

Course Outcome

B.Sc. Chemistry

Semester 1	
CH1CRT01 General and Analytical Chemistry	CO-1.To have a broad outline of the methodology of science in general and Chemistry in particular CO-2.To understand the important analytical and instrumental tools used for practicing chemistry CO-3.To apply these skills in the analysis of experimental data in chemistry practical
Semester 2	
CH2CRT02 Theoretical and Inorganic Chemistry	CO-1.To study the various atom models CO-2.To understand the important features of the quantum mechanical model of the atom. CO-3.To study the periodic properties of elements To explain the formation of different types of bonds CO-4.To predict the geometry of simple molecules CO-5.To explain the different types of hybridisation and draw shapes of simple covalent molecules CO-6.To understand the molecular orbital theory of diatomic molecules CO-5.To develop interest in various branches of inorganic chemistry. CO-6.To study nuclear models and nuclear reactions.
Semester 1&2 Practicals CH2CRP01 Practical: Volumetric Analysis	CO:1To develop skills for quantitative estimation using the different branches of volumetric Analysis .
Semester 3 CH3CRT03 Organic chemistry-I	CO-1To have a basic understanding about the classification and nomenclature of organic compounds, fundamentals of organic reaction mechanism, aromaticity and stereochemistry CO-2.To make students capable of understanding and studying organic reactions CO-3.To have exposure to various emerging new areas of organic chemistry Co-4.To develop skills required for the qualitative analysis of organic compounds
Semester 4 CH4CRT04 Organic Chemistry -II	CO-1.To learn the chemistry of alcohols, phenols, carboxylic acids, derivatives of Carboxylic acids, Sulphonic acids, carbonyl compounds, poly nuclear hydrocarbons, active methylene compounds and Grignard reagents.

	Co-2.To understand and study Organic reaction mechanisms
Semester3 &4 Practicals CH4CRP02 Practical:Qualitative Organic Analysis	CO1: To develop skills required for the qualitative analysis of organic compounds, determination of physical constants.
Semester 5 CH5B01 Course: Chemistry of d and f block elements	CO1: Understand the general characteristics of the d and f block elements. CO2: Study the physical and chemical properties of d and f block elements. CO3: Study the Werner's theory of coordination compounds. CO4: Study isomerism in metal complexes. CO5: Study the bonding in coordination compounds. CO6: Understand the applications of coordination compounds. CO7: Understand the classification, properties and applications of organometallic compounds. CO8: Study the methods of preparation, properties, structure and bonding of metal carbonyls and metal clusters. CO9: Understand the role of metals in biological systems.
CH5B02 Course: Basic Organic Chemistry-II	CO1: Learn the chemistry of nitro compounds, amines, dyes, organic polymers, soaps, detergents and organic reagents. CO2: Understand and study mechanism of reactions of nitro compounds and amines. CO3: Have an elementary idea of chemotherapy, organic spectroscopy and photochemistry CO4: Identify organic compound using UV, IR and PMR spectroscopic techniques CO5: Develop basic skills required for crystallization, distillation, solvent extraction, TLC and column chromatography.
CH5B03 Course: States of matter	CO1: Study the intermolecular forces in gases and liquids CO2: Understand the dynamics of the molecules in the gases and liquids CO3: Study liquefaction of gases CO4: Learn the structure of solids CO5: Study defects in crystals CO6: Study adsorption.
CH5B04 Course: Quantum Mechanics and Spectroscopy	CO1: Differentiate between classical and quantum mechanics CO2: Study the postulates of quantum mechanics and the quantum mechanical model of the hydrogen atom CO3: Study valence bond and molecular orbital theory CO4: Study the principle and applications of microwave, infra red, Raman, electronic and magnetic resonance spectroscopy. CO5: Study the fundamentals of mass spectrometry CO6: Study the fundamentals of photochemistry

