



Code	Subject Title	Cr. Hrs	Semester
PHY-309	Quantum Mechanics-II	3	VI
Year	Discipline		
3	Physics		

Matrix Mechanics: Linear vector space, orthogonal systems, linear transformations, matrices, change of basis, Hilbert space, Dirac Notation, matrix representation, diagonalization, examples.

Identical Particles and Second Quantization: Indistinguishability of identical particles, Systems of identical particles, Quantum dynamics of identical particle systems. Angular momenta and spin 1/2 boson operators,

Approximate Methods: Time independent perturbation theory for non degenerate levels, The variational method, The WKB approximation, Time dependent perturbation theory.

The Theory of Scattering: Scattering experiments and cross sections, Potential scattering, The method of partial waves, The Born approximation.

Books Recommended:

1. *Introductory Quantum Mechanics* 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 Verlag, Berlin, 1990.
7. *Quantum Mechanics* by F. Schwable, Narosa Publishing House, New Delhi, 1992.