COURSE OFFERED

B.Sc CHEMISTRY – MODEL I

PROGRAMME OUTCOMES

PO1	• Apply domain based knowledge to real life situation.
PO2	• Acquire strong communication skills to function effectively in diverse social atmosphere.
PO3	• Adopt environmental values to enable sustainable living in the world.

PROGRAMME SPECIFIC OUTCOMES

PSO1	• To understand the basic concepts of methodology of chemical science.
PSO2	• To develop the practical skills needed to design, conduct and interpret chemical research.

PSO3	• To develop scientific reasoning and analytical problem solving skills.

COURSE OUTCOMES

Course Name and Code	Course Outcome Statement
Semester 1 CH1CRT01 General and Analytical chemistry	• To discuss the basic concepts and methodology of science in general and Chemistry. • Acquire knowledge in instrumental tools used for practicing chemistry and to explain the important analytical techniques. • To describe different types of errors and data analysis.
Semester 2 CH2CRT02 Theoretical and Inorganic Chemistry	• To interpret interest among students in various branches of inorganic chemistry. • To impart essential theoretical knowledge on atomic structure and to create knowledge in chemical bonding. • To acquire the knowledge in periodic table and periodic properties.
mester 3 CH3CRT03 Organic Chemistry-I	• To acquire knowledge in emerging areas of organic chemistry. • To understand basic concepts of organic chemistry. • To evaluate the principle of classification of organic compounds and to find the nomenclature of organic compounds.

Semester 4 CH4CRT04 Organic Chemistry -II	• To impart the students a thorough knowledge about the chemistry of some selected functional groups with a view to develop proper aptitude towards the study of organic compounds. • To define various properties and reactions of some organic compounds. • To analyse reaction mechanisms.
Semester 5 CH5CRT05 Environment, Ecology and Human Rights	• To create environmental awareness to understand the sensitivity of environment. • To understand the different environmental issues and its management and to adapt knowledge on environmental pollution. • To develop a sense of responsibility and proactive citizenship.
Semester 5 CH5CRT06 Organic Chemistry-III	• To impart the students a thorough knowledge about the mechanisms of reactions of some selected functional groups in organic compounds. • To compare basic ideas of carbohydrates, heterocyclic compounds. • To obtain basic knowledge on mode of action of drugs.
Semester 5 CH5CRT07 Physical Chemistry I	• To assess the general characteristics of different states of matter. • To explain various defects in solids. • To attain the basic knowledge on surface chemistry and colloids.

Semester 5 CH5CRT08 Physical Chemistry II	• To create a thorough knowledge of the fundamentals of microwave, infra-red, Raman, electronic, NMR, and ESR spectroscopy. • To describe concepts of fundamentals of quantum mechanics. • To develop knowledge of fundamentals of spectroscopy and basic molecular spectroscopy.
Semester 5 Open Course CH5OPT01 Chemistry In Everyday Life	• To make insight into the processes involved in the production of soaps, detergents, cosmetics etc. • To illustrate basic knowledge in food science, nanomaterials, drugs, plastics, dyes and paper. • To create elementary ideas on pesticides and fertilizers.
Semester 6 CH6CRT09 Inorganic Chemistry	• To develop a thorough knowledge of the different theories to explain the bonding in coordination compounds. • To improve the level of understanding of the chemistry of organometallic compounds, metal carbonyls and metal clusters. • To explain various inter halogen compounds and bonding in boron compounds and to attain knowledge about some bioinorganic compounds.
Semester 6 CH 6CRT10 Organic ChemistryIV	• To create basic idea about structural elucidation of alkaloids.

	• To identify the fundamentals of vitamins, lipids and steroids. • To acquire thorough idea in the chemistry of proteins, amino acids and nucleic acids and to identify organic compounds using spectroscopy
Semester 6 CH6CRT11 Physical Chemistry III	• To compute thermochemical equations and kinetic equations. • To assess phase diagrams and elementary idea of catalysis. • To generate thermodynamic and kinetics aspects of chemical reactions and phase equilibria.
Semester 6 CH6CRT12 Physical Chemistry IV	• To apply basic concepts of solutions and electrochemistry . • To practice knowledge on problem solving skill. • To learn ionic equilibria and electrical properties of ions in solutions.
Semester 6 Choice Based Course CH6CBT01 Polymer Chemistry	• To implement basic ideas of polymer chemistry and polymer technology. • To evaluate the reactions and properties of different polymers. • To detect the applications of different polymers.

COMPLEMENTARY (For Zoology)

Semester 1 CH1CMT01	• To explain the structure of atom and to develop the basic concept on chemical bonding

Basic Theoretical And Analytical Chemistry	• To learn the important analytical techniques and to observe various industrial techniques. • Acquire knowledge in instrumental tools used for practicing chemistry.
Semester 2 CH2CMT02 Basic Organic Chemistry	• To discuss fundamental concepts of organic chemistry. • To illustrate the mechanisms in various organic reactions and to imagine about conformations. • To learn about various polymers and its applications.
Semester 3 CH3CMT04 Inorganic And Organic Chemistry	• To assess about nuclear reactions and its applications. • To create idea about various drugs and its mode of action. • To categorize about the ingredients in a cosmetic product and to understand about toxic effects of cosmetics and fast foods.
Semester 4 CH4CMT06 Advanced Bio-Organic Chemistry	• To compare different types of soaps and detergents and to analyse the structure of DNA,RNA etc. • To explain about classification of vitamins, steroids and hormones.

	• To define carbohydrates and its structure.

PRACTICALS AND PROJECT

For Core Chemistry

Semester 1&2 CH2CRP01 Volumetric Analysis	• To develop skills in different titrations. • To estimate various metals. • To assess complexometric titration, redox titration, acidimetric and alkalimetric titrations.
Semester 3&4 CH4CRP02 Qualitative Organic Analysis	• To compare different functional groups. • To make tests for Nitrogen, Sulphur, Halogens to analyse organic compounds • To identify test for unsaturation and aromatic character.
Semester 5&6 CH6CRP03 Qualitative Inorganic Analysis	• To identify different acid radicals and basic radicals. • To analyse a mixture containing one interfering radical. • To verify various identification and confirmation tests.
Semester 5&6 CH6CRP04 Organic Preparations And Laboratory Techniques	• To study various organic preparations. • To acquire practical skill in distillation, TLC.

	• To develop skills in crystallisation, solvent extraction.
Semester 5&6 CH6CRP05 Physical Chemistry Practicals	• To acquire knowledge in conductometric and potentiometric titrations. • To interpret the molecular weight by Rast's method and to observe freezing point. • To measure the CST of water-phenol system and to observe transition temperature of a salt hydrate
Semester 5&6 CH6CRP06 Gravimetric Analysis	• To estimate Barium as Barium Sulphate. • To acquire practical skill in precipitation. • To develop skills in gravimetric analysis.
Semester 5&6 CH6PRP01 Project, Industrial Visit & Comprehensive Viva-Voce	• To develop skills in various industrial techniques. • To observe the working and principle of various industrial techniques. • To analyse graphical datas from the experiment and to develop skills to submit a project report.

For complementary (zoology)

Semester 1&2 CH2CMP01 Volumetric Analysis	• To develop skills in different titrations. • To analyse about acidimetric and alkalimetric titrations. • To acquire skills in permanganometry, dichrometry, iodometry.
Semester 3&4 CH4CMP03 Organic Chemistry Practicals	• To practice tests for Nitrogen, Sulphur, Halogens. • To verify systematic analysis of organic compounds. • To identify test for unsaturation and aromatic character.