

Govt. College, Alewa (Jind)

Session: 2024-2025 (Even Semester)

Lesson Plan

Name of the Teacher: Dr. MANJEET SINGH , ASSISTANT PROFESSOR

Subject: PHYSICS (Theory) Class: B. Sc. 4thSem.

Physics Paper: Wave and Optics

Paper's Code: CC/MCC (B-23-PHY-401)

Max. Marks: 70 (External Assessment: 50 Marks, Internal Assessment: 20 Marks)

Contact Hours Per Week: 3

Sr. No.	Months	Dates	Topic
1	January 2025	15-01-2025 to 31-01-2025	Interference by Division of Wave front: Young's double slit experiment, Coherence, Conditions of interference, Fresnel's biprism and its applications to determine the wavelength of sodium light and thickness of a mica sheet, phase change on reflection, Interference by Division of Amplitude: Plane parallel thin film, production of colors in thin films, classification of fringes in films, Interference due to transmitted light and reflected light
2	February 2025	01-02-2025 to 28-02-2025	wedge shaped film, Newton's rings, Fresnel's diffraction: Fresnel's assumptions and half period zones, rectilinear propagation of light, zone plate, diffraction at a straight edge, Rectangular slit and circular aperture, diffraction due to a narrow slit and wire, Fraunhofer diffraction: single-slit diffraction, double-slit diffraction, N-slit diffraction,
3	March 2025	01-03-2025 to 31-03-2025	plane transmission grating spectrum, dispersive power of grating, limit of resolution, Rayleigh's criterion, resolving power of telescope and grating, Polarization: Polarisation by reflection, refraction and scattering, Malus Law, Phenomenon of double refraction, Huygen's wave theory of double refraction (Normal and oblique incidence),
4	April 2025	01-04-2025 to 30-04-2025	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. Qualitative idea of optical rotation and Polarimeters. Basic concept of absorption and emission of radiations, amplification, population inversion, Main components of laser (i) active medium, (ii) Pumping, (iii) optical resonator,
5	May 2025	01-05-2025 Onwards	Properties of laser beam: Directionality, high intensity, high degree of coherence, spatial and temporal coherence, population inversion: A necessary condition for light amplification, metastable state, Excitation mechanism, Types of laser (He-Ne laser and RUBY laser, Applications of lasers. Revision Class Test

Dr. Manjeet Singh

Assistant Professor of Physics