

Department of Chemistry
JSS College for Women(Autonomous), Saraswathipuram, Mysuru-
570009

Course outcomes of BSc -Chemistry -2025-26

I Semester

Course outcomes	
CO1	Explain fundamental concepts of atomic structure including wave nature of electrons, quantum numbers, electronic configuration, and apply Slater's rules to calculate effective nuclear charge.
CO2	To analyze the periodic properties such as atomic and ionic radii, ionization enthalpy, electron gain enthalpy, and electronegativity, and interpret their trends across periods and groups.
CO3	To understand the basic concepts of organic chemistry including reaction mechanisms, intermediates, electronic effects, and evaluate the relative strength of organic acids and bases.
CO4	Application of the principles of physical chemistry to describe gaseous behavior, critical phenomena, liquefaction of gases, and adsorption isotherms, including solving related numerical problems.

II Semester

Course outcomes	
CO1	Understanding the chemical bonding, prediction of 3 dimensional shape, geometry and magnetic properties of covalent molecule.
CO2	Understand the chemistry of cycloalkanes and its aromaticity.
CO3	Understanding electrophilic and nucleophilic aromatic substitution, predicting regioselectivity in the synthesis of substituted aromatic compounds, enhancing synthetic planning and skills in reactivity analysis.
CO4	Understanding the crystal structure, physical properties of molecules, applications of distribution law and mechanism of catalysis in industrial process, analytical techniques and problem solving.

III Semester

Course outcomes	
CO1	To explain the chemistry of <i>p-block elements</i> , transition elements, lanthanides, and actinides, including structure, bonding, properties, and separation techniques.
CO2	To understand preparation methods, properties, mechanisms, and applications of organic compounds such as alcohols, phenols, ethers, and carbonyl compounds.
CO3	To understand organic reaction mechanisms (rearrangements, condensations, substitutions) and apply them to solve structural and conversion-based problems.
CO4	Apply thermodynamic principles, phase rule, and partial molar properties to explain chemical processes, equilibrium systems, and solve numerical problems.

III Semester (Elective)

Course outcomes	
CO1	Explain the concepts of industrial chemistry including fuels, explosives, lubricants, fertilizers, refractories, ceramics, and glasses along with their preparation, properties, and applications.
CO2	Understand the chemistry of drugs, pesticides, and dyes including their synthesis, classification, structure–activity relationships, and applications in medicinal and industrial fields.
CO3	Analyze radiation chemistry processes and polymer chemistry concepts, including mechanisms of polymerization, molecular weight determination, and applications of polymers.
CO4	Apply fundamental principles of quantum chemistry such as blackbody radiation, photoelectric effect, Schrödinger wave equation, and particle in a box to solve numerical and conceptual problems.

IV SEMESTER

CO1	To understand radioactive decay, analyse nuclear reactions and applications of radioisotopes.
CO2	To develop theoretical understanding and developing practical quantitative skills.
CO3	Understanding the chemistry synthesis and 3 dimensional structure of organic compounds.
CO4	Understand the reaction rate and determine the rate laws ,analyzing the factors affecting rate of reactions.
CO5	To understand principles, instrumentation and application of spectrophotometry, analyzing light induced chemical changes.

IV SEMESTER (ELECTIVE)

Course outcomes	
CO1	Study of industrial material science and industrial applications and enhancing the skill for further industrial research
CO2	To understand the importance and applications of petrochemicals to industrial standards
CO3	Structural understanding ,molecular process and application based knowledge for genetic engineering
CO4	Analyzing the performance of different batteries ,execute plating process on metal surfaces to improve their functional properties