

DEPARTMENT OF CHEMISTRY

Course Outcomes

Course name: Inorganic Chemistry –I, Organic Chemistry- I (Theory)
(Atomic Structure, Bonding and General Organic Chemistry)

Course Outcomes: Following are the course outcomes:

CO-1: Help students to learn about dual nature of electrons which is helpful to understand quantum chemistry

CO-2: Have detailed knowledge about the theories of covalent bonds, Ionic bond, weak forces, students can find the shape and geometry of molecules.

CO-3: Able to understand different type of bonds by learning about concept of hybridization, resonance, hyper-conjugation, inductive effect which help them to determine the shape and stability of intermediate molecule help them to predict the mechanism of reactions.

Students are able to naming them by IUPAC, they can compare the structure and stability of alkane as well as their cyclic structure (Cycloalkane).

CO-4: Students can find the different shape and geometry and conformation of the molecule.

CO-4: The students can understand the chemistry of hydrocarbons and their uses.

Course name: Inorganic Chemistry –I,
Organic Chemistry- I (Practical)

CO-1: Students can know the strength of any substance.

CO-2: Students are able to identify the organic compounds. Students can understand about the separation of mixture of components.

Course Name: Physical Chemistry- I, Organic Chemistry-II

CO-1: Students are able to learn the concept of thermodynamics, thermochemistry and enthalpy.

They can calculate bond energy, bond dissociation energy and resonance energy from thermochemical data.

CO-2: Students can find out free energy change in a chemical reaction. In addition, they can understand chemical equilibrium and Le Chatelier's principle in detail.

CO-3: This piece of curriculum teaches about electrolytes, degree of ionization, pH scale, salt hydrolysis, acids, bases, buffer solutions, solubility and solubility product.

CO-4: From this section, students can learn preparations and reactions of aromatic hydrocarbons, Alkyl and Aryl Halides, Alcohols, Phenols, Ethers, Alcohols, Aldehydes and ketones together with their general uses.

Course Name: Physical Chemistry- I, Organic Chemistry-II
(Chemical Energetics, Equilibria & Functional Organic Chemistry) (Practical)

CO-1: Students are able to understand the concept of heat capacity of calorimeter, enthalpy of neutralization, enthalpy of ionization and enthalpy of hydration.

CO-2: Students can learn about pH of different solutions and separation of buffers.

CO-3: This section will provide information about Purification of organic compounds, determination of melting and boiling points together with preparation of various compounds.

Course Name: Physical Chemistry-II, Organic Chemistry – III
(Solutions, Phase Equilibrium, Conductance,
Electrochemistry & Functional Group Organic
Chemistry-II) (Theory)

CO-1: The students can understand thermodynamics of ideal solutions, Raoult's law and distillation of solutions, azeotropes and solvent extraction methods.

CO-2: This section will give information about phases, components and degrees of freedom of a system, phase equilibrium and phase diagrams of one and two-component systems.

CO-3: The students will learn about conductivity, electrolytes, ionic mobility, solubility and solubility products together with conductometric titrations.

CO-4: This piece of curriculum gives information about cells, EMF value, electrodes, electrochemical series, transference, liquid junction potential, salt bridge and potentiometric titrations.

CO-5: The students can understand about preparations and reactions of Carboxylic acids and their derivatives, Amines, Diazonium Salts, Amino Acids, Peptides, Proteins and carbohydrates together with their important uses.

Course Name: Physical Chemistry-II, Organic Chemistry - III
(Solutions, Phase Equilibrium, Conductance, Electrochemistry & Functional Group Organic Chemistry-II) (Practical)

CO-1: Students will learn about the equilibrium of a reaction by distribution method.

CO-2: In this section, the students will understand about construction of the phase diagram and determination of the critical solubility temperature of phenol water system.

CO-3: This will be helpful in determining cell constant, equivalent conductance, degree of dissociation and dissociation constant and also in practicing conductometric titrations.

CO-4: Students will learn how to perform potentiometric titrations of different acids, bases and salts.

CO-5: Students will learn about the techniques for qualitative analysis of organic compounds, separation by of amino acids by paper chromatography, Titration curve and differentiating reducing and non-reducing sugars.

Course Name: Inorganic Chemistry-II, Physical Chemistry- III
(Coordination Chemistry, States of Matter & Chemical Kinetics) (Theory)

CO-1: Students can compare the transition properties and the chemical behavior of 1st, 2nd, and 3rd transition series.

CO-2: Students are able to calculate the EAN and got deep knowledge of theories of co-ordination compounds

CO-3: Students are able to know about Crystal field effect, octahedral symmetry, octahedral geometry and square planar coordination.

CO-4: Students understand the difference in between Ideal gases and real gases.

CO-5: Students can get the knowledge of Surface tension and viscosity of a liquid.

CO-6: Students are able to understand the laws of Crystallography, X-Ray diffraction by crystals and Bragg's law.

CO-7: Students understand the concept of reaction rates. Order and molecularity of a reaction.

Course Name: Title of paper: Inorganic Chemistry-II, Physical Chemistry- III
Coordination Chemistry, States Of Matter &
Chemical Kinetics (Practical)

CO-1: Students are able to separate acidic and basic radicals from inorganic mixture. They can estimate the amount of compounds by gravimetric and volumetric analysis.

CO-2: Students are able to measure the surface tension and viscosity.

CO-3: Students are able to understand the kinetic reactions.

Course Name: SEC/Vocational

Students understand the concept of chromatography and spectroscopy and get the knowledge of Pesticide chemistry.