

Lesson Plan

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Name = DR. ASHOK KUMAR

Subject - Physics

Class = B.Sc. 5th Sem

Weeks		Topics
Week-1	31 August To 03 September	Crystalline Solids and Amorphous Solids, Liquid crystal and its types, crystal Structure
Week-2	05 September To 10 September	Periodicity, Lattice and Basis, Crystal Translational vector and axes. Unit Cell and Primitive Cell.
Week-3	12 September To 17 September	Wigner Seitz primitive cell. Symmetry operations for a two dimensional crystal and its types.
Week-4	19 September To 24 September	Bravais Lattice in two dimensions, Bravais Lattice in three dimensions, Crystal Planes and Miller indices, Interplaner Spacing, crystal structure
Week-5	26 September To 01 October	Crystal structure of zinc sulphide, Sodium chloride and diamond, X-ray diffraction, Bragg's Law and experimental X-ray diffraction method, K-space.
Week-6	03 October To 08 October	Reciprocal Lattice and its physical significance, reciprocal lattice vectors, reciprocal lattice to a simple cubic lattice, BCC and FCC

Week-7	10 October To 15 October	Specific heat of Solids, Einstein's theory of Specific heat, Debye model of Specific heat of Solids. Failure of E.M. Theory, Quantum theory of Radiation, Photon, Photoelectric effect.
Week-8	17 October To 22 October	Compton effect, Inadequacy of old quantum theory, de-Broglie hypothesis, Davisson and Germer experiment. G. P. Thomson experiment. Phase velocity, group velocity, Heisenberg's Uncertainty Principle. Time-energy and angular momentum, position uncertainty, Uncertainty principle from de-Broglie wave, Gamma ray microscope, Electron diffraction from a slit.
Week-9	31 October To 5 November	Derivation of time dependent Schrodinger wave equation, eigen values, eigen function, wave functions and its significance, Normalization of wave function, concept of observable and operator, Solution
Week-10	7 November To 12 November	Solution of Schrodinger equ ⁿ for harmonic oscillator ground states and excited states.
Week-11	14 November To 19 November	Application of Schrodinger equation in the solution of the following one dimensional problems.
Week-12	21 November To 26 November	

Week-13	28 November To 03 December	Free particle in one dimensional box solution of Sch Schrodinger wave equation, eigen function, eigen values, quantization of energy and momentum, nodes and antinodes,
Week-14	5 December To 10 December	Zero point energy. One dimensional potential barrier $E > V_0$ One dimensional potential barrier $E > V_0$
Week-15	12 December To 15 December	Revision Revision.