

DEPARTMENT OF MECHANICAL ENGINEERING

Lesson Plan & Work-done Diary for AY:2026-27, Odd Semester

Course with Code: Mechanics of Materials - 1BME304				Faculty:			Semester & Section: 3 rd sem	
Class No.	Date planned (DD/MM)	Topics to be covered	TLP Planned	Class No.	Date of Conduction (DD/MM)	Topics Covered	TLP Executed	Remarks if any deviation
MODULE-1								
1		Introduction and Syllabus Discussion	PPT					
2		Equilibrium of a Particle: Condition for the Equilibrium of a Particle	Chalk and Talk, PPT					
3		The Free-Body Diagram.	Chalk and talk					
4		Coplanar Force Systems.	Chalk and talk					
5		Numerical	Chalk and talk					
6		Force System Resultants: Moment of a Force - Scalar Formulation.	Chalk and Talk, PPT					
7		Principle of Moments and Moment of a Couple.	Chalk and talk					
8		Reduction of a Simple Distributed Loading.	Chalk and talk					
9		Numerical	Chalk and talk					

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10		Equilibrium of a Rigid Body: Conditions for Rigid-Body Equilibrium, Free-Body Diagrams.	Chalk and Talk, PPT					
11		Equations of Equilibrium.	Chalk and talk					
12		Two and Three-Force Members, Constraints and Statical Determinacy.	Chalk and talk					
13		Numerical	Chalk and talk					
		QUIZ on Module 1	M S Forms					
MODULE-2								
14		Introduction: Normal Stress and Strain.	Chalk and Talk, PPT					
15		Mechanical Properties of Materials; Elasticity, Plasticity, and Creep.	Chalk and talk					
16		Linear Elasticity, Hooke's Law, and Poisson's Ratio, Shear Stress and Strain;	Chalk and talk					
17		Allowable Stresses and Allowable Loads.	Chalk and talk					
18		Numerical	Chalk and talk					
19		Axially Loaded Members: Changes in Lengths of Axially Loaded Members.	Chalk and talk					
20		Changes in Lengths under Nonuniform Conditions.	Chalk and talk					
21		Statically Indeterminate Structures.	Chalk and talk					

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22		Thermal Effects, Misfits, and Pre-strains, Stresses on Inclined Sections.	Chalk and talk					
23		Strain Energy and Stress Concentrations.	Chalk and talk					
24		Numerical	Chalk and talk					
MODULE-3								
25		Torsion: Introduction; Torsional Deformations of a Circular Bar.	PPT					
26		Circular Bars of Linearly Elastic Materials, Nonuniform Torsion.	PPT					
27		Stresses and Strains in Pure Shear.	PPT					
28		Relationship Between Moduli of Elasticity E and G.	Chalk and talk					
29		Transmission of Power by Circular Shafts.	Chalk and talk					
30		Statically Indeterminate Torsional Members.	Chalk and talk					
31		Strain Energy in Torsion and Pure Shear.	Chalk and talk					
32		Numerical	Chalk and talk					
33		Numerical	Chalk and talk					
34		Numerical	Chalk and talk					
35		Numerical	Chalk and talk					

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MODULE-4								
36		Stresses in Beams: Pure Bending and Nonuniform Bending.	Chalk and Talk, PPT					
37		Curvature of a Beam, Longitudinal Strains in Beams.	Chalk and Talk, PPT					
38		Normal Stresses in Beams.	Chalk and Talk, PPT					
39		Design of Beams for Bending Stresses, Nonprismatic Beams.	Chalk and Talk, PPT					
40		Shear Stresses in Beams of Rectangular Cross Section.	Chalk and Talk, PPT					
41		Shear Stresses in Beams of Circular Cross Section; Shear Stresses in the Webs of Beams with Flanges.	Chalk and Talk, PPT					
42		Beams with Axial Loads, Stress Concentrations in Bending.	Chalk and Talk, PPT					
43		Numerical	Chalk and talk					
44		Shear Forces and Bending Moments: Introduction; Types of Beams, Loads, and Reactions.	Chalk and Talk, PPT					
45		Shear Forces and Bending Moments.	Chalk and Talk, PPT					
46		Relationships Among Loads, Shear Forces, and Bending Moments.	Chalk and Talk, PPT					
47		Shear-Force and Bending-Moment Diagrams.	Chalk and talk					

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48		Numerical	Chalk and talk					
49		Numerical	Chalk and talk					
50		Numerical	Chalk and talk					
MODULE-5								
51		Analysis of Stress and Strain: Introduction.	Chalk and Talk, PPT					
52		Plane Stress, Principal Stresses and Maximum Shear Stresses.	Chalk and talk					
53		Mohr's Circle for Plane Stress.	Chalk and talk					
54		Hooke's Law for Plane Stress.	Chalk and talk					
55		Triaxial Stress and Plane Strain.	Chalk and talk					
56		Numerical	Chalk and talk					
57		Numerical	Chalk and talk					
58		Pressure Vessels, Beams, and Combined Loadings: Spherical Pressure Vessels.	Chalk and Talk, PPT					
59		Cylindrical Pressure Vessels.	Chalk and talk					
60		Combined Loadings.	Chalk and talk					

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61		Numerical	Chalk and talk					
62		Numerical	Chalk and talk					

	Activity	Planned	Actual	Remarks
1	Theory Classes	62		
2	Quiz/Activity	01/02		
3	Tutorials/ Extra classes	00		
4	Internal Assessments	03		
5	ICT based Teaching (% of usage in Curriculum)	30		
Planning			Execution	
Faculty Signature :			Faculty Signature :	
HoD Signature :			HoD Signature :	