundamental concepts on organic chemistry and stereochemistry. **CO-4** Will learn about synthesis, properties and reactions of aliphatic hydrocarbons.
	DSC I : Practical		**CO-1** Students will learn to estimate ions or salts by acid-base titration method and oxidation-reduction titration method. **CO-2** Will learn to detect special elements (N, S, Cl, Br, I) in organic compounds. **CO-3** Will gain hands-on experience on different chromatographic separation techniques.
SEM – II	**DSC II**: **Theory**	Chemical Energetics, Equilibria & Functional Group Organic Chemistry-I	**CO-1** Students will learn and understand laws of thermodynamics, thermochemistry and chemical equilibrium. **CO-2** Will gain concept on theories of ionic equilibrium, hydrolysis of salt, common ion effect, solubility product. **CO-3** Will learn in detail about the preparation, properties, chemical reactions of aromatic hydrocarbons, alcohols and phenols, aldehydes

			and ketones.
	DSC II: **Practical**		**CO-1** Will learn to prepare buffer solution of different pH and determine pH of unknown solution. (using pH meter) **CO-2** Will learn preparation of organic compounds, purification methods and determination of melting point and boiling point.
SEM - III	**DSC III: Theory**	Solutions, Phase Equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II	**CO-1** Students will gain concepts of ideal, non-ideal solution, phase diagram and its application and phase equilibrium. **CO-2** Understand fundamental concepts of conductance of solutions and its application and concepts of redox potentials and electrochemistry. **CO-3** Will learn in detail about the preparation, properties, chemical reactions of carboxylic acids and derivatives **CO-4** Will learn about amines, diazonium salts, amino-acids and carbohydrates.
	DSC-III : Practical		**CO-1** Will learn to perform conductometric and potentiometric titrations. **CO-2** Will learn systematic qualitative analysis of functional groups in organic compounds
	SEC-1 (DSC) Theory & Practical	Pharmaceutical Chemistry	**CO-1** Students will be able understand about the drug discovery, designing and development of various important medications. **CO-2** Will know about aerobic and anaerobic fermentation, importance of Vitamins and Amino acids, synthesis of Penicillin, Cephalosporin, Chloromycetin, Streptomycin and their role as an antibiotic. **CO-3** Will learn the preparation and analysis of aspirin and magnesium bisilicate in laboratory.
SEM - IV	**DSC IV: Theory**	Transition Metal & Coordination Chemistry, States of Matter & Chemical Kinetics	**CO-1** Gain knowledge on bonding, stereochemistry and properties of coordination complexes. **CO-2** Will learn about crystal field theory and its application. **CO-3** Understanding of behavior of real gases, properties of liquids (surface tension, viscosity). **CO-4** Will be able to understand concept of reaction rates, its determination and related

			theories.
	DSC IV: Practical		**CO-1** Students will perform semi-micro qualitative detection of acid and basic radicals. **CO-2** Will learn to perform complexometric titration (determine hardness of water, etc) **CO-3** Will learn to experimentally determine viscosity and surface tension of an unknown liquid with respect to water. **CO-4** Will study the kinetics of acid-catalyzed hydrolysis of methyl acetate.
	SEC-2 (DSC) Theory & Practical	Green Methods in Chemistry	**CO-1** Will learn about green chemistry and its importance. **CO-2** Will study about the principles of green chemistry and designing the green synthetic routes. **CO-3** Will learn to synthesize a number of organic compounds in the laboratory using green approach.
SEM - V	**DSE I (DSC): Theory**	Inorganic Materials of Industrial Importance	**CO-1** Students will develop knowledge on composition and applications of important industrial materials like glass, ceramics, surface coatings, fertilizers, alloys. **CO-2** Will learn about working principle and application of different batteries.
	DSE 1: Practical		**CO-1** Will learn to determine free acidity, calcium in fertilizer. **CO-2** Estimation of composition of dolomite and cement.
	SEC - 3 (DSC)	Pesticide Chemistry (Theory & Practical)	**CO-1** Will acquire knowledge about the preparation, structures, properties, reactions, benefits and adverse effects of pesticide compounds. **CO-2** Will gain knowledge about the fertility of soil and its maintenance and how to increase crop production. **CO-3** Will be able to calculate acidity/alkalinity in given sample of pesticide formulations.
SEM - VI	**DSE 2 (DSC): Theory**	Industrial Chemicals and Environment	**CO-1** Will gain thorough knowledge on manufacture and application of industrial chemicals and gases. **CO-2** Will learn about different kinds of

			environmental pollution **CO-3** Gain knowledge on issues like global warming, ozone depletion, waste water treatment, solid waste management, nuclear waste and its management.
	DSE 2: Practical		**CO-1** Will learn to estimate chloride, sulphate and total alkalinity of water samples by simple titration method
	SEC-4 (DSC)	Chemistry of Cosmetics & Perfumes (Theory & Practical)	**CO-1** Students will gather detail knowledge of the chemistry of cosmetics and perfumes **CO-2** Will learn industrial preparation, uses and harmful effects of various cosmetics and perfumes. **CO-3** Will learn preparation of talcum powder, shampoo, face cream, nail polish and nail polish remover. Hence they will develop background to work in various cosmetic industries.