B.Sc. Chemistry Honours

Course Outcome:

Semester	Paper	Subject	Topics	Outcome	Remarks
I	BCHEM 0101	Inorganic I (Th)	1. Atomic Structure and Nuclear Chemistry 2. Periodic Table and Periodic Properties 3. Chemical Bonding in Covalent Compounds 4. Molecular Orbital Theory	Gives comprehensive ideas about the basics of inorganic chemistry, MO theory, particularly the molecular orbital of polyatomic molecules are interesting for the beginners.	
	BCHEM 0102	Organic I (Th)	1. Classification and nomenclature 2. Structure, bonding and properties of organic molecules; Organic acids and bases 3. Organic reaction mechanism 4. Nucleophilic substitution 5. Stereochemistry	Gives comprehensive ideas about the basics of organic chemistry, The areas- mechanism and stereochemistry help in developing a sound knowledge about organic chemistry.	
II	BCHEM 0201	Physical Chemistry I (Th)	1. Properties of gas 2. Thermodynamics I 3. Properties of fluids	Gives comprehensive ideas about the basics of physical chemistry, The areas- gas and thermodynamics help in developing a sound knowledge about physical chemistry.	
	BCHEM 0202	Physical Chemistry I (Lab)	1. Surface Tension 2. Viscosity		

	BCHEM 0203 BCHEM 0204	Organic Chemistry II (Th) Organic Chemistry II (Lab)	1. Stereochemistry II 2. Elimination reactions 3. Addition reactions 4. Nucleophilic addition to carbonyl group Org Qualitative and derivative preparation	The students are enriched with substantial knowledge of name reactions and synthesis	
III	BCHEM 0301 BCHEM 0302 BCHEM 0303 BCHEM 0304 BCHEM 0305 BCHEM 0306 BCHEM 0307	Inorganic Chemistry II (Core V) Inorg Lab Organic Chemistry III (Core VI) Org Lab Physical Chemistry II (Core VII) Physical Chem Lab Industrial Chemistry	1. Chemistry of s and p block elements 2. Acids and bases Qualitative analysis 1. Molecular rearrangements 2. Aromatic Electrophilic Substitution 3. Synthesis Org Quantitative 1. Thermodynamics II 2. Statistical Thermodynamics 3. Chemical Kinetics 4. Ionic Equilibrium 5. Solids 1. Hydrogen Peroxide decomposition 2. Solubility Product Water, Electrochemical and electrothermal industries, Ceramics, Rusting in iron and steel, Industrial Safety and Fire Protection, Pollution	The students are made aware of the recent trends in chemistry of elements and their compounds as well as about acids and bases. It gives a complete profile of synthetic methodology and name reactions. The students get a thorough knowledge of the mentioned areas of the topics. The candidate gets a good knowledge about the fundamental areas of industrial chemistry Enlights the students with drug discovery, design and development	

	BCHEM 0308	Pharmaceutical Chemistry	Drugs and pharmaceuticals, Fermentation		
IV	BCHEM 0401	Inorganic Chemistry III (Core VIII)	1. d and f blocks 2. Coordination Chemistry I	The students have a difficulty in understanding transition metal chemistry without the proper knowledge of Coordination Chemistry II, however the problem can be sorted out with collective efforts from students and Teachers.	
	BCHEM 0402	Inorg Lab	Preparation	Students get a sound knowledge	
	BCHEM 0403	Organic Chemistry IV (Core IX)	1. Heterocyclic compounds 2. Alicyclic compounds 3. Amino acids and proteins 4. Carbohydrates 5. Alkaloids and Terpenoids	of natural products chemistry Helps in developing	
	BCHEM 0404	Org Lab	Identification of some compounds	knowledge of electrochemistry	
	BCHEM 0405	Physical Chemistry III (Core X)	1. Chemial Equilibrium 2. Electrochemistry 3. Chemical Kinetics II 4. Interface and dielectrics	and interface chemistry Students are made	
	BCHEM 0406	Physical Lab	1. Equilibrium constant	aware of a relatively new area	
	BCHEM 0407	Cosmetics and Perfumes	2. Conductometry 3. Potentiometry Preparation and uses	The students get knowledge of sources and uses of conventional fuels, alternative sources	
	BCHEM 0408	Fuel Chemistry	Energy sources, Petroleum and petrochemical industry, Lubricants		
V	BCHEM 0501	Organic Chemistry V (Core XI)	1. Methodology in organic synthesis 2. Pericyclic reactions 3. Spectroscopy	Candidate get knowledge about how to use modern techniques to	

				elucidate structures	
	BCHEM 0502	Org Lab	Preparation	Students acquire	
	BCHEM 0503	Inorganic Chemistry IV (Core XII)	1. Redox Processes 2. Bioinorganic Chemistry 3. Organometallic compounds	lessons about functioning of different metallo proteins and metalloenzymes	
	BCHEM 0504	Inorg Lab	Volumetric analysis	Enthusiasm will be created among the	
	BCHEM 0505	DCE	Green Chemistry	students about this new branch of chemistry particularly regarding eco-friendly synthetic routes	
	BCHEM 0506	DCE	Environmental Chemistry	Students can learn about environmental pollution and their remedial measures	
	BCHEM 0507	DCE	Solid StateChemistry	The basic principles regarding structures, crystallographic studies are developed	
VI	BCHEM 0601	Inorganic Chemistry V(Core XIII)	1. Coordination Chemistry 2. Analytical Chemistry	Helps in developing thorough knowledge about metal-ligand bonding and how to treat analytical data	
	BCHEM 0602	Inog Lab	Estimation of binary mixture, gravimetric analysis	The students are	
	BCHEM 0603	Physical Chemistry IV (Core XIV)	1. Phase rule and colligative properties 2. Symmetry, group theory 3. Quantum Chemistry	briefed about these areas with strong mathematical reasoning	
	BCHEM 0604	Physical Lab		Gives basic idea of	
	BCHEM	DCE		synthesis, properties and	

	0605 BCHEM 0606 BCHEM 0607	 DCE DCE	4. Photochemistry Saponification, Ostwald dilution law, pK value Nanochemistry Dynamic stereochemistry Quantum Chemistry and Spectroscopy	applications of nanomaterials Gives comprehensive idea about stereoselectivity, stereospecificity, and stereochemical aspects of organic reactions Gives a complete understanding about alkali metal spectra, molecular spectroscopy and quantum mechanics	

Programme Outcome	Students will demonstrate an understanding of major concepts in all disciplines of chemistry. Students will employ critical thinking and the scientific method to design, carry out, record and analyze the results of chemical experiments and get an awareness of the impact of chemistry on the environment, society, and other cultures outside the scientific community.
Programme Specific Outcome	The ability to explain chemical nomenclature, structure, reactivity, and function in their specific field of chemistry. The design and execution of the experiment should demonstrate an understanding of good laboratory and the proper handling of chemical waste streams and also explain how the applications of Chemistry relates to the real world.