B.Sc. CHEMISTRY

PROGRAMME SPECIFIC OUTCOME

PSO1	To understand basic facts and concepts in chemistry.
PSO2	To appreciate the achievements in chemistry and to know the role of chemistry in natureand in society.
PSO3	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.
PSO4	To develop skills in the proper handling of instruments and chemicals.

• COURSE OUTCOME

SJCHE1B01 : Theoretical and Inorganic Chemistry- I

SJCHE1B01.1	To apply the methods of aresearch project.
SJCHE1B01.2	To understand the principles behind volumetry.
SJCHE1B01.3	To analyse the characteristics of different elements.
SJCHE1B01.4	To distinguish between different acid base concepts.
SJCHE1B01.5	To analyse the stability of different nuclei.

SJCHE2B02 : Theoretical and Inorganic Chemistry- II

SJCHE2B02.1	To understand the importance and the impact of quantum revolution in science.
SJCHE2B02.2	To understand and apply the concept that the wave functions of hydrogen atom are nothing but atomic orbitals.
SJCHE2B02.3	To understand that chemical bonding is the mixing of wave functions of the two combining atoms.
SJCHE2B02.4	To understand the concept of hybridization as linear combination of orbitals of the same atom.
SJCHE2B02.5	To inculcate an atomic/molecular level philosophy in the mind.

SJCHE3B03 : Physical Chemistry - I

SJCHE3B03.1	To understand the properties of gaseous state and how it links to thermodynamic systems.
SJCHE3B02.2	To understand the concepts of thermodynamics and it's relation to statistical thermodynamics.
SJCHE3B02.3	To apply symmetry operations to categorize different molecules.

SJCHE4B04 : Organic Chemistry - I

SJCHE4B04.1	To apply the concept of stereochemistry to different compounds.
SJCHE4B04.2	To understand the basic concepts of reaction mechanism.
SJCHE4B04.3	To analyse the mechanism of a chemical reaction.
SJCHE4B04.4	To analyse the stability of different aromatic systems.

SJCHE4B05(P) : Inorganic Chemistry Practical – I

SJCHE4B05(P).1	To enable the students to develop skills in quatitative analysis and preparing inorganic complexes
SJCHE4B05(P).2	To understand the principles behind quantitative analysis.
SJCHE4B05(P).3	To apply appropriate techniques of volumetric quantitative analysis in estimations.
SJCHE4B05(P).4	To analyse the strength of different solutions.

SJCHE5B06: Inorganic Chemistry – III

SJCHE5B06.1	To understand the principles behind quanlitative and quantitative analysis.
SJCHE5B06.2	To understand basic processes of metallurgy and to analyse the merits of different alloys.
SJCHE5B06.3	To understand the applications of different inorganic polymers.
SJCHE5B06.4	To analyse different polluting agents.
SJCHE5B06.5	To apply the principles of solid waste management.

SJCHE5B07: Organic Chemistry – II

SJCHE5B07.1	To understand the difference between alcohols and phenols.
SJCHE5B07.2	To understand the importance of nitro compounds,heteroc yclic compounds, ethers and epoxides.
SJCHE5B07.3	To apply organometallic compounds in the preparation of different functional groups.
SJCHE5B07.4	To apply different reagents for the inter conversion of aldehydes, carboxylic acids and acid derivatives.
SJCHE5B07.5	To apply active methylene compounds in organic preparations.

SJCHE5B08: Physical Chemistry – II

SJCHE5B08.1	To apply the concept of kinetics, catalysis and photochemistry to various chemical and physical processes.
SJCHE5B08.2	To characterize different molecules using spectral methods.
SJCHE5B08.3	To understand various phase transitions and its applications.

SJCHE6B09: Inorganic Chemistry – IV

SJCHE6B09.1	To understand the principles behind different instrumental methods.
SJCHE6B09.2	To distinguish between lanthanides and actinides.
SJCHE6B09.3	To appreciate the importance of CFT.
SJCHE6B09.4	To understand the importance of metals in living systems.
SJCHE6B09.5	To distinguish geometries of coordinationcompounds.

