

Unit No	Topics
1.	<p>INTRODUCTION</p> <p>Introduction to Mechanics and its branches, Fundamental concepts Idealizations in mechanics , Fundamental Principles of mechanics S.I. system of unit, Scalar and vector quantity , Types of vectors</p>
2.	<p>FUNDAMENTAL OF STATICS</p> <p>Force and force system and types of forces, Understanding of resultant, equilibrium, moment and couple , Solution of coplanar concurrent force system using: (a) Law parallelogram ,(b) Law of triangle, (c) Resolution of force system (d) Law of polygon , (e) Lami's theorem Solution of coplanar non concurrent force system using : (a) Resolution of force system , (b) Varignon's theorem</p>
3.	<p>CENTER OF GRAVITY AND MOMENT OF INERTIA</p> <p>Introduction, , Basic definitions, Calculation of CG of compound lines, planes, bodies, Concept of suspended bodies, Pappus - guldianus theorems, Basic understanding of moment of inertia and section modulus, Calculation of moment of inertia compound planes</p>
4.	<p>SIMPLE STRESS AND STRAIN</p> <p><i>Simple stress and strain</i></p> <p>Types of stress and strain, Elastic limit, Hooke's law, Determination of stress in members due to external load, Stress-strain curve for mild steel in tension, Ultimate stress, Working stress, Factor of safety, Deformation of a body due to self weight, Stresses in members with varying cross section, Principle of super position, Extension of a tapered uniformly due to an axial force applied at each end, Stresses in composite members</p> <p><i>Elastic constants</i></p> <p>Introduction Longitudinal & lateral strain, Poisson's ratio, volumetric strain volumetric strain of different shape bars subjected to normal stresses on three mutually perpendicular planes.</p>

	<p><i>Bulk modulus</i> Relation between Bulk modulus and Young's modulus, Shear stress and strain, Principle of complimentary shear stress, Normal stresses due to shear stress, Modulus of rigidity, Relation between Modulus of rigidity and Young's modulus</p> <p><i>Thermal stress and strain</i> Introduction Thermal stresses and strain for yielding and non yielding supports, Thermal stresses and strain for Tapering and varying section ,Thermal stresses and strain for composite bars</p>
5.	<p>SUPPORT REACTION Introduction Types of supports, Types of beams, Types of load</p>
6.	<p>BENDING STRESS AND SHEAR STRESS Theory of simple bending, Bending stresses and their distribution, Introduction to shear stress Theory of shearing stress, Shear stress distribution in different sections</p>