

SYLLABUS

PANJAB UNIVERSITY, CHANDIGARH

B.Sc. I [Semester-II]

PAPER A : MECHANICS-II

UNIT-I

Rigid Body motion; Rotational motion, principal moments and Axes, Euler's equations, precession and elementary gyroscope.

Galilean transformations and Invariance, Transformation equations for inertial frames inclined to each other, Non-Inertial frames. Fictitious forces in a rotating frames of reference, Centrifugal and Coriolis force due to rotation of earth, Foucault's pendulum.

Concept of stationary universal frame of reference and ether, Michelson-Morely experiment and its results.

UNIT-II

Postulates of special theory of relativity, Lorentz transformations, Kinematical consequences of Lorentz transformations – length contraction and time dilation, Twin paradox, Transformation of velocities. Simultaneity of relativity, Velocity of light in moving fluid, Relativistic Doppler effect.

Variation of mass with velocity, mass-energy equivalence, rest mass in an inelastic collision, relativistic momentum & energy, their transformation, concepts of Minkowski space, four vector formulation.