

GOVERNMENT POLYTECHNIC JAJPUR
A/ P: Ragadi, Block: Korei, Dist.: Jajpur, Odisha- 755019
DEPARTMENT OF MECHANICAL ENGINEERING (2024-2025)

LESSON PLAN

Discipline: MECHANICAL	Semester: 3RD	Name of the Teaching faculty: GITANJALI SETHI, Sr. Lecturer, Mechanical Engg.	
Subject: Strength Of Material (Th-2)	No of Days /Week class alloted: 4	Semester from Date: 01/07/2024 No of weeks: 15	To Date: 08/11/2024
1ST	1st	(CHAPTER-1)Simple stress& strain Describing different Types of load, stresses & strains,(Axial and tangential)	
	2nd	Description of Hooke's law, Young's modulus, bulk modulus, modulus of rigidity,	
	3rd	Description of Poisson's ratio, derivation of the relation between three elastic constants	
	4th	Numericals on above	
2ND	1st	Description of Principle of super position, stresses in composite section	
	2nd	Numericals on above	
	3rd	Description of Temperature stress, determination of the temperature stress in composite bar (single core)	
	4th	Numericals on above	
3RD	1st	Description of Strain energy and resilience, Stress due to gradually applied load	
	2nd	Description of Stress due to suddenly applied and impact load	
	3rd	Numericals on above	
	4th	(CHAPTER-2)Thin cylinder and spherical shell under internal pressure Defining hoop and longitudinal stress, strain	
4TH	1st	Derivation of hoop stress, longitudinal stress, hoop strain	
	2nd	Numericals on above	
	3rd	Description of longitudinal strain and volumetric strain	
	4th	Computation of the change in length, diameter and volume	
5TH	1st	Numericals on above	
	2nd	REVISION AND TEST	
	3rd	(CHAPTER-3)Two dimensional stress systems Introduction to Two dimensional Stress system, Concept of Principal plane and principal stress and strain; stresses in oblique plane	
	4th	Determination of normal stress, shear stress and resultant stress on oblique plane of a body	
6TH	1st	Determination of normal stress, shear stress and resultant stress on oblique plane of a body	
	2nd	Numericals on above	
	3rd	Location of principal plane and computation of principal stress	
	4th	Location of principal plane and computation of principal stress	
7TH	1st	Numericals on above	
	2nd	Location of principal plane and computation of principal stress and Maximum shear stress using Mohr's circle	
	3rd	Numericals on above	
	4th	Numericals on above	
	1st	(CHAPTER-4)Bending moment& shear force Description of Types of beam and load	

8TH	2nd	Concepts of Shear force and bending moment
	3rd	Description of Shear Force and Bending moment diagram and its salient features illustration in cantilever beam subjected to point load
	4th	Description of Shear Force and Bending moment diagram and its salient features illustration in simply supported beam subjected to point load.
9TH	1st	Description of Shear Force and Bending moment diagram and its salient features illustration in over hanging beam subjected to point load
	2nd	Description of Shear Force and Bending moment diagram and its salient features illustration in cantilever beam subjected to UDL.
	3rd	Description of Shear Force and Bending moment diagram and its salient features illustration in simply supported beam subjected to UDL.
	4th	Description of Shear Force and Bending moment diagram and its salient features illustration in over hanging beam subjected to UDL.
10TH	1st	Numericals on above
	2nd	REVISION AND TEST
	3rd	(CHAPTER-5)Theory of simple bending Assumptions in the theory of bending,
	4th	Derivation of Bending equation
11TH	1st	Description of Moment of resistance introduction to theory of simple bending
	2nd	Description of Section modulus & neutral axis
	3rd	Numericals on above
	4th	Numericals on above
12TH	1st	Numericals on above
	2nd	(CHAPTER-6)Combined direct & bending stresses Defining column, types of column
	3rd	Defining Axial load, Eccentric load on column
	4th	Description of Direct stresses, Bending stresses, Maximum & Minimum stresses.
13TH	1st	Numericals on above
	2nd	Description of Buckling load computation using Euler's formula (no derivation) in Columns with various end conditions
	3rd	Numericals on above
	4th	REVISION AND TEST
14TH	1st	(CHAPTER-7)Torsion Assumption of pure torsion
	2nd	Description of The torsion equation for solid and hollow circular shaft
	3rd	Comparison between solid and hollow shaft subjected to pure torsion
	4th	Numericals on above
15TH	1st	REVISION AND TEST
	2nd	Previous Years Question Discussion
	3rd	Previous Years Question Discussion
	4th	VST

Learning resources:

Sl. No.	Author	Title of the book	Publisher
01	S Ramamrutham	Strength of Materials	Dhanpat Rai
02	R K Rajput	Strength of Materials	S.Chand
03	R S khurmi	Strength of Materials	S.Chand
04	G H Ryder	Strength of Materials	Mc millon and co. lmtd
05	S Timoshenko and D H Young	Strength of Materials	TMH


29.6.24
Signature of faculty