Govt. College, Alewa (Jind)

Session: 2023-2024 (B.Sc 2ⁿᵈ Year)
Lesson Plan (Odd Sem)

Name of the Teacher: Dr MANJEET SINGH , ASSISTANT PROFESSOR
Subject: PHYSICS (Theory)   **Class: B. Sc. 3rd Sem.**
Physics Paper: I(Computer Programming and Thermodynamics)
Paper's Code: NPH03A
Max. Marks: 50(External Assessment: 40 Marks, Internal Assessment: 10 Marks)
Contact Hours Per Week: 5
Physics Paper: II(Wave and Optics -I)
Paper's Code: NPH04B
Max. Marks: 50(External Assessment: 40 Marks, Internal Assessment: 10 Marks)
Contact Hours Per Week: 5

Sr. No.	Week	Topic
1	24-07-2023 to 29-07-2023	Computer organization, Binary representation, Algorithm development, Flow charts and their interpretation. FORTRAN Preliminaries: Integer and floating point arithmetic expression,
2	31-07-2023 to 05-08-2023	built in functions, executable and non-executable statements, input and output statements, Formats, IF, DO and GO TO statements, Dimension arrays,
3	07-08-2023 to 12-08-2023	Statement function and function subprogram, Algorithm, Flow Chart and Programming for Print out of natural numbers, Range of the set of given numbers, Ascending and descending order, Mean and standard deviation,
4	14-08-2023 to 19-08-2023	Least square fitting of curve, Roots of quadratic equation, Product of two matrices, Numerical integration (Trapezoidal rule and Simpson 1/3 rule) Class test
5	21-08-2023 to 26-08-2023	Thermodynamic system and Zeroth law of thermodynamics. First law of thermodynamics and its limitations, reversible and irreversible process. Second law of thermodynamics and its significance, Carnot theorem, Absolute scale of temperature, Absolute Zero and magnitude of each division on work scale and perfect gas scale,
6	28-08-2023 to 02-09-2023	Joule's free expansion, Joule Thomson effect, Joule-Thomson (Porous plug) experiment, conclusions and explanation, analytical treatment of Joule Thomson effect. Entropy, calculations of entropy of reversible and irreversible process ,
7	04-09-2023 to 09-09-2023	T-S diagram, entropy of a perfect gas, Nernst heat law(third law of thermodynamics), Liquefaction of gases, (oxygen, air, hydrogen and helium), Solidification of He below 4K, Cooling by adiabatic demagnetization.
8	11-09-2023 to 16-09-2023	Derivation of Clausius-Clapeyron and Clausius latent heat equation and their significance, specific heat of saturated vapours, phase diagram and triple point of asubstance, development of Maxwell thermodynamical relations. Thermodynamical functions: Internal energy (U), Helmholtz function (F), Enthalpy (H),

9	18-09-2023 to 23-09-2023	Gibbs function (G)and the relations between them, ,Derivation of Maxwell thermodynamical relations from thermodynamical functions, Application of Maxwell relations: relations between two specific heats of gas,
10	25-09-2023 to 30-09-2023	Derivation of Clausius-Clapeyron and Clausius equation,variation of intrinsic energy with volume for (i) perfect gas (ii)Vander wall gas (iii)solids and liquids , derivation of Stefans law, adiabatic compression and expantion of gas &deduction of theory of Joule Thomson effect. Class test
11	02-10-2023 to 07-10-2023	Interference by Division of Wave front: Young's double slit experiment, Coherence, Conditions of interference,
12	09-10-2023 to 14-10-2023	Fresnel's biprism and its applications to determine the wavelength of sodium light and thickness of a mica sheet,
13	16-10-2023 to 21-10-2023	Lloyd's mirror, Difference between Bi-prism and Llyod mirror fringes, phase change on reflection.
14	23-10-2023 to 28-10-2023	Interference by Division of Amplitude: Plane parallel thin film, production of colors in thin films
15	30-10-2023 to 04-11-2023	classification of fringes in films, Interference due to transmitted light and reflected light, wedge shaped film ,
16	06-11-2023 to 09-11-2023	Newton's rings, Interferometer: Michelson's interferometer and its applications to (i) Standardization of a meter (ii) determination of wavelength.
17	10-11-2023 to 16-11-2023	**University Vacations (Diwali)**
18	17-11-2023 to 18-11-2023	Fresnel's diffraction: Fresnel's assumptions and half period zones, rectilinear propagation of light, zone plate, diffraction at a straight edge,
19	20-11-2023 to 25-11-2023	Rectangular slit and circular aperture, diffraction due to a narrow slit and wire. Class test
20	27-11-2023 to 02-12-2023	Fraunhoffer diffraction: single-slit diffraction, double-slit diffraction,
21	04-12-2023 to 09-12-2023	N-slit diffraction, plane transmission granting spectrum, dispersive power of grating, limit of resolution, Class Test
22	11-12-2023 to 16-12-2023	Revision