B.Sc. CHEMISTRY PROGRAMME

Programme Specific Outcomes (PSOs)

PSOs	Program Specific Outcomes
PSO1	To understand basic facts and concepts in chemistry
PSO2	To apply the principles of chemistry
PS03	To appreciate the achievements in chemistry and to know the role of chemistry in nature and in society
PSO4	To familiarize with the emerging areas of chemistry and their applications in various spheres of chemical sciences and to apprise the students of its relevance in future studies
PSO5	To develop skills in the proper handling of instruments and chemicals
PSO6	To familiarize with the different processes used in industries and their applications
PSO7	To develop an eco-friendly attitude by creating a sense of environmental awareness
PSO8	To be conversant with the applications of chemistry in day-to-day life

COURSE OUTCOMES (COS)

CORE COURSE OUTCOMES (COs)

THEORY

CORE COURSE- I

Course Code: CHE1B01 Theoretical and Inorganic Chemistry- I

Cos	Course Outcome Statements
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

CORE COURSE- II

Course Code: CHE2B02 Theoretical and Inorganic Chemistry- II

Cos	Course Outcome Statements
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

CORE COURSE – III

Course Code: CHE3B03 PHYSICAL CHEMISTRY - I

Cos	Course Outcome Statements
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
C03	To apply symmetry operations to categorize different molecules

CORE COURSE-IV

Course Code: CHE4B04 ORGANIC CHEMISTRY– I

Cos	Course Outcome Statements
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.

CORE COURSE- VI

Course Code: CHE5B06 INORGANIC CHEMISTRY – III

Cos	Course Outcome Statements
CO1	To understand the principles behind quanlitative and quantitative analysis
CO2	To understand basic processes of metallurgy and to analyse the merits of different alloys.
CO3	To understand the applications of different inorganic polymers
CO4	To analyse different polluting agents.
CO5	To apply the principles of solid waste management

CORE COURSE- VII

Course Code: CHE5B07 ORGANIC CHEMISTRY – II

Cos	Course Outcome Statements
CO1	To understand the difference between alcohols and phenols.
CO2	To understand the importance of ethers and epoxides.
CO3	To apply organometallic compounds in the preparation of different functional groups.
CO4	To apply different reagents for the inter conversion of aldehydes, carboxylic acids and acid derivatives
CO5	To apply active methylene compounds in organic preparations.

CORE COURSE- VIII

Course Code: CHE5B08 PHYSICAL CHEMISTRY – II

Cos	Course Outcome Statements
CO1	To apply the concept of kinetics, catalysis and photochemistry to various chemical and physical processes.
CO2	To characterise different molecules using spectral methods.
CO3	To understand various phase transitions and its applications.

CORE COURSE- IX

Course Code: CHE6B09 INORGANIC CHEMISTRY – IV

Cos	Course Outcome Statements
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

CORE COURSE – X

Course Code: CHE6B10 ORGANIC CHEMISTRY – III

Cos	Course Outcome Statements
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 reactions

CORE COURSE – XI

Course Code: CHE6B11 PHYSICAL CHEMISTRY – III

Cos	Course Outcome Statements
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

CORE COURSE –XII

Course Code: CHE6B12 Advanced and Applied Chemistry

Cos	Course Outcome Statements
CO1	To understand the importance of nanomaterials.
CO2	To appreciate the importance of green approach in chemistry.
CO3	To understand the uses and importance of computational calculations in molecular design.
CO4	To understand the role of chemistry in human happiness index and life expectancy

CHEMISTRY ELECTIVE CORE COURSE- III (Theory)

Course Code: CHE6B13(E3) MEDICINAL AND ENVIRONMENTAL CHEMISTRY

Cos	Course Outcome Statements
CO1	To understand the importance of drugs in human health.
CO2	To understand the facts about common diseases and treatment.
CO3	To identify the presence of toxic substances in atmosphere.
CO4	To identify the presence of toxic substances in atmosphere.

PRACTICAL

PRACTICAL – I

Course Code: CHE6B14(P) PHYSICAL CHEMISTRY PRACTICAL

Cos	Course Outcome Statements
CO1	To enable the students to develop analytical skills in determining the physical properties (physical constants).
CO2	To develop skill in setting up an experimental method to determine the physical properties.
CO3	To understand the principles of Refractometry, Potentiometry and Conductometry.

PRACTICAL – II

Course Code: CHE6B15(P) ORGANIC CHEMISTRY PRACTICAL

Cos	Course Outcome Statements
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.

PRACTICAL – III

Course Code: CHE6B16(P) INORGANIC CHEMISTRY PRACTCAL-II

Cos	Course Outcome Statements
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

PRACTICAL – IV

Course Code: CHE6B17(P) INORGANIC CHEMISTRY PRACTCAL-III

Cos	Course Outcome Statements
CO1	To enable the students to develop skills in inorganic quanlitative analysis.
CO2	To understand the principles behind inorganic mixture analysis and to apply it in quanlitative analysis.
CO3	To analyse systematically mixtures containing two cations and two anions.

PROJECT

Course Code: CHE6B18(Pr) PROJECT WORK

Cos	Course Outcome Statements
CO1	To understand the scientific methods of research project.
CO2	To apply the scientific method in life situations.
CO3	To analyse scientific problems systematically

OPEN COURSE

OPEN COURSE- I (Theory)

Course Code: CHE5D01 ENVIRONMENTAL CHEMISTRY

Cos	Course Outcome Statements
CO1	Recall the technical/scientific terms involved in pollution.
CO2	Understand the causes and effects of air pollution.
CO3	Understand the sources, types and effects of water pollution.
CO4	Describe water quality parameters.
CO5	Know soil, noise, thermal and radioactive pollutions and their effects.
CO6	Study various pollution control measures

CO7	Understand the basics of green chemistry.

COMPLEMENTARY COURSE

Theory Course- I

Course Code: CHE1C01- GENERAL CHEMISTRY

Cos	Course Outcome Statements
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.

Theory Course- II

Course Code: CHE2C02 - PHYSICAL CHEMISTRY

Cos	Course Outcome Statements
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.

Theory Course- III

Course Code: CHE3C03 - ORGANIC CHEMISTRY

Cos	Course Outcome Statements
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

Theory Course- IV

Course Code: CHE4C04 - PHYSICAL AND APPLIED CHEMISTRY

Cos	Course Outcome Statements
CO1	To understand the basic concepts behind colloidal state and nanochemistry.
CO2	To understand the importance of green chemistry and pollution prevention.
CO3	To appreciate the importance of different separation methods and spectral techniques.
CO4	To understand the extent of chemistry in daily life.

PRACTICAL

Course Code: CHE4C05(P) CHEMISTRY PRACTICAL

Cos	Course Outcome Statements
CO1	To understand the basic concepts of inter group separation.
CO2	To enable the students to develop analytical and preparation skills.