

SYLLABUS

DYNAMICS

(SEMESTER-IV)

(P.U.)

PAPER-III :

Time : 3 Hours

Max. Marks : 30

Internal Assessment : 4 Marks

- Note : 1. The syllabus has been split into two Units : Unit-I and Unit-II. Four questions will be set from each Unit.
2. A student will attempt five questions selecting at least two questions from each Unit. Each question will carry 6 marks.

UNIT-I

Motion of a particle with constant acceleration, acceleration of falling bodies, motion under gravity, motion of a body projected vertically upwards; Newton's Laws of Motion, Motion of two particles connected by a string, motion along a smooth inclined plane, constrained motion along a smooth inclined plane. Variable acceleration : Simple harmonic motion, elastic string.

UNIT-II

Curvilinear motion of a particle in a plane : Definition of velocity and acceleration, projectiles, motion in a circle.

Work, power, conservative field and the potential energy, work done against gravity, potential energy of a gravitational field.

Relative motion, relative displacement, velocity and acceleration, motion relative to a rotating frame of reference.

Linear momentum, angular momentum, conservation of angular momentum, impulsive forces, principle of impulse and momentum, motion with respect to centre of mass of a system of particles, collisions of elastic bodies, loss of energy during impact.