

CURRICULUM PLAN 2021-22 (Even Semesters: II,IV,VI)
B.Sc. (PHYSICAL SCIENCE)
Semester – IV

DR ARAVIND KUMAR

Name of Paper & Code	Allocation of Lectures	Month wise schedule followed by the Department
PAPER-WAVE AND OPTICS		
Superposition of Two Collinear Harmonic oscillations: Simple harmonic motion (SHM). Linearity and Superposition Principle. (1) Oscillations having equal frequencies and (2) Oscillations having different frequencies (Beats).	6	03-Jan-2022 to 18-Jan-2022
Superposition of Two Perpendicular Harmonic Oscillations: Graphical and Analytical Methods. Lissajous Figures (1:1 and 1:2) and their uses..	2	18-Jan-2022 to 25-Jan-2022
Waves Motion- General: Transverse waves on a string. Travelling and standing waves on a string. Normal Modes of a string. Group velocity, Phase velocity. Plane waves. Spherical waves, Wave intensity.	8	25- Jan-2022 to 10- Feb-2022
Sound: Sound waves, production and properties. Intensity and loudness of sound. Decibels. Intensity levels. musical notes. musical scale. Acoustics of buildings (General idea).	6	13-Feb-2022 to 20-Feb-2022
Wave Optics: Electromagnetic nature of light. Definition and Properties of wave front. Huygens Principle.	3	21Feb-2022 to 4-March-2022
Interference: Interference: Division of amplitude and division of wavefront. Young's Double Slit experiment. Lloyd's Mirror & Fresnel's Biprism.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.	12	19-March-2022 to 5-Apr-2022
Michelson's Interferometer: Construction and working. Idea of form of fringes (no theory needed), Determination of wavelength, Wavelength difference, Refractive index, and Visibility of fringes. Diffraction: Fraunhofer diffraction: Single slit; Double Slit. Multiple slits & Diffraction grating. Fresnel Diffraction: Half-period zones. Zone plate. Fresnel Diffraction pattern of a straight edge, a slit and a wire using half-period zone analysis.	16	6-Apr-2022 to 18-Apr-2022
Polarization: Transverse nature of light waves. Plane polarized light – production and analysis. Circular and elliptical polarization	6	19-Apr-2022 to 26Apr-2022