Winter-23

Discipline :**MECHANICALE NGG**	Semester :**3rd**	Name of the Teaching Faculty: **INDRAJEET PANDIT**
Subject: STRENGTH OF MATERIAL	No. of days/per week class allotted: **04**	No. of Weeks: **15**
Week	Class Day	Theory / Practical Topics
1ST	1ST	Types of load, stresses & strains.(Axial and tangential).
	2ND	Hooke's law, Young's modulus, bulk modulus, modulus of rigidity.
	3RD	Poisson's ratio, derive the relation between three elastic constants
	4TH	Principle of super position, stresses in composite section
2ND	1ST	Temperature stress, determine the temperature stress in composite bar (single core)
	2ND	Strain energy and resilience, Stress due to gradually applied, suddenly applied and impact load
	3RD	Strain energy and resilience, Stress due to gradually applied, suddenly applied and impact load
	4TH	Simple problems on above
3RD	1ST	Simple problems on above
	2ND	Simple problems on above
	3RD	Definition of hoop and longitudinal stress, strain
	4TH	Definition of hoop and longitudinal stress, strain
4TH	1ST	Derivation of hoop stress, longitudinal stress, hoop strain, longitudinal strain and volumetric strain
	2ND	Derivation of hoop stress, longitudinal stress, hoop strain, longitudinal strain and volumetric strain
	3RD	Computation of the change in length, diameter and volume
	4TH	Simple problems on above
5TH	1ST	Simple problems on above
	2ND	Simple problems on above
	3RD	Determination of normal stress, shear stress and resultant stress on oblique plane
	4TH	Determination of normal stress, shear stress and resultant stress on oblique plane
6TH	1ST	Determination of normal stress, shear stress and resultant stress on oblique plane
	2ND	Location of principal plane and computation of principal stress
	3RD	Location of principal plane and computation of principal stress
	4TH	Location of principal plane and computation of principal stress
7TH	1ST	Location of principal plane and computation of principal stress and Maximum shear stress using Mohr's circle
	2ND	Location of principal plane and computation of principal stress and Maximum shear stress using Mohr's circle
	3RD	Location of principal plane and computation of principal stress and Maximum shear stress using Mohr's circle
	4TH	Location of principal plane and computation of principal stress and Maximum

		shear stress using Mohr's circle
8TH	1ST	Types of beam and load
	2ND	Types of beam and load
	3RD	Types of beam and load
	4TH	Concepts of Shear force and bending moment
9TH	1ST	Concepts of Shear force and bending moment
	2ND	Concepts of Shear force and bending moment
	3RD	ShearForceandBendingmomentdiagramanditssalientfeaturesillustration in cantilever beam, simply supported beam and overhanging beam under point load and uniformly distributed load
	4TH	ShearForceandBendingmomentdiagramanditssalientfeaturesillustration in cantilever beam, simply supported beam and overhanging beam under point load and uniformly distributed load
10TH	1ST	ShearForceandBendingmomentdiagramanditssalientfeaturesillustration in cantilever beam, simply supported beam and overhanging beam under point load and uniformly distributed load
	2ND	ShearForceandBendingmomentdiagramanditssalientfeature sillustration in cantilever beam, simply supported beam and overhanging beam under point load and uniformly distributed load
	3RD	Assumptions in the theory of bending
	4TH	Assumptions in the theory of bending
11TH	1ST	Bending equation, Moment of resistance, Section modulus & neutral axis.
	2ND	Bending equation, Moment of resistance, Section modulus & neutral axis.
	3RD	Bending equation, Moment of resistance, Section modulus & neutral axis.
	4TH	Solve simple problems
12TH	1ST	Solve simple problems
	2ND	Solve simple problems
	3RD	Solve simple problems
	4TH	Solve simple problems
13TH	1ST	Define column
	2ND	Axial load, Eccentric load on column
	3RD	Direct stresses, Bending stresses, Maximum & Minimum stresses. Nu merical problems on above.
	4TH	Direct stresses, Bending stresses, Maximum & Minimum stresses. Nu merical problems on above.
14TH	1ST	Buckling load computation using Euler's formula (no derivation) in Columns with various end conditions
	2ND	Buckling load computation using Euler's formula (no derivation) in Columns with various end conditions
	3RD	Assumption of pure torsion
	4TH	The torsion equation for solid and hollow circular shaft
15TH	1ST	The torsion equation for solid and hollow circular shaft

	2ND	The torsion equation for solid and hollow circular shaft
	3RD	Comparison between solid and hollow shaft subjected to pure torsion
	4TH	Comparison between solid and hollow shaft subjected to pure torsion

Sandeepa Pandit 14/08/23
SIGN OF FACULTY

14/08/23
SIGN OF HOD