Course Outcome of B.Sc. First Year

Course Outcome- B.Sc. Semester-I Chemistry	
Course	**Outcomes**
	After completion of these courses' studentsshould be able to;
USCCHT 01 - INORGANIC CHEMISTRY	• Knows the idea of de-Broglie equation and Heisenberg's uncertainty principal • To understand the quantum numbers and principal of extra stability. • To understand the periodic properties ofelements in periodic table. • To explain the VBT and MOT of differentmolecule. • To discuss the alkali and alkaline earthmetal with their properties. • Explain periodic properties of p-blockelement and diagonal relationship of Be Al. • Know the hydrogen bonding, chemistry of Nobel gas and volumetric analysis of acid-base.

(USCChT02)Organic Chemistry	• To understand the electronic displacement and concept of organic reactions mechanism. • knows the basic concept of isomerism and concept of chirality. • To describe preparation and application hydrocarbon. • To discuss the preparation of benzene with their chemical properties. • Explain the aromaticity and Huckel`s rule of aromatic compounds.
USCCHP01 **Practical'sInorganic Chemistry**	**Course outcomes.** • Volumetric Analysis of- • Preparation of standard solution by weighing and Preparation of 0.001 M solutionfrom 0.1M solution by dilution. a. Estimation of sodium carbonate and sodium hydrogen carbonate present in amixture. b. Estimation of Fe (II) by dichromate using internal indicator (n-phenyl Anthranilic acid) c. Determination of commercial vinegaracetic acid in using NaOH d. Estimation of oxalic acid by titrating it withKMnO4 e. Determination of zinc by complexometrictitration with EDTA

Organic Chemistry	• QUALITATIVE ANALYSIS OF- a. Detection of extra elements (N, S, Cl, Br, I) in organic compounds (containing up to twoExtra elements). b. Systematic Qualitative Organic Analysis ofOrganic Compounds possessing mono functional groups (- COOH, phenolic, aldehydic, ketonic, amide,nitro, amines) and preparation of one derivative. c. Separation of mixtures by Chromatography: Measure the Rf value in each case (Combination of two compounds to be given

Course Outcome:B.Sc. SEMESTER –II Chemistry	
Course	**Course Outcomes**
USCCHT03 - ORGANIC CHEMISTRY	• Discuss electrophilic and nucleophilic in aromatic compounds. • Learning about difference between activating and deactivating groups. • Correlate the preparation of types ofcarbohydrate. • Study about the chemistry of Aromatic aldehyde, aromatic ketones and acids. • Study about the chemistry of aromatic sulphonic acid and Nitro compounds. • Calculate the saponification, Iodine andacid value for acids and fats.
USCCHT04 - PHYSICAL CHEMISTRY	• To apply gas laws in various real-lifesituations. • To explain the behaviour of real and ideal gas. • To differentiate between gaseous state and vapour. • To explain the kinetic theory of gases. • Explain the properties of liquids. • To describe condition required for liquefaction of gases. • To write the expressions for equilibrium constants.

	• To study the laws of equilibrium. • To understand various types of colloids and its applications
USCCHP02Practical's	**COURSE OUTCOMES:-**
	• Purification of an impure organiccompound by crystallization • Synthesis, Recrystallisation and determination of melting point and calculationof quantitative yields of organic compounds. • Physical chemistry experiments based on Thermochemistry, Equilibria and Liquid state.

Course Outcome of B.Sc. Second Year

Course Outcome B. Sc Chemistry Semester-III (CBCS)	
Course	**Outcomes** **After completion of these courses' students should be able to**
USCChT05 Inorganic Chemistry	• To understand the structure and bonding in diborane. • To study the preparation of interhalogen compounds, oxy acidand silicates. • To understand the structure of Ionic Solids by studying radius ratio • rule and coordination number.
	• To Know the concept of Metallic Bonding and Lewis as well as Lux-Flood concepts of acid and bases. • To give an extended knowledge about first, second and thirdtransition series elements. • To study the periodic properties of Lanthanides and Actinides.

USCChT06 Physical Chemistry	• To understand the concept of phase rule and degree of freedom. • To study the properties of immiscible liquids and partialmiscible liquids. • To study the concepts of enthalpy, entropy and second law of thermodynamic. • To know the Free energy functions (Helmholtz and Gibb's) and its applications. • To understand the various factors which affects the rate ofreaction. • To know the concept of solution and its various colligative properties. • To study the magnetic properties of substances. • To gain knowledge about measurement of magnetic susceptibility using Gouy Method.
USCChP03 Chemistry Practical's	• To know the concept of semi micro analysis of inorganic saltcontaining acidic and basic radicals. • To construct the phase diagram of ternary system. • To study the kinetics of different chemical reactions. • To gain practical knowledge about the variation of mutual solubility temperature with different concentration and determination of • CST.

