

Lesson Plan

Name of the Assistant/ Associate Professor: MR. JASWINDER
 Class and Section: B.Sc. III (Sem. VI)
 Subject: PHYSICS

Week	Date	Topics
1	January	Nuclear mass and binding energy, systematic nuclear binding energy, nuclear stability, nuclear size, spin, parity, statistics, magnetic dipole moment, quadrupole moment determination of mass by Bain-Bridge and Jordan mass spectrograph. Determination of charge by Massey law. Determination of size of nuclei by Rutherford Back Scattering.
2	February	Interaction of heavy charged particles, alpha disintegration and its theory. Energy loss of heavy charged particle. Energetics of alpha decay. Range and straggling of alpha particles. Geiger-Nuttall law. Introduction of light charged particle, origin of continuous beta spectrum types of beta decay and energetics of beta decay. Energy loss of beta-particles. Range of e^- absorption of beta-particles. Introduction of gamma ray. Nature of gamma rays. Energetics of gamma rays, passage of gamma radiations through matter, e^- positron annihilation. Absorption of gamma rays and its applications.
3	March	Nuclear reactions, Elastic scattering, Inelastic scattering, Nuclear disintegration, photonuclear reaction, Radiative capture, Direct reaction, heavy ion reactions and spallation reactions, conservation laws, Q-value and E_{th} threshold.
4	April	Nuclear Reactors, General aspects of Reactor design, Nuclear fission and fusion reactors, linear accelerator, Tandem accelerator, cyclotron and Betatron accelerators. Ionization chamber, proportional counter, G.M counter. detailed study, scintillation counter and semiconductor detected.
5		

Lesson Plan

Name of the Assistant/ Associate Professor: MR. JASVINDER
 Class and Section: B.Sc. III (Sem. IV)
 Subject: PHYSICS

Week	Date	Topics
1	January	Probability, some probability considerations, combinations possessing maximum probability, combinations possessing minimum probability, distributions of molecules in two boxes case with weightage. Phase Space, microstates and macrostates, statistical fluctuations
2	February	Constraints and accessible States Thermodynamical probability. Postulates of Statistical Physics, Division of Phase space into cells, condition of equilibrium between two system in thermal contact. b-Parameter, Entropy and Probability, Boltzman's distribution law. Evaluation of A and b. Bose - Einstein Statistics, Application of B.E Statistics to Planck's radiation law.
3	March	B.E gas. Fermi - Dirac Statistics, M.B law as limiting case of B.E Degeneracy and B.E condensation.
4	April	F.D gas, electron gas in metals. zero point energy, specific heat of metals and its solution.
5		

(Jas)

Lesson Plan

Name of the Assistant/ Associate Professor... MR. JASVINDER
 Class and Section... B.Sc. I. (Sem. II.)
 Subject... PHYSICS

Week	Date	Topics
1	January	Growth and Decay of current in a circuit with (a) capacitance and resistance (b) resistance and inductance (c) capacitance and inductance (d) capacitance, resistance and inductance. AC circuit analysis using complex variables with (a) capacitance and resistance (b) resistance and inductance (c) capacitance and inductance (d) capacitance, inductance and resistance. Series and parallel resonant circuit. Quality factor (Sharpness of resonance). Energy bands in solids, Intrinsic and Extrinsic Semiconductors. Hall effect, P-N junction diode and their V-I characteristics. Zener and avalanche breakdown. Resistance of a diode, light emitting diodes (LED). Photo conduction in Semiconductors, photodiode, Solar cell
2	February	P-N junction half wave and full wave rectifier. Types of filter circuits, Zener diode as voltage regulator, simple regulated power supply. Junction transistors, Bipolar transistors, working of NPN and PNP transistors, Transistor connections, constant of transistor. Transistor characteristics curves, advantage of C-B configuration, C.R.D., Transistors biasing, method of Transistor biasing and stabilization. D.C. load line. Common-base and Common-emitter emitter amplifier. Classification of amplifiers.
3	March	Resistance - capacitance (R-C) coupled amplifier. Feed-back in amplifiers, advantage of negative feedback. Emitter follower. self sustained oscillation, condition for emitter oscillator, Hartley oscillator, Colpitt's oscillator.
4	April	
5		

(Jah)