
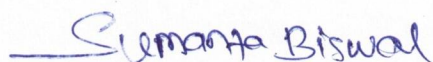


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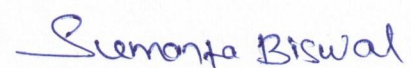
Discipline: <u>MECHANICAL</u>	Semester: <u>3rd</u>	Name of the Teaching Faculty: <u>E.R SUMANTA</u> <u>BISWAL</u> <u>PTGF : Mechanical</u>
Subject: SOM	No. of days/per week class allotted: 4	Semester From date: 01/08/2023 To date: No of weeks: 15
Week	Class Day	Theory Topics:
1st	1st	Simple stress & strain
	2nd	Types of load, stresses & strains, (Axial and tangential),
	3rd	Hooke's law, Young's modulus, bulk modulus, modulus of rigidity
	4th	Poisson's ratio, derive the relation between three elastic constants,
2nd	1st	Principle of super position, stresses in composite section
	2nd	Temperature stress, determine the temperature stress.
	3rd	stress in composite bar (single core).
	4th	Strain energy and resilience,.
3rd	1st	Stress due to gradually applied, suddenly applied and impact load.
	2nd	Simple problems on above. ,
	3rd	Thin cylinder and spherical shell under internal pressure
	4th	Definition of hoop and longitudinal stress, strain
4th	1st	Derivation of hoop stress, longitudinal stress, hoop strain, longitudinal strain and volumetric strain.
	2nd	
	3rd	Computation of the change in length, diameter and volume
	4th	Simple problems on above .
5th	1st	Two dimensional stress systems.
	2nd	Determination of normal stress,
	3rd	shear stress and resultant stress on oblique plane
	4th	Location of principal plane and computation of principal stress


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6 th	1 st	Location of principal plane and computation of principal stress and
	2 nd	Maximum shear stress using Mohr's circle
	3 rd	Bending moment & shear force
	4 th	Types of beam and load
7 th	1 st	Concepts of Shear force and bending moment
	2 nd	Shear Force and Bending moment diagram and its salient features
	3 rd	illustration in cantilever beam,
	4 th	simply supported beam
8 th	1 st	over hanging beam under point load and uniformly distributed load
	2 nd	Theory of simple bending
	3 rd	Assumptions in the theory of bending.
	4 th	Bending equation
9 th	1 st	, Moment of resistance
	2 nd	Section modulus & neutral axis.
	3 rd	Solve simple problems.
	4 th	Combined direct & bending stresses
10 th	1 st	Define column
	2 nd	Axial load, Eccentric load on column.
	3 rd	Direct stresses, Bending stresses.
	4 th	, Maximum & Minimum stresses.


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11 th	1 st	Numerical problems on above..
	2 nd	Buckling load computation using Euler's formula
	3 rd	in Columns with various end conditions .
	4 th	Torsion
12 th	1 st	Assumption of pure torsion.
	2 nd	The torsion equation for solid.
	3 rd	hollow circular shaft
	4 th	Comparison between solid and hollow shaft subjected to pure torsion
13 th	1 st	Revision class.
	2 nd	Revision class.
	3 rd	Revision class.
	4 th	Revision class.
14 th	1 st	Revision class.
	2 nd	Discussion of PYQ
	3 rd	Discussion of PYQ
	4 th	Discussion of PYQ
15 th	1 st	Discussion of PYQ
	2 nd	Discussion of PYQ
	3 rd	Discussion of PYQ
	4 th	Discussion of PYQ


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