

CURRICULUM PLAN 2024-2025 (Even Semesters: II,IV,VI)

B.Sc. (PHYSICAL SCIENCE)

Semester – IV

Name of Paper & Code	Allocation of Lectures	Month wise schedule followed by the Department
WAVE AND OPTICS UPC-42224412		
1. Superposition of collinear harmonic oscillations: Simple harmonic motion (SHM); linearity and superposition principle; superposition of two collinear oscillations having (1) equal frequencies and (2) different frequencies (beats). Superposition of two perpendicular harmonic oscillations: Graphical and analytical methods. Course Title & Code Credits Credit distribution of the course Eligibility Criteria Pre-requisite of the course Lecture Tutorial Practical Waves and Optics PHYSICS DSC – 4 4 2 0 2 Class XII Pass with Science Studied Mathematical Physics-I, Mechanics DISCIPLINE SPECIFIC CORE COURSE – PHYSICS DSC 4: WAVES AND OPTICS 22 Lissajous figures with equal and unequal frequencies and their uses Superposition of two harmonic Waves: Standing (stationary) waves in a string; normal modes	5	1-Aug to 20-Aug
1. Interference: Division of amplitude and division of wavefront; Young's double slit experiment: width and shape of fringes; Fresnel's biprism; Lloyd's mirror; Phase change on reflection: Stokes' treatment; Interference in thin films: parallel and wedge-shaped films. Fringes of equal inclination (Haidinger fringes); Fringes of equal thickness (Fizeau Fringes); Newton's rings: Measurement of wavelength and refractive index	5	21-Aug to 25-Sep
Diffraction: Fraunhofer diffraction: Single slit, double slit, diffraction grating Fresnel diffraction: Fresnel's assumptions. Fresnel's half-period zones for plane wave. Explanation of rectilinear propagation of light; Fresnel's diffraction pattern of a straight edge, a slit and a wire using half-period zone analysis	10	26- Sep to 28-Oct