

DEPARTMENT OF CHEMISTRY

Programme: B.Sc., Chemistry

PO No.	Programme Outcomes Upon completion of the B.Sc. Degree Programme the graduate will be able to
PO-1	transform and empower women graduates to meet global challenges through holistic education in terms of recent Teaching-Learning methodologies
PO-2	groom the graduates towards excellence through building communication skills, handling leadership challenges and negotiating career path ways
PO-3	heighten the conscious of the graduates on socio-economic concern and to evolve it as an in built mechanism to chisel as better human being.
PO-4	produce graduates strengthened by contextual knowledge of chemistry with innovative research attitude and serve the society with appropriate consideration for sustainable development.
PO-5	produce chemists who can nurture the needs of chemical industries and laboratories

PSO No.	Programme Specific Outcomes Upon completion of these courses the student would
PSO-1	make use of the concepts of organic, inorganic, physical chemistry and their applications in day to day life
PSO-2	validate the multiple utility of chemistry in various interdisciplinary aspects
PSO-3	use modern chemical tools, Models, Chem-draw, Charts, computational Chemistry Softwares and Analytical Equipment.
PSO-4	execute new ideas in higher education, research and development using the principles and techniques of Chemistry
PSO-5	be competent to take challenging positions in industry, academics and government sectors by learning various qualitative and quantitative analytical skills and their applications.

Course Title	CORE CHEMISTRY - I	
CODE	18CHUC101	
CO No.	Course Outcomes	Knowledge Level
CO-1	Recognize the formation of ionic bonding and their characteristics	K2, K3
CO-2	Apply the concept of hybridization and explore molecular geometry	K2
CO-3	Acquire knowledge of polar effects and reactive intermediates	K1, K3
CO-4	Interpret the Chemistry of Alkenes and Dienes	K2, K3
CO-5	Realize the chemistry of Cycloalkanes, Alkynes and concept of Conformations,	K2, K3

Course Title	CORE CHEMISTRY - II	
CODE	18CHUC102	
CO No.	Course Outcomes	Knowledge Level
CO-1	Acquire Knowledge of Ozone, Hydrogen peroxide and Sulphur family elements.	K1, K2
CO-2	Apply the concept of aromaticity to benzenoid compounds and interpret the mechanisms of electrophilic substitution reactions.	K2
CO-3	Recognize the Liquid crystals and condensed phase.	K2, K3
CO-4	Understand the background of quantum chemistry and advanced approach to quantum mechanical model of atoms.	K2, K3
CO-5	Develop ideas on quantum mechanical approach to larger molecules.	K2, K3

Course Title	CORE CHEMISTRY - III	
CODE	18CHUC203	
CO No.	Course Outcomes	Knowledge Level
CO-1	Interpret the Key Features of Co-ordination Complexes and its applications	K1,
CO-2	Apply the concepts of gaseous law and to study their properties	K2, K3
CO-3	Realize the thermodynamic aspect of various energy transformations	K2,K3
CO-4	Analyze the potential of Thermo chemical conversions through 1st law	K2, K3
CO-5	Investigate substitution mechanisms in organic conversions and the factors influencing	K2,K3

Course Title	CORE CHEMISTRY - IV	
CODE	18CHUC204	
CO No.	Course Outcomes	Knowledge Level
CO-1	Comprehend the principles and steps involved in the extraction of metals	K1,
CO-2	Compare the Physical and Chemical properties of Alkali and Alkaline Earth metals	K2,K3
CO-3	Interpret the reactions of carbonyl compounds- Aldehydes and Ketones	K2,K3
CO-4	Analyse thermodynamic processes and derive expressions for II law of Thermodynamics	K2,K3
CO-5	Apply the concepts of Chemical Equilibrium	K2,K3

Course Title	Core Chemistry Practical I INORGANIC QUALITATIVE SEMI MICRO ANALYSIS	
CODE	18CHUCP01	
CO No.	Course Outcomes	Knowledge Level
CO-1	Perform systematic semi micro qualitative analysis	K1
CO-2	Interpret the nature of various inorganic anions and cations	K2 K3
CO-3	Identify and detect various anions and cations through their reactions	K2
CO-4	Eliminate interfering anions from the inorganic mixtures	K2 K3
CO-5	Identify anions and cations group according to their properties	K1 K3

