B.Sc. Semester-II (Physics Major)

B.Sc. Semester-II
Course code: PH-MJ 201

Total Credits: 04 (Theory: 3, Practical; 1)

Total Hrs: Theory: 45, Practical: 30

PH-MJ 201 (Theory)

Unit1	**Rotational Motion (PhysicsbyHalliday,ResnikandKrane,Vol.1,5th edition, Wiley)**
	Rotational motion(8.1),The rotational variables(8.2),Rotational quantities as vectors (8.3), rotation with constant angular acceleration (8.4), relationships between linear and angular variables (8.6) Torques(9.1), rotational inertia and Newton's second law (9.2), rotational inertia of solid bodies(9.3), torque due to gravity (9.4), equilibrium applications of Newton's laws for rotation (9.5) Angular momentum of a particle(10.1),systems of particles (10.2),angular Momentum and angular velocity(10.3), conservation of angular momentum (10.4)
Unit2	**Oscillations and Waves (Oscillations and Waves by Suresh Garg,C.K.Ghosh And anjayGupta Prentice Hall of India,2009)**
	Introduction (3.1),principle of superposition and linearity (3.2),superposition of two collinear SHO of same frequency(3.3),superposition of two collinear SHOs of nearly equal frequencies (3.4), superposition of two mutually perpendicular harmonic oscillations (3.6), describing wave motion (7.3),phase of a wave (7.4), Energy transported by a progressive wave(7.5),intensity of a wave (7.6)
Unit3	**ElasticityII (Properties of Matter byD. S.Mathur,S. Chand & Co., 2009)& Gravitation (Physics by Halliday,Resnik and Krane,Vol.1,5th edition, Wiley)**
	Elasticity: Twisting couple on a cylinder (8.22), tensional pendulum (8.26), determination of coefficient of rigidity (n) for a wire (8.27), bending of a beam (8.39), the cantilever(8.30), transverse vibrations of a loaded cantilever (8.32), depression of a beam supported at the ends (8.33), determination of Y by bending of beams (8.34), Determination of elastic constants by Searle's method (8.36) **Gravitation:** Origin of the law of gravitation(14.1),Newton's law of universal gravitation(14.2),the gravitational constant G (14.3), gravitation near the earth's surface (14.4), the two shell theorems (14.5), gravitational potential energy(14.6)

ReferenceBooks:

1. Mechanics (Berkley Physics Course 1 by C Kittle, W D Knight, M Alvine and ARuderman,Tata McGraw-Hill, 1991.
2. Modern Physics by Kenneth S Krane,Wiley India Edition,2016
3. Vibrations and Waves by AP French ,CBS: 1st Ed. 2003