

B.Sc. Chemistry (Hon's)

PROGRAME OUTCOME	COURSE NAME	COURSE CODE	COURSE OUTCOME
<ul style="list-style-type: none"> ❖ Have firm foundations in the fundamentals and application of current chemical and scientific theories. ❖ Are able to use modern instrumentation and classical techniques, to design experiments, and to properly record the results of their experiment. ❖ Are skilled in problems solving, critical thinking and analytical reasoning. ❖ Are able to identify and solve chemical problems and explore new areas of research. ❖ Find gainful employment in industry or government, be accepted at graduate or professional schools, or find employment in school systems as instructors or administrators. 	1. Atomic Structure, Bonding And Hydrocarbons	BSc-H-Chem-101	1. Understanding the atomic structure, basics of quantum Chemistry and its applications.
			2. Explaining theories of Chemical bonding and molecular structure.
			3. Gathering basic knowledge about periodicity of elements.
			4. Learning about the secondary interactions.
			5. Learning about the secondary interactions.
	2. Periodic Properties, Bonding and Aromatic Hydrocarbons	BSc-H-Chem-102	1. Gathering basic knowledge of organic Chemistry.
			2. Learning the basic principles of stereochemistry.
			3. Illustrate the preparative methods of saturated and unsaturated hydrocarbons.
			4. Able to understand about cycloalkanes and conformational analysis.
			5. Learn about the criteria of aromaticity.
	3. Fundamentals of	BSc-H-Chem-103	1. To understand atomic structure, basics of quantum

	Chemistry		chemistry and applications.
			2. To understand basic idea of chemical bonding
			3. To have a basic knowledge of organic Chemistry
			4. Understanding the basic principles of stereochemistry
	4. Chemical Energetics, Equilibria & Organic Chemistry	BSc-H-Chem-201	1. Understanding the thermodynamic laws, principles of thermo chemistry and chemical equilibrium.
			2. Learning the solubility of ionic compounds and their solution properties.
			3. Illustrate the preparative methods of simple aromatic compounds.
			4. Explaining the preparation and reaction mechanism of alkyl and aryl halides.
			5. Preparation and reaction chemistry aliphatic and aromatic phenols, ethers and carbonyl compounds.
	5. Metallurgy & Chemistry of Main Group Elements	BSc-H-Chem-202	1. Acquire knowledge about principles of metallurgy.
			2. Understand about the concept of acids and bases.
			3. Understanding the periodicity of <i>s</i> and <i>p</i> block elements.
4. Understand about the properties of noble gases.			
5. Acquire knowledge about inorganic.			

	6. Equilibrium phenomena & Functional group organic chemistry	BSc-H-Chem-203	1. To understand the laws of thermodynamics principles of thermoChemistry and chemical equilibrium.
			2. Learning the solubility and solubility product of ionic compounds.
			3. To study about the preparative methods of aromatic hydrocarbons.
			4. Explaining the preparation and some important reactions of alkyl and aryl halides.
	7. Solutions,Electrochemistry & Organic Chemistry	BSc-H-Chem-301	1. To have a comprehensive knowledge about Chemistry of halogenated hydrocarbons .
			2. To understand the preparation and properties of alcohols, phenols, ethers and epoxides.
			3. Understanding the concepts of carbonyl compounds.
			4. Formulate the preparation and reaction of carboxylic acids and its derivatives.
	8. Ionic Equilibria Catalysis, Thermodynamics & Halogenated compounds	BSc-H-Chem-302	1. Acquire knowledge about the basic concept of Chemical thermodynamics.
			2. Understand about the laws of thermodynamics.
			3. Understanding the criteria of Chemical equilibrium.
			4. Acquire knowledge about solutions and colligative properties.

	9. Gaseous State, Colloidal & Bioinorganic Chemistry	BSc-H-Chem-303	1. To understand the properties of transition elements.
			2. Understanding basic concepts of coordination Chemistry.
			3. To have a comprehensive knowledge about lanthanides and actinides.
			4. Acquiring basic knowledge about bioinorganic Chemistry.
	10. Phase equilibrium, electrochemistry & organic chemistry	BSc-H-Chem-304	1. Acquiring knowledge about the basics of phase equilibrium.
			2. To understand the basic principles of electrochemistry.
			3. Formulate the preparation and reaction of carboxylic acids and its derivatives.
			4. To study about the building blocks of proteins.
	11. Basic Analytical Chemistry	BSc-H-Chem-305A	1. Able to analyze soil.
			2. Know the water analysis and quality of food products.
			3. Able to apply various chromatographic techniques.
			4. Know the Chemistry of cosmetics.
5. Able to handle the possible analytical instruments			
12. Food Chemistry	BSc-H-Chem-305B	1. Able to know about the food adulteration and food poison.	
		2. Acquire the knowledge on food additives and	