Course Title	ALLIED CHEMISTRY I (FOR B.Sc PHYSICS)	
CODE	18CHUA101	
CO No.	Course Outcomes	Knowledge Level
CO-1	Understand the nature of chemical bonding and geometry of various molecules	K1
CO-2	Recognise Inorganic fertilizers, Hardness of Water and Treatment of water for municipal Supply	K2 K3
CO-3	Interpret various organic reactions and their mechanism, stereoisomerism	K2
CO-4	Understand the chemistry of dyes, sulpho drugs, penicillin and vitamins	K2 K3
CO-5	Analyse the concepts of chemical kinetics and chromatography	K3

Course Title	ALLIED CHEMISTRY I (FOR B.Sc N&D,BOTANY and ZOOLOGY)	
CODE	18CHUA001/18CHUA303	
CO No.	Course Outcomes	Knowledge Level
CO-1	Distinguish and analyse the quality of oils and fats	K1
CO-2	Recognise Inorganic fertilizers, Hardness of Water and Treatment of water for municipal Supply.	K2, K3
CO-3	Describe the quality and types of fuels	K2
CO-4	Recognize various polymers and their applications	K2, K3
CO-5	Interpret the principles of adsorption and apply them to various processes.	K2, K3

Course Title	ALLIED CHEMISTRY II (for B.Sc PHYSICS)	
CODE	18CHUA202	
CO No.	Course Outcomes	Knowledge Level
CO-1	Realise the principles of metallurgy with the process involved and have basic knowledge on coordination chemistry	K1
CO-2	Interpret the substitution reactions of benzene and know the chemistry of heterocyclics	K2 K3
CO-3	Classify and characterize Amino acids and Carbohydrates	K2
CO-4	Familiarize with various polymers and applications	K2 K3
CO-5	Recognise the principles of electrochemistry and apply them to Biological Systems	K1 K3

Course Title	ALLIED CHEMISTRY II (FOR B.Sc N&D,BOTANY and ZOOLOGY	
CODE	18CHUA002/18CHUA404	
CO No.	Course Outcomes	Knowledge Level
CO-1	Realize the concepts of chemistry of coordination compounds and Bio inorganic chemistry	K1
CO-2	Classify and identify the sources of carbohydrates and vitamins	K2 K3
CO-3	Interpret the properties of amino acids and proteins and acquire skills in first aid.	K2
CO-4	Familiarize the nature of various therapeutic drugs	K2 K3
CO-5	Categorize the chemistry of different cosmetics and soaps	K1 K3

Course Title	ALLIED CHEMISTRY PRACTICALS	
CODE	18CHUAP01	
CO No.	Course Outcomes	Knowledge Level
CO-1	Perform quantitative analysis of solutions containing inorganic substances	K1
CO-2	Carryout skillfully the qualitative and quantitative analysis of solutions	K2 K3
CO-3	Identify and detect various organic functional groups.	K2
CO-4	Identify the special elements present in organic compounds	K3
CO-5	Analyze the aliphatic/aromatic , saturated unsaturated character of organic compounds	K3

Course Title	CORE CHEMISTRY - V	
CODE	18CHUC305	
CO No.	Course Outcomes	Knowledge Level
CO-1	Acquire knowledge in Boron family and compounds of Boron	K2, K3
CO-2	Apprehend the metallurgy of Germanium and Transition metals	K1,K3
CO-3	Assist to understand the Chemistry of Phenols	K1,K2,K3
CO-4	Procure the reactions of Aliphatic and aromatic amines	K1,K2,K3
CO-5	Apply the concept of Phase rule to one and two component systems	K2, K3

