

Lesson Plan (2024-25)		
B.Sc. Physical Science 1st Semester		
Subject : Chemistry (Major) Bhandoria		Name of Assistant Professor : Dr Manu Kumar
Week	Date	Topic
1	22/07/2024-27/07/2024	Atomic Structure: Dual Behaviour of matter and radiation, de Broglie's relation, Heisenberg's uncertainty principle, Atomic orbitals and quantum numbers, Radial and angular wave function
2	29/07/2024-03/08/2024	Normal and orthogonal wave functions, Significance of $\psi$ and $\psi^2$ , Shape of orbitals, electronic configuration rules and Slater's rule
3	05/08/2024-10/08/2024	Classification of periodic table, definition and variation of various periodic properties,
4	12/08/2024-17/08/2024	Pauling, Mulliken, Allred Rachow and Mulliken Jaffe's electronegativity scale, Sanderson's electron density ratio
5	19/08/2024-24/08/2024	Kinetic theory of gases, Maxwell distribution of velocities and energies, calculation of various types of velocity
6	26/08/2024-31/08/2024	Collision diameter, number and frequency, mean free path, Van der Waal's equation for real gases, calculation of Boyle's temp.
7	02/09/2024-07/09/2024	Critical constants and Van der Waal's constants
8	09/09/2024-14/09/2024	Structure and bonding: Van der Waal's interactions, Resonance,
9	16/09/2024-21/09/2024	Hyperconjugation, Inductive effect, Electromeric effect
10	23/09/2024-28/09/2024	Mechanism of organic reactions: curved notation, types of bond fission and reagent,
11	30/09/2024-05/10/2024	Types of organic reactions-Substitution, Addition, Condensation rxn, Rearrangement pericyclic and isomerisation rxn
12	07/10/2024-11/10/2024	Reactive intermediates: Carbocations, carbanions and free radicals
13	14/10/2024-19/10/2024	Liquid State: Structure, Surface tension, refractive index, viscosity, vapour pressure and optical rotation
14	21/10/2024-26/10/2024	Solid State: Classification, laws of interfacial angles and rotational indices, Miller indices
15	04/11/2024-09/11/2024	Bravais lattice, X-ray diffraction, Bragg's law, Laue method, rotating crystal method and powder pattern method
16	11/11/2024-16/11/2024	Revision of difficult topics
17	18/11/2024-23/11/2024	Revision of difficult topics

Lesson Plan (2024-25)		
B.Sc. 3rd Semester		
Subject : Physical Chemistry		Name of Assistant Professor: Dr Manu Kumar Bhandoria
Week	Date	Topic
1	22/07/2024-27/07/2024	Thermodynamic Terms Introduction
2	29/07/2024-03/08/2024	Thermodynamic Properties and equilibrium
3	05/08/2024-10/08/2024	1st law of thermodynamic, Internal energy and enthalpy
4	12/08/2024-17/08/2024	Heat capacities and relation between them
5	19/08/2024-24/08/2024	Joule Thomson coefficient for Ideal and Real gases
6	26/08/2024-31/08/2024	Inversion temp and calculation of work and heat
7	02/09/2024-07/09/2024	Change in internal energy and enthalpy for Isothermal and Adiabatic process
8	09/09/2024-14/09/2024	Reversible process, Equilibrium constant and free energy
9	16/09/2024-21/09/2024	Chemical potential and its characteristics
10	23/09/2024-28/09/2024	Thermodynamic Derivation of Law of Chemical equilibrium
11	30/09/2024-05/10/2024	Temperature dependence of equilibrium constant
12	07/10/2024-11/10/2024	Clausius- Clapeyron Equation & Nernst distribution law- Thermodynamic derivation
13	14/10/2024-19/10/2024	Degree of Hydrolysis and hydrolysis constant
14	21/10/2024-26/10/2024	Equilibrium constant and Process of extraction
15	04/11/2024-09/11/2024	Revision
16	11/11/2024-16/11/2024	Revision
17	18/11/2024-23/11/2024	Revision of difficult topics

Lesson Plan (2024-25)		
B.Sc. 5th Semester		
Subject: Inorganic & Physical Chemistry    Name of Assistant Professor: Dr Manu Kumar Bhandoria		
Week	Date	Topic
1	22/07/2024-27/07/2024	Valence bond theory and its limitations
2	29/07/2024-03/08/2024	Crystal field theory and factors affecting it
3	05/08/2024-10/08/2024	Thermodynamic stability of metal complexes and factors affecting it
4	12/08/2024-17/08/2024	Irving William series and substitution reaction for sq. Planar Complexes of Pt(II)
5	19/08/2024-24/08/2024	Types of magnetic material, magnetic susceptibility and its determination
6	26/08/2024-31/08/2024	Spin formula, L-S coupling, spectroscopic ground state terms, Cal. of Microstates
7	02/09/2024-07/09/2024	Electronic spectra of metal complexes
8	09/09/2024-14/09/2024	Splitting of d-s state in Oh. And Th. Crystal fields and spectrochemical series
9	16/09/2024-21/09/2024	Orgel energy level diagrams
10	23/09/2024-28/09/2024	Black body radiation, Planck's radiation law, Photoelectric effect
11	30/09/2024-05/10/2024	Compton effect and Compton shift, Heat capacities of solids, Dulong and Petit's Law
12	07/10/2024-11/10/2024	De Broglie hypothesis and Bohr's theory, Heisenberg principle and its significance
13	14/10/2024-19/10/2024	Quantum mechanical Model and Schrodinger wave equation, Operators in quantum
14	21/10/2024-26/10/2024	Postulates of Quantum Mechanics and Particle in 1D box, Wave function of H-atom
15	04/11/2024-09/11/2024	Revision
16	11/11/2024-16/11/2024	Revision
17	18/11/2024-23/11/2024	Revision of difficult topics

Lesson Plan (2024-25)		
B.A./B.Com. 1st Semester		
Subject : Chemistry (MDC-1) Bhandoria		Name of Assistant Professor : Dr Manu Kumar
Week	Date	Topic
1	22/07/2024-24/07/2024	Elementary introduction of Atomic structure
2	29/07/2024-31/07/2024	Representation of elements and lewis structure
3	05/08/2024-07/08/2024	Electronic Configuration (1-30)
4	12/08/2024-14/08/2024	Chemical Bonding
5	19/08/2024-21/08/2024	Tetravalency of Carbon and its allotropic forms
6	26/08/2024-28/08/2024	Properties of the allotropic forms of Carbon
7	02/09/2024-04/09/2024	Hydrocarbons (1-5), Nomenclature of linear compounds
8	09/09/2024-11/09/2024	Applications of Hydrocarbons
9	16/09/2024-18/09/2024	Elementary idea of Synthetic and Natural Polymers, Homo and Copolymers
10	23/09/2024-25/09/2024	Uses & properties of - Natural & Vulcanised Rubber, Polyethene, PVC
11	30/09/2024-01/10/2024	Uses & properties of - Styrene, Teflon, PAN, Nylon-66
12	07/10/2024-09/10/2024	Elementary Idea of Natural and Synthetic food preservatives
13	14/10/2024-16/10/2024	Uses and properties of various food preservatives
14	21/10/2024-23/10/2024	Rancidity, Food preservation processes (pickle, Jam)
15	04/11/2024-06/11/2024	Artificial sweeteners, their uses and properties
16	11/11/2024-13/11/2024	Revision of difficult topics
17	18/11/2024-20/11/2024	Revision of difficult topics