Discipline	Semeste	Name of the Teaching Faculty: HIMANSU SEKHAR SETHI
:MECHANICALE	r : 3 rd	
NGG		
Subject:STRENGT	No. of	Semester From July to December
H OF	days/per	No. of Weaker 15
MATERIAL	week	NO. 01 WEEKS: 15
	class	
Week	Class	Theory / Practical Topics
WCCK	Dav	Theory / Thethear Toples
1 ST	1 ST	Types of load, stresses & strains,(Axial and tangential),
	2 ND	Hooke's law, Young's modulus, bulk modulus, modulus of rigidity,
	3 RD	Poisson's ratio, derive the relation between three elastic constants
	4 TH	Principle of super position, stresses in composite section
2 ND	1 ST	Temperature stress, determine the temperature stress in composite bar (single core)
	2^{ND}	Strain energy and resilience, Stress due to gradually applied, suddenly applied and impact load
	3 RD	Strain energy and resilience, Stress due to gradually applied, suddenly
		applied and impact load
	4 TH	Simple problems on above
3 RD	1 ST	Simple problems on above
	2^{ND}	Simple problems on above
	3 RD	Definition of hoop and longitudinal stress, strain
	4'''	Definition of hoop and longitudinal stress, strain
4 TH	1 ST	Derivation of hoop stress, longitudinal stress, hoop strain, longitudinal strain and volumetric strain
	2 ND	Derivation of hoop stress, longitudinal stress, hoop strain, longitudinal strain and volumetric strain
	3 RD	Computation of the change in length, diameter and volume
	4 TH	Simple problems on above
5 TH	1 ST	Simple problems on above
	2 ND	Simple problems on above
	3 RD	Determination of normal stress, shear stress and resultant stress on oblique plane
	4 TH	Determination of normal stress, shear stress and resultant stress on oblique plane
6 TH	1 ST	Determination of normal stress, shear stress and resultant stress on oblique plane
	2 ND	Location of principal plane and computation of principal stress
	- 3 RD	Location of principal plane and computation of principal stress
	4 TH	Location of principal plane and computation of principal stress
7 TH	1 ST	Locationofprincipalplaneandcomputationofprincipalstressand Maximum
		shear stress using Mohr's circle
	2 ND	Locationofprincipalplaneandcomputationofprincipalstressand Maximum
		shear stress using Mohr's circle
	3 RD	Locationofprincipalplaneandcomputationofprincipalstressand Maximum
		shear stress using Mohr's circle
	4 TH	Locationofprincipalplaneandcomputationofprincipalstressand Maximum

		shear stress using Mohr's circle
8 TH	1^{ST}	Types of beam and load
	2^{ND}	Types of beam and load
	3 RD	Types of beam and load
	4^{TH}	ConceptsofShearforceandbendingmoment
9 TH	1 ST	ConceptsofShearforceandbendingmoment
	2 ND	ConceptsofShearforceandbendingmoment
	3 RD	ShearForceandBendingmomentdiagramanditssalientfeaturesillustration in
		cantilever beam, simply supported beam and
		overhangingbeamunderpointloadanduniformlydistributedload
	4 ¹ ^H	ShearForceandBendingmomentdiagramanditssalientfeaturesillustration in
		cantilever beam, simply supported beam and
1 oTU	4 CT	overhangingbeamunderpointloadanduniformlydistributedload
10 ¹	151	ShearForceandBendingmomentdiagramanditssalientfeaturesillustration in
		cantilever beam, simply supported beam and
	aND	overhangingbeamunderpointloadanduniformlydistributedload
	210	ShearForceandBendingmomentdiagramanditssalientfeaturesillustration in
		cantilever beam, simply supported beam and
	aRD	overhangingbeamunderpointloadanduniformlydistributedload
	310	Assumptions in the theory of bending,
	4^{TH}	Assumptions in the theory of bending,
11 TH	1 ST	Bendingequation, Momentofresistance, Section modulus & neutralaxis.
	2 ND	Bendingequation, Momentofresistance, Section modulus & neutralaxis.
	3 RD	Bendingequation, Momentofresistance, Section modulus & neutralaxis.
	4 TH	Solvesimpleproblems
12 TH	1 ST	Solvesimpleproblems
	2 ND	Solvesimpleproblems
	3 RD	Solvesimpleproblems
	4^{TH}	Solvesimpleproblems
13TH	1 ST	
15	1	Definecolumn
	2^{ND}	Axialload, Eccentricloadon column
	3 RD	Directstresses, Bendingstresses, Maximum & Minimum stresses. Numerical
		problemson above.
	4^{TH}	Directstresses, Bendingstresses, Maximum & Minimum stresses. Numerical
		problemson above.
14 TH	1 ST	BucklingloadcomputationusingEuler'sformula(noderivat
	e ND	ion)inColumns withvariousendconditions
	210	BucklingloadcomputationusingEuler'sformula(noderivat
	2RD	ion)inColumns withvariousendconditions
	3	Assumptionofpuretorsion
	4 TH	Thetorsionequationforsolidandhollowcircularshaft
15TH	1 ST	Thetorsionequationforsolidandhollowcircularshaft
	2^{ND}	Thetorsionequationforsolidandhollowcircularshaft
	3 RD	Comparison between solid and hollow shaft subjected to pure torsion
	4 TH	Comparison between solid and hollow shaft subjected to pure torsion

Learning Resouces:

- $01. \ {\tt Strengthof Materials, by SRamamrutham, Dhanpat Rai}$
- 02. StrengthofMaterialsbyRKRajput, S.Chand
- $03. \ {\it Strengthof Materials, by R.Skhurmi, , S.Chand}$
- 04. StrengthofMaterials,byGHRyder, Mcmillonandco.Imtd
- $05.\ {\rm Strengthof}{\rm Materials}$ by ${\rm STimoshenkoand}{\rm DH,}{\rm TMH}$