Department- B.Sc. (Chemistry)

Programme Outcomes (POs)

PO-1 Disciplinary Knowledge- Demonstrate, solve and an understanding of major concepts in all disciplines of chemistry.

PO-2 Communication Skills Solve the problem and also think methodically, independently and draw a logical conclusion.

PO-3 Critical Thinking Employ critical thinking and the scientific knowledge to design, carry out, record and analyze the results of Chemical reactions.

PO-4 Analytical Reasoning and Problem Solving Create an awareness of the impact of Chemistry on the environment, society, and development outside the scientific community.

PO-5 Sense of Inquiry Find out the green route for Chemical reaction for sustainable development.

PO-6 Use of Modern Tools To inculcate the scientific temperament in the students and outside the scientific community.

PO-7 Research Skills Use modern techniques, decent equipments and Chemistry softwares.

Programme Specific Outcomes (PSOs)

PSO-1	Gain the knowledge of Chemistry through theory and practicals.
PSO-2	To explain Nomenclature, Stereochemistry, Structures, Reactivity, and Mechanism of the Chemical reactions.
PSO-3	Identify Chemical formulae and solve numerical problems.
PSO-4	Use modern Chemical tools, Models, CHEM-draw, Charts and Equipments.
PSO-5	Know structure-activity relationship.
PSO-6	Understand good laboratory practices and safety.
PSO-7	Develop research oriented skills.
PSO-8	Make aware and handle the sophisticated instruments/equipments
PSO-9	Understands ethics in research writing, how to write a research paper, how life originated on earth.
PSO-10	Understands ultra-structure of cells and their importance in life as well as Biomolecules.
PSO-11	Understands and applies knowledge gain about various concepts of Comparative Embryology, Aspects of Human Reproduction, Pollution and its effect on organisms for better society and citizen in future.

Course Outcomes (COs)

SEMESTER-I

COURSE CODE: USCH101

COURSE NAME: CHEMISTRY PAPER I

After successful completion of this course, students will be able to:	
CO-1	To make the students have a firm foundation in the fundamentals of chemical and scientific theories in Physical, Inorganic and Organic Chemistry.
CO-2	To make the students have a firm foundation in the fundamentals of chemical and scientific theories in Physical, Inorganic and Organic Chemistry.
CO-3	To make learner understand the basic concepts of system, surrounding, thermodynamic properties, functions, law of thermodynamics and introduction of thermochemistry.

COURSE CODE: USCH102

COURSE NAME: CHEMISTRY PAPER II

After successful completion of this course, students will be able to:	
CO-1	Understand and apply Gas Laws.
CO-2	To introduce the concepts of periodic table, periodicity of elements and their properties, effective nuclear charge, Slaters rule to the learner.
CO-3	To familiarize the learner with the system of IUPAC nomenclature for organic compounds.

SEMESTER-II

COURSE CODE: USCH201

COURSE NAME: CHEMISTRY PAPER I

After successful completion of this course, students will be able to:	
CO-1	To allow the learner to deal with quantitative aspects of chemistry.
CO-2	To introduce the concept of hybridization w.r.t to carbon, nitrogen and oxygen in organic compounds.
CO-3	To introduce electrochemistry concepts

COURSE CODE: USCH202

COURSE NAME: CHEMISTRY PAPER II

After successful completion of this course, students will be able to:	
CO-1	To allow the learner to deal with quantitative aspects of chemistry.
CO-2	To introduce the concept of hybridization w.r.t to carbon, nitrogen and oxygen in organic compounds.
CO-3	Application of fundamentals to practical analysis of compounds

SEMESTER-III

COURSE CODE: USCH301

COURSE NAME: CHEMISTRY PAPER I

After successful completion of this course, students will be able to:	
CO-1	To infuse in the learner a spirit of inquiry into the fundamental aspects of the various core areas of Chemistry.
CO-2	To infuse in the learner a spirit of inquiry into the fundamental aspects of the various core areas of Chemistry.
CO-3	To make the learner proficient in analyzing the various observations and chemical phenomena presented to him during the course.

COURSE CODE: USCH302

COURSE NAME: CHEMISTRY PAPER II

After successful completion of this course, students will be able to:	
CO-1	To make the learner capable of solving. Problems in the various units of this course.
CO-2	To give the learner an opportunity to get hands on experience of the various concepts and processes in the various branches of chemistry
CO-3	To impart various skills of handling chemicals, reagents, apparatus, instruments and the care and safety aspects involved in such handling

COURSE CODE: USCH303

COURSE NAME: CHEMISTRY PAPER III

After successful completion of this course, students will be able to:	
CO-1	To make the learner capable of solving. problems in the electrochemistry
CO-2	To make the learner capable of analyzing and interpreting results of molecular spectroscopy.
CO-3	To impart various skills of handling chemicals, reagents, apparatus, instruments and the care and safety aspects involved in such handling

SEMESTER-IV

COURSE CODE: USCH401

COURSE NAME: CHEMISTRY PAPER I

After successful completion of this course, students will be able to:	
CO-1	Understand Aufbau principle.
CO-2	Explain the hybridization of C, N, O in the given organic compound.
CO-3	Determine the structure of organic compound from the IUPAC name of that compound

COURSE CODE: USCH402

COURSE NAME: CHEMISTRY PAPER II

After successful completion of this course, students will be able to:	
CO-1	Compare the homolytic and heterolytic fission of bond with examples.

