

1st Semester Courses

Mechanics (AM 1101) **(Common course for AE/CE/ME/MET/MIN)**

Contact Period : 4L per week
Prerequisite : None

Full Marks : 100 [Credit: 04]

Sl No.	Article	No. of Classes
1	Introduction to Statics : Mechanics; Basic Concepts; Scalars and Vectors; Newton's laws	02
2	Force Systems : Force Systems in Two Dimensions; Moments and Couples; Resultants and Components	04
3	Equilibrium : Free Body Diagram, Conditions for Equilibrium in Two Dimensional Force Systems	03
4	Structures : Plane Trusses and Frames	07
5	Distributed Force Systems : Center of Mass; Centroid of Lines; Areas and Volumes; Theorems of Pappus; Area Moments of Inertia	06
6	Friction : Friction – Application to wedges	06
7	Kinematics of Particles : Two Dimensional Particle Kinematics in Rectangular Co-ordinates, Cylindrical Co-ordinates and in terms of Normal and Tangential Components	11
8	Kinetics of Particles : Conservation Laws – Approaches in terms of Force, Mass and Acceleration; Work and Energy; Linear Impulse and Momentum – Impact; Angular Impulse and Momentum – Central Force Motion;	11
9	Introduction to Vibration	02
Total		52

Text Book :

Engineering Mechanics Statics (Vol. I) and Dynamics (Vol. II) – J.L. Meriam & L.G. Kraige

Reference Books :

Engineering Mechanics Statics and Dynamics – I.H. Shames

Vector Mechanics for Engineers Statics – F.P. Beer and E.R. Johnston Jr.

Vector Mechanics for Engineers Dynamics – F.P. Beer and E.R. Johnston Jr.