

GOVT. POLYTECHNIC MAYURBHANJ LESSON PLAN-2022/23(SUMMER)

Discipline : CIVIL ENGG.		Semester: 4th Sem		Name of the Teaching Faculty :DAMAYANTI PRADHAN		
Subject : STRUCTURAL MECHANICS(Th.1)		per week class allotted : 05		Semester From date : 15.09.2022 to Date : 17.01.2023		
Month	Week	Day	Unit	Topics		
SEPTEMBER	3RD	4TH	UNIT-1	1.Basic concepts regarding force,moment, support conditions,CG & MI of different sections.		
		5TH		2. Simple and Complex Stress , Strain: Mechanical properties of materials		
	4TH	3RD		2.1 Types of strains - Tensile,compressive and Shear stresses.		
		4TH		2.1 Elongation and contraction,longitudinal and lateral strains.		
		6TH		2.1 Deviation of relationship between the elastic constants.		
	5TH	1ST		2.2 Application of simple stress and strain in engineering field: Behaviour of ductile and brittle materials under direct load.		
		2ND		2.2 Significance of percentage elongation and reduction in area.		
	3RD	1ST		UNIT-2	2.2 Deformation of prismatic bars due to uniaxial load.	
		2ND			2.3 Complex stress and strain : Principal stresses and strains.	
		3RD			Concept of Principal stress and Principal Planes.	
4TH		Mohr's Circle and it's application to solve problems.				
5TH		Chapter-1 Question and answers				
1ST		Chapter-2.1 Question and answers				
				Chapter-2.2 Question and answers		
				Chapter-2.3 Question and answers		

OCTOBER	4TH	2ND	UNIT-3	3.1 Stresses in Beams and Shafts: Stresses in beams due to bending , Theory of simple bending ,Assumptions.
		3RD		Moment of resistance , Equation for Flexure, Flexural stressdistribution,Curvature of beam.
		4TH		Position of N.A. and Centroidal Axis, Flexural rigidity Significance of section modulus.
		5TH		CLASS TEST
	5TH	3RD		3.2 Shear stresses in beams : Shear stress distribution in beams of rectangular
		4TH		Shear stress distribution in beams of circular and standard sections about vertical axis.
		5TH		chapter-3.2 question and answers
		1ST		3.3 Stresses in shafts due to torsion: Concept of torsion , basic assumptions of pure torsion
NOVEMB	1ST	2ND	Torsion of solid and hollow circular sections, polar moment of inertia.	
		3RD	Torsional shearing stresses,angle of twist torsional rigidity,equation of torsion.	
		4TH	chapter-3.3 question and answers	
		5TH	3.4 Combined bending and direct stresses: Combination of stresses , combined direct and bending stresses.	
		6TH	Maximum and minimum stresses in sections, Conditions for no tension , Limit of eccentricity.	
	2ND	3RD	Middle third/fourth rule , core or kern for square, rectangular and circular sections.	
		4TH	chapter-3.4 question and answers	
		5TH	do	
		1ST	do	

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DECEMBER	3RD	2ND	UNIT-4	4. Columns and Struts : Short and long columns, End conditions, Equivalent length, slenderness ratio.
		3RD		Axially loaded short and long column,Euler's theory of long column.
		4TH		Critical load for columns with different end conditions.
		5TH		do
		6TH		chapter-4 question and answers
	4TH	4TH	UNIT-5	do
		5TH		5. Shear force and bending moment : Types of loads and beams.
		6TH		5.2 Shear force and bending moment in different types of beams like simply
	5TH	2ND		do
		3RD		Chapter 5.2 question solve
DECEMBER	2ND	2ND	UNIT-6	Questions discussion
		3RD		do
		4TH		6.SLOPE AND DEFLECTION: Shape and nature of elastic curve (deflection curve); Relationship between slope & deflection .
	3RD	5TH	UNIT-7	Deflection and curvature (No derivation), Importance of slope and deflection.
		6TH		Slope and deflection of simply supported , cantilever beams.
		3RD		do
		4TH		Slope and deflection by double integration method,Macaulay's method.
	4TH	5TH	UNIT-8	INTERNAL
		6TH		Questions discussion
		2ND		7. Indeterminate Beams: Indeterminacy in beams , principle of consistent deformation
3RD		Analysis of propped cantilever, fixed beams.		
DECEMBER	4TH	4TH	UNIT-8	8.Trusses: types of trusses ,statically determinate and indeterminate trusses.
		5TH		Questions discussion
		6TH		Chapter 8 question solve
		2ND		Short type question discussion

JANUARY	1ST	3RD	Long type questions discussion
		4TH	do
		5TH	Chapter-2 Doubt classes
		6TH	do
	2ND	1ST	do
		2ND	Chapter-3 Revision classes
		3RD	do
		4TH	Chapter -4 revision classes
	3RD	2ND	do
		3RD	Chapter -5 Revision classes
		4TH	do
		5TH	Chppter-6 Revision classes
		6TH	do

H.O.D
SIGNATURE

ACADEMIC COORDINATOR SIGNATURE

SUBJECT EXPERT SIGNATURE