CO-2	Classify the different types of organic reactions
CO-3	Describe electron gain enthalpy and ionization enthalpy.

COURSE CODE: USCH403

COURSE NAME: CHEMISTRY PAPER III

After successful completion of this course, students will be able to:	
CO-1	Learn various ways of defining concentration of a compound in solution.
CO-2	Apply the knowledge acquired for calculating the concentration of a compound in solution.
CO-3	Convert one concentration unit to other

SEMESTER-V

COURSE CODE: USCH501

COURSE NAME: PHYSICAL CHEMISTRY

After successful completion of this course, students will be able to:	
CO-1	To introduce to the learner molecular spectroscopy.
CO-2	To take learners through colligative properties in chemical thermodynamics
CO-3	To orient learners about collision theory of chemical kinetics and classification of reactions
CO-4	To introduce to the learner molecular spectroscopy

COURSE CODE: USCH502

COURSE NAME: INORGANIC CHEMISTRY

After successful completion of this course, students will be able to:	
CO-1	To introduce the concepts of molecular symmetry and chemical bonding
CO-2	To expose the learner to the concept of solid state chemistry and super conductivity
CO-3	To equip learner with a sound knowledge chemistry of inner Transition elements, chemistry of non-aqueous solvents and chemistry of Group 16 and 17
CO-4	To enable the learner to understand the theories of metal-ligand bond, stability of metal complexes, reactivity of metal complexes and electronic spectra of complexes

COURSE CODE: USCH503

COURSE NAME: ORGANIC CHEMISTRY

After successful completion of this course, students will be able to:	
CO-1	To make them aware of mechanism of organic reactions
CO-2	To introduce the concepts of photochemistry
CO-3	To expose the learner to stereochemistry
CO-4	To equip learner with heterocyclic chemistry

COURSE CODE: USCH504

COURSE NAME: ANALYTICAL CHEMISTRY

After successful completion of this course, students will be able to:	
CO-1	To introduce the concept of quality in analytical chemistry
CO-2	To make the learner understand the calculations for interconversion in chemical calculations and sampling
CO-3	To introduce the insstrumentation of spectroscopic techniques in analytical chemistry
CO-4	To provide learners acomplete insight to method of separation -solvent extraction ,HPLC,HPTLC

COURSE CODE: UACDD501

COURSE NAME: DRUGS AND DYES

After successful completion of this course, students will be able to:	
CO-1	Concepts of drugs involving nomenclature & medicinal terms
CO-2	Various routes of drug administration.
CO-3	Concepts of dyes involving terms like solubility, linearity, coplanarity, substantivity, economic viability.
CO-4	Unit process & dyeing intermediates.

SEMESTER-VI

COURSE CODE: USCH601

COURSE NAME: PHYSICAL CHEMISTRY

After successful completion of this course, students will be able to:	
CO-1	To make learners aware of Nuclear chemistry
CO-2	To acquaint learners to surface chemistry
CO-3	To facilitate the learning of electrochemistry and Polymers
CO-4	To introduce the learner to be competent at all basic laboratory skills and will be able to complement and develop these with more advanced techniques

COURSE CODE: USCH602

COURSE NAME: INORGANIC CHEMISTRY

After successful completion of this course, students will be able to:	
CO-1	To develop an understanding of organometallic chemistry metallocenes and catalysis
CO-2	To acquaint the learner with metallurgy, chemistry of group 18 and Bio inorganic molecules
CO-3	To make them aware of mechanism of organic reactions
CO-4	To introduce the learner to be competent at all basic laboratory skills and will be able to complement and develop these with more advanced techniques

COURSE CODE: USCH603

COURSE NAME: ORGANIC CHEMISTRY

After successful completion of this course, students will be able to:	
CO-1	To enable the learner to understand different methods of synthesis of organic compounds –Multicomponent synthesis and, green chemistry and synthesis.
CO-2	To acquaint the learner with IUPAC system of nomenclature of bicyclic, biphenyls, cummulene,quinolones and isoquinolines
CO-3	To introduce the learner to agrochemicals,polypeptides and nucliec acids and Spectroscopy
CO-4	To give learner insight into planning of organic synthesis

COURSE CODE: USCH604

COURSE NAME: ANALYTICAL CHEMISTRY

After successful completion of this course, students will be able to:	
CO-1	To aquaint the learners on various electroanalytical methods specific reference to Polarography, Amperometric titrations
CO-2	To provide learners a complete insight to method of separation -GC and Ion exchange chromatography
CO-3	To impart knowledge of thermal methods in analytical chemistry
CO-4	To introduce students about food chemistry and cosmetics

COURSE CODE: UACDD601

COURSE NAME: DRUGS AND DYES

After successful completion of this course, students will be able to:	
CO-1	Classification of drugs, synthesis of different kind of drugs like tramadol, paracetamol, sodium diclofenac, cetirizine, atenolol etc.
CO-2	Drug discovery, computer assisted design and development of drugs.
CO-3	Types of dyes i.e. natural dyes, synthetic dyes & substrate for dyes.
CO-4	Classification of dyes based on application & dyeing methods.