

## **MTH 104 Vector and Applied Mathematics III (2+0+0 2 Units)**

(Vectors, Geometry and Dynamics)

- Geometric representation of vectors in 1 -3 dimensions, components, direction cosines.
- Addition, Scalar, multiplication of vectors, linear independence. Scalar and vector products of two vectors.
- Differentiation and integration of vectors with respect to a scalar variable.
- Two-dimensional co-ordinate geometry. Straight lines, circles, parabola, ellipse, hyperbola. Tangents, normals,
- Kinematics of a particle. Components of velocity and acceleration of a particle moving in a plane.
- Force, momentum, laws of motion under gravity, projectiles, resisted vertical motion. Angular momentum.
- Simple harmonic motion, elastic string, simple pendulum, impulse. Impact of two smooth sphere and of a sphere on a smooth surfac