Course Outcome B. Sc Chemistry Semester-IV (CBCS)	
Course	**Outcomes** After completion of these courses' students should be able to;
USCChT07 Inorganic Chemistry	• To understand the concepts of Werner's coordination theory andSidgwick's theory. • To study the different types of isomerism in coordination chemistry. • To understand the Pearson's SHAB concept and its application. • To Know the concept of metal ligand bonding in transition metal complexes. • To give an extended knowledge about thermodynamics and kinetics aspects of metal complexes. • To study the Principle and instrumentation of Colorimetry andSpectrophotometry.

USCChT08 Organic Chemistry	• To understand the synthesis process and properties of Nitro and Amino compounds. • To study the preparation and properties of Diazonium salt. • To study the methods of preparation and structure of organometallic compounds. • To study the Strecker synthesis method of preparation of Amino acids. • To understand the difference between primary, secondary, tertiary and quaternary structure of proteins. • To study the classification and properties of carbohydrates. • To study the classification of Dyes based on chemical constitution. • To gain knowledge about basic terminology of drugs and theirprocess of synthesis

USCChP04 Chemistry Practical's	• To know the concept and method of synthesis of different complexes. • To perform Job's and Mole ratio method for determination of composition of Fe-SSA complex. • To develop a skill of separation and identifications of organic compounds from the given binary mixture. • To gain practical knowledgeabout the preparation of Aspirin and • Paracetamol.

Course Outcome of B.Sc. Third Year

Course Outcome B. Sc Chemistry Semester-V (CBCS)	
Course	**Outcomes** After completion of these courses' students should be able to
USC DSE ChT 09 Organic Chemistry	• To study NMR Spectroscopy and determine structure of compound by spectroscopic methods. • To know chemical shift. Explain the shielding and deshielding of proton. • To understand the concept of active methylene compounds and Keto -Enol tautomerism. • To know the polymer? Discuss their classification. • Discuss the addition and substitution reaction of polymer. • Explain the principal of green chemistry and its aims of green chemistry
USC DSE ChP 05 (Organic) Practical's	• To know the identification of organic compound on the basis of NMR data. • To estimatethe hydroxyl number of a polymer using colorimetric method. • To estimate the amount of HCHO in the given solution by sodium sulphite method • To Prepare of nylon 66 and urea-formaldehyde resin. • To identify the Green chemistry synthesis of organic compound by using micro wave technic.

USC DSE ChT10 Physical Chemistry	• To understand Kohlrausch's law and explain its application. • Discuss the Arrhenius theory of electrolyte dissociation of its limitation. • To differentiate the reversible and irreversible cells? • Explain the construction and working of glass electrode? • To know the salt bridge? Explain its function? • To derive the Schrodinger wave equation from the postulates of quantum mechanics. • To calculate the De-Broglie's wavelength of body of mass 0.1 kg moving with a velocity of 2000 ms^{-1}.
USC DSE ChP 06 Physical Practical	• To determine the strength of strong acid and a week acid in a given mixture conductometrically by titrating it with standard alkali solution. • To determine the solubility and solubility product of a sparingly soluble salt conductometrically. • To determine strength of strong acid with strong basepotentiometrically • To study the saponification of ethyl acetate conductometrically

Course Outcome B. Sc Chemistry Semester-VI (CBCS)	
Course	**Outcomes** After completion of these courses' students should be able to
USC DSE ChT 13 Inorganic chemistry	• Discuss the instrumentation and working principal of flame photometer with well labelled diagram. • To know error and explain the classification of error with example. • To understand the application of column chromatography in details. • Explain the classification of fertilizer with suitable example. • To know the structure and bonding of tetra and di alkyl tin. • To know the nanoparticles and to explain their classification indetails. • To explain primary and secondary treatments of industrial effluents. • To know the water quality parameters of industrial and • domestic water.

USC DSE ChP 09(Inorganic)Practical's	• To know the ion Exchange Method, separation and estimation of Mg(II) and Zn(II) • To understand Chromatographic Separation of Binary Mixture by paper chromatography and determination of Rf Values. • To know Measurement of chloride, sulphate and salinity of water samples by simple titration method • (AgNO3 and potassium chromate). • To estimate the total alkalinity of water samples (CO32-, HCO3-) using double titration method.
USC DSE ChT 14 Physical chemistry	• To differentiate the thermal and photochemical process and explain the Beer-Lamberts laws of photochemistry. • To understand the Jablonski diagram depicting various processes (nonradiative and radiative) • To know the Electrical dipole moment and polarization of molecules. • To know concept of rotationaland vibrational spectroscopy with its application. • To know the term adsorption and Chemisorption explain its application. • To study type of colloidal system, micelle concentration and effect of temperature on CMC. • To know the radioactiveelements, Discovery of radioactivity, types of radioactivity and its application.

USC DSE ChP10Physical Practical	• To verify Beer – Lambert Law for KMnO4/K2Cr2O7 and determining the concentration of the given solution of the substance from absorption. • To verify the Freundlich ads option isotherm by acetic acid on activated charcoal • Determination of polarizability of given molecule by Abbe"refractometer. • To determine CMC of soapsolution. • To know the study effect of temperature on CMC on soap solution.