WBJEE Chemistry Syllabus 2025	
Topics	**Sub-topics**
Atoms, Molecules and Chemical Arithmetic	Dalton's atomic theory, Avogadro's Hypothesis, Mole concept, Balanced chemical equations, Concentration units (molarity, molality, normality)
Atomic Structure	Rutherford's model, Bohr's model, Quantum numbers, Electron configurations, Dual nature of matter
Radioactivity and Nuclear Chemistry	Radioactive decay, Half-life, Radioisotopes, Nuclear fission and fusion
The Periodic Table and Chemical Families	Modern periodic table, Periodic trends, Properties of elements (atomic radii, ionization energy, electronegativity)
Chemical Bonding and Molecular Structure	Octet rule, Covalent bonds, Hybridization, Molecular shapes, Resonance, Hydrogen bonding
Coordination Compounds	Werner's theory, Coordination number, IUPAC nomenclature
Solid State	Types of solids, Unit cell, Packing in solids, Band theory of metals
Liquid State	Vapour pressure, Viscosity, Surface tension
Gaseous State	Boyle's Law, Charles Law, Ideal gas equation, Dalton's Law, Real gases
Chemical Energetics and Chemical Dynamics	First law of thermodynamics, Enthalpy change, Hess's Law, Equilibrium constants, Le Chatelier's Principle, Reaction rates
Physical Chemistry of Solutions	Colloidal solutions, Raoult's Law, Colligative properties
Ionic and Redox Equilibria	Ionization of weak electrolytes, pH scale, Buffer solutions, Redox reactions, Nernst equation

Hydrogen	Preparation, properties, uses of hydrogen, Hydrides, Heavy water, Hydrogen peroxide
Chemistry of Non-Metallic Elements and their Compounds	Allotropes of carbon, Preparation and properties of NH_3, HNO_3, H_2SO_4, Halogens
Chemistry of Metals	Metallurgy principles, Properties and reactions of typical metals (Na, Ca, Al, Fe, Cu, Zn), Electroplating
Chemistry in Industry	Production and uses of H_2SO_4, NH_3, HNO_3, Sodium bicarbonate, Polymers
Surface Chemistry	Adsorption, Catalysis, Colloidal state, Emulsions
Environmental Chemistry	Air, water, soil pollution, Ozone layer, Greenhouse effect, Global warming
Chemistry of Carbon Compounds	Hybridization, Isomerism, IUPAC nomenclature, Stability of carbocations and carbanions, Electrophiles and nucleophiles
Compounds	Preparation and reactions of alkanes, alkenes, alkynes, haloalkanes, alcohols, ethers, aldehydes, ketones, carboxylic acids, amines, aromatic compounds
Application Oriented Chemistry	Ingredients and effects of antiseptics, analgesics, antacids, Vitamin-C
Introduction to Biomolecules	Carbohydrates, Amino acids, Peptide bond, ADP and ATP, Nucleic acids
Principles of Qualitative Analysis	Detection of acid and basic radicals, Functional groups in organic compounds