Course Title	CORE CHEMISTRY - VI	
CODE	18CHUC406	
CO No.	Course Outcomes	Knowledge Level
CO-1	Recognise the Purification and Estimation techniques in organic chemistry and its applications	K2
CO-2	Illuminate the perception of dye chemistry	K2,K3
CO-3	Perceive the metallurgy of iron group metals and their uses	K2,K3
CO-4	Understand the ideal, nonideal solutions and colligative properties	K2,K3
CO-5	Describe the adsorption isotherms	K1,K2

Course Title	CORE PRACTICAL II- VOLUMETRIC AND ORGANIC ANALYSIS	
CODE	18CHUCP02	
CO No.	Course Outcomes	Knowledge Level
CO-1	Perform quantitative analysis of solutions containing inorganic substances	K1
CO-2	Carryout skillfully the qualitative and quantitative analysis of solutions	K2, K3
CO-3	Identify and detect various organic functional groups and special elements present in organic compounds.	K2
CO-4	Analyze the aliphatic/aromatic , saturated unsaturated character of organic compounds	K3
CO-5	Prepare derivatives of organic compounds	K3

Course Title	CoreChemistryPaper – VII INORGANICCHEMISTRY	
CODE	18CHUC507	
CO No.	Course Outcomes	Knowledge Level
CO-1	Acquire knowledge ofmetallicbonding andalloys	K2,K3
CO-2	Understand the conceptofradioactivityandnuclear Reactions	K2
CO-3	Interpretthenatureofisotopeandisobars	K2,K3
CO-4	Describetheconcepts andbehaviorofacids andbases	K2,K3
CO-5	Classify thetypes andproperties ofsolvents	K2,K3

Course Title	Core Chemistry – VIII ORGANIC CHEMISTRY	
CODE	18CHUC508	
CO No.	Course Outcomes	Knowledge Level
CO-1	Apply the concept of optical isomerism and interpret the stereochemistry of aliphatic and alicyclic compounds	K2, K3, K4
CO-2	Analyze and differentiate the types and mechanism of molecular rearrangement reaction	K2, K3
CO-3	Gain knowledge about structural elucidation of carbohydrates and its interconversion methods	K1, K2, K3
CO-4	Classify and characterize the structure and properties of amino acids and proteins	K2, K3
CO-5	Obtain knowledge about the synthesis and properties of heterocyclic compounds	K2, K3

Course Title	ELECTRO CHEMISTRY	
CODE	18CHUC509	
CO No.	Course Outcomes	Knowledge Level
CO-1	Explain principles and theories of electrical and electrolytic conduction and able to perform conductometric titrations	K1, K2, K3
CO-2	Construct electrochemical cell of any combination of metals and calculate emf	K2, K3
CO-3	Analyse the performance of concentration cells and perform potentiometric titrations	K2, K3, K4
CO-4	Carry out qualitative and quantitative polarographic analysis	K2, K3, K4
CO-5	Evaluate and design corrosion control methods	K2, K3, K4

Course Title	Elective Paper - I ANALYTICAL CHEMISTRY	
CODE	18CHUE501	
CO No.	Course Outcomes	Knowledge Level
CO-1	Explain the fundamental principles and techniques in analytical chemistry and able to draw the structure of Molecules with the aid of computer.	K1, K2
CO-2	Acquire the knowledge about Errors, Precision & Accuracy, report of Analytical data and to grasp the significance of Electro analytical techniques	K3, K4,
CO-3	Apply the principles, rules and the steps implicated in Gravimetric & Electro-gravimetric Analysis	K2,K3
CO-4	Acquainted with the principles and Applications of Chromatographic techniques	K2,K3
CO-5	Stature the principle, instrumentation and application of Thermo Analytical methods	K2, K3

Course Title	Elective Paper I PHARMACEUTICAL CHEMISTRY	
CODE	18CHUE502	
CO No.	Course Outcomes	Knowledge Level
CO-1	Explain the important terms in Pharmaceutical Chemistry and understand the first aid techniques	K1,K2, K3
CO-2	Acquire knowledge of food poisoning , causes and treatment of common diseases and Indian medicinal plants	K2
CO-3	Obtain the understanding of Blood and Hematological agents	K1,K3
CO-4	Describe the organic Pharmaceutical aids and need of storage of Pharmaceutical Substances	K2,K3
CO-5	Explainthe clinical testing of sugar, serum, protein, bile pigments	K2, K3

