

**Lesson Plan for Strength Of Material, 3rd Sem. Mechanical Engg. (2022-2023)**

<b>Discipline: Mechanical Engg</b>	<b>Semester: 3rd</b>	<b>Name of the Teaching Faculty: TRUPTI MOHANTY</b>
<b>SUBJECT: STRENGTH OF MATERIAL</b>	No. of Days/ week class allotted=4	<b>Semester From date: 15.09.2022 To Date: 22.12.22</b> <b>No. of Weeks:</b>
<b>Week</b>	<b>Class Day</b>	<b>Theory / Practical Topics</b>
1st	1st (CH-1)	Introduction, Types of load, Stress
	2nd	Types of stress, Strain, Types of strain, Elastic limit
	3rd	Stress Vs Strain curve, Hooke's law, Youngs Modulus, Bulk Modulus, Modulus of Rigidity, Poissons ratio
	4th	Principle of superposition, Problems
2nd	1st	Stress in composite Section, Problems
	2nd	Problems on composite section, Introduction to temp. stress
	3rd	Temperature stress, Determine the temp. stress in composite bar (single core), Problems
	4th	Problems on temp. stress
3rd	1st	Strain energy and resilience, Stress due to gradually applied, suddenly applied and impact load
	2nd	Relation between three Elastic constants
	3rd (CH-2)	Principle of super position, stresses in composite section
	4th	Temperature stress, determine the temperature stress in composite bar
4th	1st	Strain energy and resilience
	2nd	Stress due to gradually applied, suddenly applied and impact load
	3rd	Simple problems on above.
	4th (CH-3)	Simple problems on above.
5th	1st	Definition of hoop and longitudinal stress, strain
	2nd	Derivation of hoop stress, longitudinal stress,
	3rd	hoop strain, longitudinal strain and volumetric strain
	4th	Simple problems on above
6TH	1st	Computation of the change in length, diameter and volume
	2nd	Computation of the change in length, diameter and volume
	3rd	Simple problems on above
	4th	Simple problems on above

7th	1st	Determination of normal stress
	2nd	shear stress and resultant stress on oblique plane
	3rd	Location of principal plane
	4th	computation of principal stress
8th	1st	computation of principal stress
	2nd	Location of principal plane
	3rd	computation of principal stress
	4th	computation of principal stress
9th	1st	Maximum shear stress using Mohr's circle
	2nd	Maximum shear stress using Mohr's circle
	3rd	Introduction to Bending moment & shear force
	4th	Types of beam and load
10th	1st	Concepts of Shear force
	2nd	bending moment
	3rd	bending moment
	4th	Shear Force and Bending moment diagram
11th	1st	its salient features illustration in cantilever beam
	2nd	simply supported beam
	3rd	over hanging beam under point load
	4th	uniformly distributed load
12th	1st	Introduction to theory of simple bending
	2nd	assumptions in the theory of bending
	3rd	Assumptions in the theory of bending
	4th	Bending equation
13th	1st	Bending equation
	2nd	Moment of resistance
	3rd	Section modulus & neutral axis

	4th	Solve simple problems.
14th	1st	Define column
	2nd	Axial load, Eccentric load on column
	3rd	Direct stresses, Bending stresses, Maximum& Minimum stresses
	4th	Numerical problems on above.
15th	1st	Buckling load computation using Euler's formula
	2nd	Introduction to Torsion
	3rd	Assumption of pure torsion
	4th	Assumption of pure torsion
16th	1st	The torsion equation for solid shaft
	2nd	The torsion equation for hollow circular shaft
	3rd	Comparison between solid and hollow shaft subjected to pure torsion
	4th	<b>ALL SUBJECT REVISION</b>

Trupti Mohanty.  
Concerned faculty

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