Code	Subject Title	Cr. Hrs	Semester
PHY-305	Quantum Mechanics-I	3	V
Year	Discipline		
3	Physics		

Quantum Mechanics of One dimensional Problems: Review of concepts of classical mechanics, State of a system, Properties of one dimensional potential functions, Functions and expectation values, Dirac notation and Hermitian operators, Solutions of Schrodinger equations for free particles, The potential carrier problems, The linear harmonic Oscillator.

Formalism of Quantum Mechanics: The state of a system, Dynamical variables and operators, Commuting observable, Heisenberg Uncertainty relations, Time evaluation of a system, Schrodinger and Heisenberg pictures, Symmetry principles and conservation laws.

Angular Momentum: Orbital angular momentum, Angular momenta, The eigenvalues and eigen functions of L and Lz.

Schrodinger Equation in Three Dimensions: Separation of Schrodinger equation in cartesian coordinates, Central potentials, The free particle, three dimensional square well potential, The hydrogenic atom, Three dimensional square well potential, The hydrogenic atom.

Books Recommended:
1. *Introductory Quantum Mechanic* by B.H. Bransden & C.J. Joachain, Longman Scientific & Technical London, 1990.
2. *A Modern Approach to Quantum Mechanics* by J.S. Townsend, McGraw Hill Book Company, Singapore, 1992.
3. *An Introduction Quantum Mechanics* by W.Greiner, Addison Wesley Publishing Company, Reading Massachusetts, 1980.
4. *Introductory Quantum Mechanics* by R.L. Liboff, Addison Wesley Publishing Company, Reading Massachusetts, 1980.
5. *Theory of Quanta* by Bialynicki-Birula, M. Cieplak & J.Kaminski, Oxford University Press, New York, 1992.
6. *Relativistic Quantum Mechanics* by W.Greiner, Springer Veriag, Berlin, 1990.
7. Quantum Mechanics by F. Schwable, Narosa Publishing House, New Delhi, 1992.