LESSON PLAN FOR THE CLASS B.sc 4th Sem

SESSION: -2023-2024

NAME OF ASSISTANT /ASSOCIATE PROFESSOR

SUBJECT: - Physics

Mr. Jai Kunwar

FOR THE WEEK	**Statistical Physics**
1st jan -15th jan	**Unit** :- 1 Probability and probability theorem, some probability considerations, combinations, possessing maximum probability, combinations possessing minimum probability, Micro-Macro states, Constraints, Accessible states, Ensembles, Thermodynamical probability, general distribution of particles in compartments of different sizes, Condition of equilibrium between two systems in thermal contact, β parameter, Entropy and Probability, Boltzmann distribution law

FOR THE WEEK	**Unit** :- 2 Postulates of statistical physics, Phase space, Division of Phase space into cells, three kinds of statistics, basic approach in three statistics, M. B. statistics applied to an ideal gas in equilibrium- energy distribution law (including evaluation of α and β) , speed distribution law & velocity distribution law. Expression for average speed, r m s speed, average velocity, r m s velocity, most probable energy & mean energy for Maxwellian distribution.
16th jan – 31st jan	

FOR THE WEEK	**Unit** :- 3 Classical vrs Quantum Statistics: Identical particles, Bose-Einstein Statistics, Fermi-Dirac statistics, Application of B.E Statistics of Planck's radiation law, B.E. gas, M. B. Law as a limiting case of B.E. Degeneracy and B.E. Condensation, F.D. gas, electron gas in metals, Zero point energy, Specific heat of metals and its solution. Test of unit 2
1st feb-15th feb	

FOR THE WEEK	**Unit** :- 4 Dulong and Petit law, Derivation of Dulong and Petit law from classical physics. Specific heat at low temperature, Einstein theory of specific heat. Criticism of Einstein theory. Debye model of specific heat of solids, success and shortcomings of Debye, comparison of Einstein and Debye theory. Test of Unit 3.
16th feb - 29th feb	

LESSON PLAN FOR THE CLASS B.sc 4th Sem

SESSION: -2023-2024

NAME OF ASSISTANT /ASSOCIATE PROFESSOR

SUBJECT: - Physics

Mr. Jai Kunwar

FOR THE WEEK	Polarization and Double refraction, Polarisation by reflection, Polarisation by scattering, Malus **Wave and Optics II** **Unit :-** 1 Law, Phenomenon of double refraction, Huygen's wave theory of double refraction (Normal and oblique incidence), Analysis of polarized Light. Nicol prism, Quarter wave plate and half wave plate, production and detection of (i) Plane polarized light (ii) Circularly polarized light and (iii) Elliptically polarized light. Optical activity, Fresnel's theory of rotation, Specific rotation, Polarimeters (half shade and Biquartz).
1ST mar – 15TH mar	

FOR THE WEEK	**Unit :-** 2Fourier series, Fourier coefficients, odd functions, even functions, Fourier theorem, analysis of complex waves and its application for the solution of triangular and rectangular waves , half and full wave rectifier outputs. Test of Unit Ist
16TH mar-31TH mar	

FOR THE WEEK	**Unit :- 3** Fourier transforms and its properties, Application of Fourier transform to following functions: Matrix methods in paraxial optics, effects of translation and refraction, derivation of thin lens and thick lens formulae, unit plane, nodal planes, system of thin lenses.Dicusson of Numerical Problems.
1ST April -15TH April	

FOR THE WEEK	**Unit :- 4** Chromatic, spherical, coma, astigmatism and distortion and aberrations and their remedies. Optical fiber, Critical angle of propagation, Mode of Propagation, Acceptance angle, Fractional refractive index change, Numerical aperture, Types of optics fiber, Normalized frequency, Pulse dispersion, Attenuation, Applications, Fiber optic Communication, Advantages.Problems Discussion and test. Revision of Privious Exams.
17th April - 30TH April	