CURRICULUM PLAN 2023-24 (Odd Semester: V)

B. Sc. (HONS.) PHYSICS

Semester-V

PAPER – PHYSICS C XI : QUANTUM MECHANICS AND APPLICATIONS (32221501)

Name of Paper & Code	Allocation of Lectures	Month wise schedule followed by the Department	Tutorial/Assignment/ Presentation etc.
I. Time dependent Schrodinger equation, Probability, Probability current density, operators, Expectation value	12 lectures	Aug - Sept	Problems on wave function, expectation value
II. Time independent Schrodinger equation, Fourier transform, momentum space wave function, wave packet, uncertainty principle	12 lectures	September	Problems related to uncertainty principle Assignment 1
III. continuity of wave function, boundary conditions, one dimensional square well potential, quantum mechanics of simple harmonic oscillator	10 Lectures	Sep -Oct	Related Problems of wave function, square well and simple harmonic oscillator test
IV. Quantum theory of hydrogen - like atoms	10 lectures	Oct	Related conceptual problems Assignment 2
V. Magnetic dipole moment, interaction energy in magnetic field, Stern Gerlach experiment, Zeeman effect	8 Lectures	Nov	Numericals related to magnetic moment, interaction energy and Stern Gerlach experiment, Test, Revision
V. Electron spin and spin eigenvalues, Spin angular momentum, Spin orbit coupling, LS and jj coupling	8 Lectures	Nov - Dec	Related Numericals Assignment, Revision of whole syllabus