Course Title	Core Chemistry Paper- X PRINCIPLES AND APPLICATIONS OF SPECTROCOPY	
CODE	18CHUC610	
CO No.	Course Outcomes	Knowledge Level
CO-1	Assess the electrical and magnetic properties of molecules and interpret the interaction of electromagnetic radiation with matter.	K1,K2, K3
CO-2	Elucidate the types of bonding in organic compounds	K2 K3,K4
CO-3	Identify the functional groups in organic compounds by interpretation of IR spectra	K2,K3,K4
CO-4	Compare and classify the types of protons in organic molecules.	K2,K3
CO-5	Interpret the mass spectra to arrive at the molecular formula and molecular weight of organic compounds.	K2, K3,K4

Course Title	Core Paper- XI CHEMICAL KINETICS	
CODE	18CHUC611	
CO No.	Course Outcomes	Knowledge Level
CO-1	Apply empirical laws and to the experimental aspects of rate laws	K2, K3
CO-2	Interpret the order of reactions and methods of experimental techniques	K2,K3
CO-3	Acquire knowledge about reaction rate theories	K1,K3
CO-4	Categorize the catalysts and their kinetics	K2,K3
CO-5	Relate the kinetics of photochemical reaction	K3, K4

Course Title	Core Chemistry Paper XII CHEMISTRY OF NATURAL PRODUCTS	
CODE	18CHUC612	
CO No.	Course Outcomes	Knowledge Level
CO-1	Acquire the knowledge of isolation and structure elucidation of some important terpenoids	K1,K2, K3
CO-2	Elucidate the structure of alkaloids	K1,K2,K3
CO-3	Attain the understanding of Vitamins and their importance	K1,K3
CO-4	Realize the information about the chemistry of Hormones and Steroids	K2,K3
CO-5	Attain awareness about medicinal plants	K2, K3

Course Title	Elective Paper -II POLYMER CHEMISTRY	
CODE	18CHUE603	
CO No.	Course Outcomes	Knowledge Level
CO-1	Describe basic concepts of polymerization and methods of polymerisation	K2, K3
CO-2	Differentiate various types of polymerisation	K2
CO-3	Establish stereoregulation in polymers	K2,K3
CO-4	Determine the molecular weights of polymers	K2,K3
CO-5	Identify methods used for preparation of polymers	K2, K3

Course Title	Elective Paper II	
	WATER – QUALITY ANALYSIS AND TREATMENT	
CODE	18CHUE604	
CO No.	Course Outcomes	Knowledge Level
CO-1	Acquire knowledge of physical and chemical properties of water	K1,K2
CO-2	Acquainted with techniques dealing purification of water	K1,K2,K3
CO-3	Obtain the understanding of hardness of water and its removal	K2,K3
CO-4	Receive the awareness of waste water treatment and realize the importance of reuse of water	K2,K3
CO-5	Gain knowledge of water sample collection and analytical testing	K2, K3

Course Title	Core Chemistry Practical - III	
	GRAVIMETRIC ANALYSIS AND PHYSICAL CHEMISTRY	
CODE	18CHUCP03	
CO No.	Course Outcomes	Knowledge Level
CO-1	Carry out different types of conductometric titrations	K2, K3
CO-2	Implement potentiometric titration of different kinds	K2,K3
CO-3	Determine molecular weight and transition temperature of various substances	K2,K3
CO-4	Evaluate the CST of partially miscible liquids	K2,K3
CO-5	Perform quantitative analysis of substances by gravimetry	K2, K3

Course Title	ELECTIVE PRACTICAL	
CODE	18CHUEP01	
CO No.	Course Outcomes	Knowledge Level
CO-1	Extend the theoretical knowledge of chemistry to practical applications	K2, K3
CO-2	Perform quantitative analysis by complexometry	K2,K3
CO-3	Carry out colorimetric estimation of various ions	K2,K3
CO-4	Determine melting and boiling point of various substances	K2,K3
CO-5	Execute dyeing of different types of fabrics	K2, K3