

CURRICULUM PLAN 2026-27 (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
MODERN PHYSICS		
Planck's quantum, Planck's constant and light as a collection of photons; Photo-electric effect and Compton scattering. De Broglie wavelength and matter waves; Davisson-Germer experiment. Problems with Rutherford model- instability of atoms and observation of discrete atomic spectra; Bohr's quantization rule and atomic stability; calculation of energy levels for hydrogen like atoms and their spectra.	14	28-July to 29- Aug-26
Position measurement- gamma ray microscope thought experiment; Wave-particle duality, Heisenberg uncertainty principle- impossibility of a particle following a trajectory; Estimating minimum energy of a confined particle using uncertainty principle; Energy-time uncertainty principle.	4	27-Aug to 25 Sep-2026
1.Two slit interference experiment with photons, atoms and particles; linear superposition principle as a consequence; Matter waves and wave amplitude; Schrodinger equation for non-relativistic particles; Momentum and Energy operators; stationary states; physical interpretation of wave function, probabilities and normalization; Probability and probability current densities in one dimension.	10	25 Sep to 18 October-2026
1. One dimensional infinitely rigid box- energy eigenvalues and eigenfunctions, normalization; Quantum dot as an example; Quantum mechanical scattering and tunnelling in one dimension - across a step potential and across a rectangular potential barrier.	10	26-oct to 20- Nov-2026