SJCHE6B10: Organic Chemistry – III

SJCHE6B10.1	To elucidate the structure of simple organic compounds using spectral techniques.
SJCHE6B10.2	To understand the basic structure and tests for carbohydrates.
SJCHE6B10.3	To understand the basic components and importance of DNA
SJCHE6B10.4	To understand the basic structure and applications of alkaloids and terpenes.
SJCHE6B10.5	To distinguish different pericyclic reactions.

SJCHE6B11: Physical Chemistry – III

SJCHE6B11.1	To understand the basic concepts of electrochemistry
SJCHE6B11.2	To understand the importance of colligative properties.
SJCHE6B11.3	To relate the properties of materials/solids to the geometrical properties and chemical compositions.

SJCHE6B12: Advanced and Applied Chemistry

SJCHE6B12.1	To understand the importance of nanomaterials.
SJCHE6B12.2	To appreciate the importance of green approach in chemistry.
SJCHE6B12.3	To understand the uses and importance of computational calculations in molecular design.
SJCHE6B12.4	To understand the role of chemistry in human happiness index and life expectancy.

SJCHE6B13(E1).1	To understand the importance of petrochemicals.
SJCHE6B13(E1).2	To appreciate the importance and to familiarise the opportunities of pharmaceutical, leather and sugar industries.
SJCHE6B13(E1).3	To analyse the role of catalysts in industrial processes.

SJCHE6B13(E2): Elective 2. Polymer Chemistry

SJCHE6B13(E2).1	To understand various classification of polymers and types of polymerisation methods.
SJCHE6B13(E2).2	To understand the important characteristics of polymers such as average molecular weight, glass transition temperature, viscoelasticity and degradation.
SJCHE6B13(E2).3	To appreciate the importance of processing techniques.
SJCHE6B13(E2).4	To characterise different commercial polymers and to understand the significance of recycling.

SJCHE6B13(E3): Elective 3. Medicinal And Environmental Chemistry

SJCHE6B13(E3).1	To understand the importance of drugs in human health.
SJCHE6B13(E3).2	To understand the facts about common diseases and treatment.
SJCHE6B13(E3).3	To identify the presence of toxic substances in atmosphere.
SJCHE6B13(E3).4	To apply chemistry in treatment of water and sewage.

SJCHE6B13(E4): Elective 4. Food And Nutritional Chemistry

SJCHE6B13(E4).2	To understand the harmful effects of alcohol and modern food habits
SJCHE6B13(E4).3	To know the importance of natural food
SJCHE6B13(E4).4	To understand biomolecules, vitamins, enzymes, hormones, nucleic acids and proteins.
SJCHE6B13(E4).5	To understand the importance of nutrition and energy requirements of body
SJCHE6B13(E4).6	To understand immunity defensive mechanism of the body

SJCHE6B14(P): Physical Chemistry Practical

SJCHE6B14(P).1	To enable the students to develop analytical skills in determining the physical properties (physical constants).
SJCHE6B14(P).2	To develop skill in setting up an experimental method to determine the physical properties
SJCHE6B14(P).3	To understand the principles of Refractometry, Potentiometry and Conductometry.

SJCHE6B15(P): Organic Chemistry Practical

SJCHE6B15(P).1	To enable the students to develop analytical skills in organic qualitative analysis.
SJCHE6B15(P).2	To develop talent in organic preparations to ensure maximum yield.
SJCHE6B15(P).3	To apply the concept of melting or boiling points to check the purity of compounds.
SJCHE6B15(P).4	To analyse and characterise simple organic functional groups.
SJCHE6B15(P).5	To analyse individual amino acids from a mixture using chromatography.

