

BSc. Chemistry Core course outcomes

| Name of the course | Course code | Course outcomes |
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| Theoretical and Inorganic Chemistry- I | CHE1B01 | CO1: To apply the methods of a research project. CO2: To understand the principles behind volumetry. CO3: To analyse the characteristics of different elements. CO4: To distinguish between different acid base concepts. CO5: To analyse the stability of different nuclei. |
| Theoretical and Inorganic Chemistry- II | CHE2B02 | CO1: To understand the importance and the impact of quantum revolution in science. CO2: To understand and apply the concept that the wave functions of hydrogen atom are nothing but atomic orbitals. CO3: To understand that chemical bonding is the mixing of wave functions of the two combining atoms. CO4: To understand the concept of hybridization as linear combination of orbitals of the same atom. CO5: To inculcate an atomic/molecular level philosophy in the mind. |
| PHYSICAL CHEMISTRY - I | CHE3B03 | CO1: To understand the properties of gaseous state and how it links to thermodynamic systems. CO2: To understand the concepts of thermodynamics and it's relation to statistical thermodynamics. CO3: To apply symmetry operations to categorize different molecules. |
| ORGANIC CHEMISTRY- I | CHE4B04 | CO1: To apply the concept of stereochemistry to different compounds. CO2: To understand the basic concepts of reaction mechanism. CO3: To analyse the mechanism of a chemical reaction. CO4: To analyse the stability of different aromatic systems. |

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| INORGANIC CHEMISTRY PRACTICAL - I | CHE4BO5(P) | <p>CO1: To enable the students to develop skills in qualitative analysis and preparing inorganic complexes.</p> <p>CO2: To understand the principles behind quantitative analysis.</p> <p>CO3: To apply appropriate techniques of volumetric quantitative analysis in estimations.</p> <p>CO4: To analyse the strength of different solutions.</p> |
| INORGANIC CHEMISTRY – III | CHE5BO6 | <p>CO1: To understand the principles behind qualitative and quantitative analysis.</p> <p>CO2: To understand basic processes of metallurgy and to analyse the merits of different alloys.</p> <p>CO3: To understand the applications of different inorganic polymers.</p> <p>CO4: To analyse different polluting agents.</p> <p>CO5: To apply the principles of solid waste management.</p> |
| ORGANIC CHEMISTRY - II | CHE5BO7 | <p>CO1: To understand the difference between alcohols and phenols.</p> <p>CO2: To understand the importance of ethers and epoxides.</p> <p>CO3: To apply organometallic compounds in the preparation of different functional groups.</p> <p>CO4: To apply different reagents for the interconversion of aldehydes, carboxylic acids and acid derivatives.</p> <p>CO5: To apply active methylene compounds in organic preparations.</p> |
| PHYSICAL CHEMISTRY - II | CHE5BO8 | <p>CO1: To apply the concept of kinetics, catalysis and photochemistry to various chemical and physical processes.</p> <p>CO2: To characterise different molecules using spectral methods.</p> <p>CO3: To understand various phase transitions and its applications.</p> |

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| OPEN COURSE ENVIRONMENTAL CHEMISTRY | CHE5D01 | CO 1: Recall the technical/scientific terms involved in pollution. CO 2: Understand the causes and effects of air pollution. CO 3: Understand the sources, types and effects of water pollution. CO 4: Describe water quality parameters. CO 5: Know soil, noise, thermal and radioactive pollutions and their effects. CO 6: Study various pollution control measures. CO 7: Understand the basics of green chemistry. |
| INORGANIC CHEMISTRY- IV | CHE6B09 | CO1: To understand the principles behind different instrumental methods. CO2: To distinguish between lanthanides and actinides. CO3: To appreciate the importance of CFT. CO4: To understand the importance of metals in living systems. CO5: To distinguish geometries of coordination compounds. |
| ORGANIC CHEMISTRY - III | CHE6B10 | CO1: To elucidate the structure of simple organic compounds using spectral techniques. CO2: To understand the basic structure and tests for carbohydrates. CO3: To understand the basic components and importance of DNA. CO4: To understand the basic structure and applications of alkaloids and terpenes. CO5: To distinguish different pericyclic reaction |
| PHYSICAL CHEMISTRY - III | CHE6B11 | CO1: To understand the basic concepts of electrochemistry. CO2: To understand the importance of colligative properties. CO3: To relate the properties of materials/solids to the geometrical properties and chemical compositions. |

