

MTH 315 DYNAMICS OF A RIGID BODY: (3 Units) (L 30: PO: TIS)

General motions of a rigid body as a translation plus a rotation. Moment, and products of inertia in three dimensions. Parallel, and perpendicular axes theorems. Principal axes, Angular momentum, kinetic energy of a rigid body. Impulsive motion. Examples involving one and two dimensional motion of simple systems. Moving frames of reference; rotating and translating frames of reference. Coriolis force. Motion near the Earth's Surface. The Foucault's pendulum. Euler's dynamical equations for motion of a rigid body with one point fixed. The symmetrical top. Precession.