SJCHE6B16(P): Inorganic Chemistry Practical-II

SJCHE6B16(P).1	To enable the students to develop analytical skills in inorganic quantitative analysis.
SJCHE6B16(P).2	To understand the principles behind gravimetry and to apply it in quantitative analysis.
SJCHE6B16(P).3	To understand the principles behind colorimetry and to apply it in quantitative analysis.

SJCHE6B17(P): Inorganic Chemistry Practical-III

SJCHE6B17(P).1	To enable the students to develop skills in inorganic qualitative analysis.
SJCHE6B17(P).2	To understand the principles behind inorganic mixture analysis and to apply it in quanlitative analysis.
SJCHE6B17(P).3	To analyse systematically mixtures containing two cations and two anions

SJCHE6B18(Pr): Project Work

SJCHE6B18(Pr).1	To understand the scientific methods of research project.
SJCHE6B18(Pr).2	To apply the scientific method in life situations

SJCHE6B18(Pr).3	To analyse scientific problems systematically.

SJCHE1C01: Complementary Course I: General Chemistry

SJCHE1C01.1	To understand and to apply the theories of quantitative and qualitative analysis.
SJCHE1C01.2	To understand the theories of chemical bonding.
SJCHE1C01.3	To appreciate the uses of radioactive isotopes.
SJCHE1C01.4	To understand the importance of metals in biological systems.

SJCHE2C02: Complementary Course II: Physical Chemistry

SJCHE2C02.1	To understand the importance of free energy in defining spontaneity.
SJCHE2C02.2	To realise the theories of different states of matter and their implication.
SJCHE2C02.3	To understand the basic principles of electrochemistry.

SJCHE3C03: Complementary Course III: Organic Chemistry

SJCHE3C03.1	To understand the basic concepts involved in reaction intermediates.
SJCHE3C03.2	To realise the importance of optical activity and chirality.
SJCHE3C03.3	To appreciate the importance of functional groups and aromatic stability.
SJCHE3C03.4	To understand the basic structure and importance of carbohydrates, nucleic acids, alkaloids and terpenes.

SJCHE4C04: Complementary Course IV: Physical and Applied Chemistry

SJCHE4C04.1	To understand the basic concepts behind colloidal state and nanochemistry
SJCHE4C04.2	To understand the importance of green chemistry and pollution prevention.
SJCHE4C04.3	To appreciate the importance of different separation methods and spectral techniques.
SJCHE4C04.4	To understand the extent of chemistry in daily life.

SJCHE4C05(P) Complementary Course V: Chemistry Practical

SJCHE4C05(P).1	To understand the basic concepts of inter group separation.
SJCHE4C05(P).2	To enable the students to develop analytical and preparation skills.

SJCHE5D01.1	To understand the sources, types and effects of water pollution & air pollution
SJCHE5D01.2	To understand soil, noise, thermal and radioactive pollutions and their effects
SJCHE5D01.3	To study various pollution control measures
SJCHE5D01.4	To understand the basics of green chemistry

SJCHE5D02 Open Course 2: Chemistry In Daily Life

SJCHE5D02.1	To understand the basics of polymer chemistry & petrochemicals
SJCHE5D02.2	To study the functions of biomolecules,vitamins, enzymes, hormones and nucleic acid.
SJCHE5D02.3	To study food additives & food habits
SJCHE5D02.4	To study pesticides, fertilizers, cosmetics & cleansing agents
SJCHE5D02.5	To study the common classes of drugs in pharmaceutical industry and their application.

SJCHE5D03 Open Course 3: Food Science And Medicinal Chemistry

SJCHE5D03.1	To understand food adulteration, food additives and preservation methods
SJCHE5D03.2	To understand the harmful effects of alcohol and modern food habits
SJCHE5D03.3	To understand the importance of medicinal plants
SJCHE5D03.4	To understand biomolecules, vitamins, enzymes, hormones, nucleic acids and proteins.
SJCHE5D03.5	To understand immunity defensive mechanism of the body and pharmaceutical chemistry