CH5D01.5 Open course Chemistry in everyday life	<p>CO1:To create awareness about importance of chemistry in daily life</p> <p>CO2:Understand the uses of various chemicals like drugs,dyes,fertilizers etc</p> <p>CO3:To create an insight into the processes involved in the production of useful chemicals.</p> <p>CO4:Understand the pros and cons of using processed food stuff and food additives.</p>
Semester 6 CH6B01 Course: Applied Inorganic Chemistry	<p>CO1: Understand the principle of inorganic qualitative analysis</p> <p>CO2: Understand thermodynamic concepts in the extraction of metals</p> <p>CO3: Understand the applications of radioactivity and radioisotopes</p> <p>CO4: Understand the preparation and uses of inorganic polymers</p> <p>CO5: Understand preparation and application of nanomaterials</p> <p>CO6: Understand the chemistry of refractory and ceramic materials</p> <p>CO7: Understand the chemistry of the compounds of p block elements</p> <p>CO8: Understand thermal and chromatographic techniques</p>
Practical CH6B01 Qualitative Inorganic Analysis	<p>CO1:To impart the students a thorough knowledge of Systematic qualitative analysis of mixtures containing two acid and two basic radicals with interfering radical</p>
CH6B02 Course: Chemistry of Natural products and Biomolecules	<p>CO1: Learn in detail the chemistry of carbohydrates, heterocyclic compounds, amino acids, proteins and nucleic acids</p> <p>CO2: Have a thorough idea on the structures of carbohydrates and some heterocyclic compounds.</p> <p>CO3: Understand the structure and functions of enzymes, proteins and nucleic acids.</p> <p>CO4: Study the fundamentals of terpenoids, alkaloids, vitamins, lipids and steroids</p> <p>CO5: Have an elementary idea of supramolecular chemistry and Green Fluorescent Proteins</p>
Practical:CH6B02 Preparation and Basic Laboratory Skills	<p>CO1:The students will develop basic skills in the techniques of crystallisation, distillation, solvent extraction, TLC and column chromatography and in quantitative dilution. Enable the students in Organic preparations.</p>
CH6B03 Course: Equilibrium and Kinetics	<p>CO1: Study the laws of thermodynamics</p> <p>CO2: Derive Gibbs-Helmholtz, Clausius-Clapeyron, Gibbs-Duhem equations</p> <p>CO3: Derive the relation between K_p, K_c and K_x</p> <p>CO4: Derive the phase rule</p> <p>CO5: Derive the rate equations for zero, first and second order reactions</p> <p>CO6: Study the phase diagrams of one and two component systems</p> <p>CO7: Understand the theories of chemical kinetics</p>

	CO8: Acquire an elementary idea of catalysis including enzyme catalysis
Practical:CH6 B03 Physical Chemistry Practicals	CO1: To develop skills in doing experiments in kinetics, Potentiometry and phase rule. Enable the students to prepare data analysis using spreadsheet program.
CH6B04 Course: Solution Chemistry	CO1: Study the behaviour of binary liquid mixtures, CST, azeotropes, colligative properties CO2: Study solubility of gases in liquids, CO3: Study ionic equilibria and electrical properties of ions in solution. CO4: Study the concepts of acids and bases, pH and buffer solutions
Practical: CH6B05 Gravimetric Analysis	CO1: The students will get training in the quantitative analysis of metal ions and anions using gravimetric method.
CH6B06 Course: Polymer Chemistry	CO1: Know about the types of polymers and the chemistry of polymerisation. CO2: Understand the physical properties of polymers, their reactions and degradation. CO3: Acquire knowledge about the polymerisation techniques and polymer processing. CO4: Know the chemistry of individual polymers, their preparation and properties CO5: Have an idea about the recent advances in polymer science

COMPLEMENTARY COURSES IN CHEMISTRY

Semester 1		
CH1CMT01	Basic Theoretical and Analytical Chemistry	CO-1:This course will provide an insight into some of the fundamental concepts and principles that are very essential in the study of chemistry CO-2: To learn atomic structure, basics of thermodynamics and the concept of equilibrium. CO-3:The students will understand the fundamentals of principles of analytical chemistry and chromatographic techniques.
Semester 2		
CH2CMT02	Basic Organic Chemistry	CO-1:The students will understand some fundamental aspects of organic chemistry. CO-2:They will learn mechanism of some organic reactions, classification of polymers, structure and uses of some commercial and natural polymers. branches of inorganic chemistry.
Semester 1&2 Practicals		

CH2CMP01	Volumetric Analysis	CO-1: To develop skills for quantitative estimation using the different branches of volumetric Analysis .
Semester 3		
CH3CMT04	INORGANIC AND ORGANIC CHEMISTRY	CO-1 To have a basic understanding about the classification and nomenclature of organic compounds, fundamentals of organic reaction mechanism, aromaticity and stereochemistry CO-2. To make students capable of understanding and studying organic reactions CO-3. To have exposure to various emerging new areas of organic chemistry Co-4. To develop skills required for the qualitative analysis of organic compounds
Semester 4		
CH4CMT06	ADVANCED BIO-ORGANIC CHEMISTRY	CO-1. To learn the chemistry of alcohols, phenols, carboxylic acids, derivatives of Carboxylic acids, Sulphonic acids, carbonyl compounds, poly nuclear hydrocarbons, active methylene compounds and Grignard reagents. CO-2. To understand and study Organic reaction mechanisms
Semester3 &4 Practicals		
CH4CMP03	ORGANIC CHEMISTRY PRACTICALS	CO1: To develop skills required for the qualitative analysis of organic compounds, determination of physical constants.