



Dharampeth M. P. Deo Memorial Science College, Nagpur

Syllabus wise You Tube Links

B. Sc. SEM V (Mathematics)

M-11: Mechanics (Optional)

Unit I

Forces acting at a point, Parallel forces, Moments, Couples, Coplanar forces, Reduction theorems and examples, Equilibrium under three forces, General conditions of equilibrium, Centre of gravity.

https://www.youtube.com/watch?v=g-KWLljCah4&list=PLU6SqdYcYsfK_4lglYaUO3b5Fid-4EuV5

Unit II

Work and Energy, Virtual work, Flexible strings, Common catenary

https://www.youtube.com/watch?v=g-KWLljCah4&list=PLU6SqdYcYsfK_4lglYaUO3b5Fid-4EuV5

Unit-III

Motion in a plane: Velocity and acceleration, Radial and transverse components of velocity and acceleration, Angular velocity and acceleration, Relation between angular and linear velocities, Tangential and normal components of velocity and acceleration, Newton's Laws of motion, Projectile.

https://www.youtube.com/watch?v=g-KWLljCah4&list=PLU6SqdYcYsfK_4lglYaUO3b5Fid-4EuV5

Unit IV

Basics concept of Lagrange's Dynamics, Constraints, Generalized Coordinates, Principle of Virtual work, D' Alembert principle, Lagrange's Equations, Reduction of two body central force problem to the equivalent one body problem, Central force and motion in a plane, Differential equation of an orbit, Inverse square law of force, Virial theorem.

https://www.youtube.com/watch?v=g-KWLljCah4&list=PLU6SqdYcYsfK_4lglYaUO3b5Fid-4EuV5