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| ADVANCED AND APPLIED CHEMISTRY | CHE6B12 | <p>CO1: To understand the importance of nanomaterials.</p> <p>CO2: To appreciate the importance of green approach in chemistry.</p> <p>CO3: To understand the uses and importance of computational calculations in molecular design.</p> <p>CO4: To understand the role of chemistry in human happiness index and life expectancy</p> |
| ELECTIVE POLYMER CHEMISTRY | CHE6B13(E2) | <p>CO1: To understand various classification of polymers and types of polymerisation methods.</p> <p>CO2: To understand the important characteristics of polymers such as average molecular weight, glass transition temperature, viscoelasticity and degradation.</p> <p>CO3: To appreciate the importance of processing techniques.</p> <p>CO4: To characterise different commercial polymers and to un - recycling.</p> |
| PHYSICAL CHEMISTRY PRACTICAL | CHE6B14(P) | <p>CO1: To enable the students to develop analytical skills in determining the physical properties (physical constants).</p> <p>CO2: To develop skill in setting up an experimental method to determine the physical properties.</p> <p>CO3: To understand the principles of Refractometry, Potentiometry and Conductometry.</p> |

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| ORGANIC CHEMISTRY PRACTICAL | CHE6B15(P) | CO1: To enable the students to develop analytical skills in organic qualitative analysis. CO2: To develop talent in organic preparations to ensure maximum yield. CO3: To apply the concept of melting or boiling points to check the purity of compounds. CO4: To analyse and characterise simple organic functional groups. CO5 :To analyse individual amino acids from a mixture using chromatography |
| INORGANIC CHEMISTRY PRACTICAL - II | CHE6B16(P) | CO1: To enable the students to develop analytical skills in inorganic quantitative analysis. CO2: To understand the principles behind gravimetry and to apply it in quantitative analysis. CO3: To understand the principles behind colorimetry and to apply it in quantitative analysis. |
| INORGANIC CHEMISTRY PRACTICAL - III | CHE6B17(P) | CO1: To enable the students to develop skills in inorganic quantitative analysis. CO2: To understand the principles behind inorganic mixture analysis and to apply it in qualitative analysis. CO3: To analyse systematically mixtures containing two cations and two anions. |
| PROJECT WORK | CHE6B18(Pr) | CO1: To understand the scientific methods of research project. CO2: To apply the scientific method in life situations. CO3: To analyse scientific problems systematically. |

BSc. Chemistry Complementary course outcomes

| Name of the course | Course code | Course outcomes |
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| GENERAL CHEMISTRY | CHE1CO1 | CO1: To understand and to apply the theories of quantitative and qualitative analysis. CO2: To understand the theories of chemical bonding. CO3: To appreciate the uses of radioactive isotopes. CO4: To understand the importance of metals in biological systems. |
| PHYSICAL CHEMISTRY | CHE2CO2 | CO1: To understand the importance of free energy in defining spontaneity. CO2: To realise the theories of different states of matter and their implication. CO3: To understand the basic principles of electrochemistry. |
| ORGANIC CHEMISTRY | CHE3CO3 | CO1: To understand the basic concepts involved in reaction intermediates. CO2: To realise the importance of optical activity and chirality. CO3: To appreciate the importance of functional groups and aromatic stability. CO4: To understand the basic structure and importance of carbohydrates, nucleic acids, alkaloids and terpenes. |
| PHYSICAL AND APPLIED CHEMISTRY | CHE4CO4 | CO1: To understand the basic concepts behind colloidal state and nanochemistry. CO2: To understand the importance of green chemistry and pollution prevention. |

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| | | <p>CO3: To appreciate the importance of different separation methods and spectral techniques.</p> <p>CO4: To understand the extent of chemistry in daily life.</p> |
| CHEMISTRY PRACTICAL | CHE4CO5(P) | <p>CO1: To understand the basic concepts of inter group separation.</p> <p>CO2: To enable the students to develop analytical and preparation skills.</p> |