Subject Code:	NS205g	**Course Title**	Modern Physics
Contact Hours	L-3, T-0, P-2	**Credit**	4
Programme	B.Tech	**Semester**	III
Pre-requisites	NIL		
Evaluation scheme	Quiz I (10%), Mid term (20%), Quiz II (10%), End term (40%), lab (20%)		

Special theory of relativity**,** Length contraction, time dilation, dopper effect, velocity addition, relativistic energy and momentum, concept of four vector **[6 H]**

Early development of quantum theory, Blackbody radiation, Photoelecctric effect, Compton scattering **[3 H]**

Modern development, De Broglie's hypothesis and Schrodinger's equation, The Statistical Interpretation, Normalization and expectation values, The Uncertainty Principle **[4 H]**

Stationary States, Particle in a box, The Harmonic Oscillator, The Free Particle, potential step and barrier **[6 H]**

Series Solutions to Legendre's Equation, Associated Legendre's Equation, Bessel equation and Hermite equations, Generating function and orthogonality, Laguerre Functions and associated Laguerre Functions **[14 H]**

Schrodinger Equations in Spherical Coordinates, The Hydrogen Atom, Angular Momentum, addition of angular momentum, Spin, identical particles and quantum statistics **[9 H]**

Text/Reference books:

1. Introduction to quantum Mechanics: David J Griffiths
2. Concepts of Modern physics: Arthur Beiser
3. Introductory quantum mechanics: Richard L Liboff
4. Modern physics: Kenneth S. Krane