			packaging of foods.
			3. Able to understand about the food preservation methods.
			4. Know the Chemistry of cosmetics.
			5. Able to know about chemistry of carbohydrates, proteins and amino acids.
	13. Polynuclear and Heterocyclic Chemistry	BSc-H-Chem-401	1. Able to know about the nitrogen containing compounds.
			2. Acquire the knowledge on polynuclear hydrocarbons.
			3. Able to understand about the heterocyclic compounds.
			4. Able to know about Chemistry of alkaloids and terpenoids.
	14. Coordination Chemistry, States Of Matter & Chemical Kinetics	BSc-H-Chem-402	1. Acquiring knowledge of phase equilibrium.
			2. To understand the concepts of Chemical kinetics.
			3. Study about catalysis.
			4. Acquiring knowledge about the surface Chemistry.
	15. Organometallic Compounds & Reaction Mechanism	BSc-H-Chem-403	1. Acquiring knowledge of coordination chemistry.
			2. To understand the concepts of Chemical kinetics.
			3. study about phase equilibrium.
			4. Acquiring knowledge about the metal carbonyl.

	16. Co-ordination Chemistry, State of matter and chemical kinetics	BSc-H-Chem-404	1. To understand the properties of transition elements.
			2. Understanding basic concepts of coordination Chemistry.
			3. To have knowledge about kinetic theories of gases.
			4. Acquiring basic knowledge about condensed states of matter.
			5. Knowing the basic concepts of Chemical kinetics.
	17. Fuel chemistry and chemistry of cosmetics and perfumes	BSc-H-Chem-405A	1. Able to know the Chemistry of fuels.
			2. Ability to know the petroleum products and industry.
			3. Able to know various cosmetics & perfumes.
			4. Ability to prepare cosmetics & perfumes.
	18. Pesticide chemistry and pharmaceutical chemistry	BSc-H-Chem-405B	1. Able to know the Chemistry of pesticides.
			2. Ability to analyze pesticides.
			3. Understand the Chemistry of drug molecules.
			4. Ability to apply fermentation techniques.
	19. Biomolecules	BSc-H-Chem-501	1. To explain the carbohydrate Chemistry.
			2. Understand the bioChemistry of proteins and lipids.
			3. Know DNA & RNA and their functions.
			4. To explain the concept of energy in biosystems.
	20. Electrochemistry	BSc-H-Chem-502	1. Understand the basic concept of conductance.
			2. Understand the concepts of ionic motilities and their determination.

			3. Basic concepts of electroChemistry and its applications.
			4. Understand the basic idea of electrical & magnetic properties of atoms and molecules.
	21. Polymer Chemistry	BSc-H-Chem-503A	1. Understanding the classification, structure, function and importance of polymers.
			2. Examining the kinetics and mechanism of polymerization.
			3. Acquiring the knowledge on nature and physical properties of polymers.
			4. Knowing solubility parameters.
			5. Analyzing the synthesis of different polymers and examining their properties.
	22. Industrial Chemicals and environment	BSc-H-Chem-503B	1. Bulk synthesis and handling the industrially important hazardous Chemicals.
			2. Understanding the industrial preparation and purification of metals.
			3. Able to explain the environmental impacts of toxic Chemicals in atmosphere.
4. Able to explain the environmental impacts of toxic Chemicals in hydrosphere.			
5. Correlate the importance of energy sources and their			

			environmental impacts.
	23. Bioanalytical Techniques	BSc-H-Chem-504A	1. Understand the basic concept of microscopy.
			2. Understand the basic principle of spectroscopy.
			3. Gathering the basic knowledge about the various techniques of chromatography.
			4. Understanding the principle, and applications of electrophoresis.
	24. Organic Spectroscopy, Dyes & Polymers	BSc-H-Chem-601	1. Familiarize with the UV & IR Spectroscopy.
			2. Understand about the concept of NMR Spectroscopy.
			3. Gain knowledge about the various types of dyes.
			4. Gather knowledge about polymers and polymerization reactions.
	25. Quantum Chemistry & Molecular Spectroscopy	BSc-H-Chem-602	1. Understand the basic concept of quantum Chemistry and its applications.
			2. schrodinger equation.
			3. Gathering the basic knowledge of spectroscopy and its application.
			4. Understanding principle,application of NMR,ESR.
	26. Industrial Chemistry	BSc-H-Chem-604A	1. Know the Chemistry of fertilizers and pesticides.
			2. Understand various petroChemical processes.
			3. Understand batteries and fuel cells.
			4. Familiarize the Chemistry of paints, varnishes, cement.

			and ceramics.
	27. Instrumental methods of chemical analysis	BSc-H-Chem-604B	1. Analyze the sources, impurities, and hardness of water.
			2. Understand the basic concepts of electrochemistry.
			3. Study the concept of corrosion and develop corrosion prevention methods.
			4. Illustrate the classification and properties different fuels.
	28. Applied Chemistry	BSc-H-Chem-604C	1. Analyze the sources, impurities, and hardness of water.
			2. Understand the basic concepts of electrochemistry.
			3. Study the concept of corrosion and develop corrosion prevention methods.
			4. Illustrate the classification and properties different fuels.