

GOVT. POLYTECHNIC, NAYAGARH

3rd SEMESTER MECHANICAL ENGINEERING (2023-24)

SUBJECT- STRENGTH OF MATERIAL

NAME OF FACULTY: Ramya Rashmi Rout, PTGF(MECH)

TOTAL PERIOD-60
THEORY-4P/WEEK

Semester from :01/08/2023 to 30/11/2023

Sl No.	week	Day	Topics to be covered
1	1 st	1 st day	Simple stress & strain
		2 nd day	Types of load, stresses & strains, (Axial and tangential) Hooke's law, Young's modulus, bulk modulus, modulus of rigidity, Poisson's ratio, derive the relation between three elastic constants
		3 rd day	Principle of super position, stresses in composite section.
		4 th day	Temperature stress, determine the temperature stress in composite bar (single core)
SI No.	week	Day	Topics to be covered
2	2 nd	1 st day	Strain energy and resilience, Stress due to gradually applied, suddenly applied and impact load
		2 nd day	Simple problems on above.
		3 rd day	Thin cylinder and spherical shell under internal pressure
		4 th day	Definition of hoop and longitudinal stress, strain
SI No.	week	Day	Topics to be covered
3	3 rd	1 st day	Computation of the change in length, diameter and volume
		2 nd day	Determination of normal stress, shear stress and resultant stress on oblique plane
		3 rd day	Location of principal plane and computation of principal stress
		4 th day	Location of principal plane and computation of principal stress and Maximum shear stress using Mohr's circle
SI No.	week	Day	Topics to be covered
4	4 th	1 st day	Types of beam and load
		2 nd day	Concepts of Shear force and bending moment
		3 rd day	Shear Force and Bending moment diagram and its salient features illustration in cantilever beam, simply supported beam and over hanging beam under point load and uniformly distributed load
		4 th day	Numerical on above
SI No.	week	Day	Topics to be covered
5	5 th	1 st day	Shear Force and Bending moment diagram and its salient features illustration in cantilever beam, simply supported beam and over hanging beam under point load and uniformly distributed load
		2 nd day	Numerical on above

		3 rd day	Theory of simple bending
		4 th day	Simple problems solving
Sl No.	week	Day	Topics to be covered
6	6 th	1 st day	Bending equation, Moment of resistance, Section modulus & neutral axis
		2 nd day	Combined direct & bending stresses
		3 rd day	Define column
		4 th day	Axial load, Eccentric load on column,
Sl No.	week	Day	Topics to be covered
7	7 th	1 st day	Direct stresses, Bending stresses,
		2 nd day	Maximum & Minimum stresses
		3 rd day	Numerical problems on above
		4 th day	Numerical problems on above
Sl No.	week	Day	Topics to be covered
8	8 th	1 st day	Columns with various end conditions
		2 nd day	Columns with various end conditions
		3 rd day	Direct stresses, Bending stresses,
		4 th day	Numerical problems on above
Sl No.	week	Day	Topics to be covered
9	9 th	1 st day	Torsion
		2 nd day	Assumption of pure torsion
		3 rd day	The torsion equation for solid and hollow circular shaft
		4 th day	Comparison between solid and hollow shaft subjected to pure torsion
Sl No.	week	Day	Topics to be covered
10	10 th	1 st day	The torsion equation for solid and hollow circular shaft
		2 nd day	Numerical problems on above
		3 rd day	Numerical problems on above
		4 th day	Numerical problems on above
Sl No.	week	Day	Topics to be covered
11	11 th	1 st day	Numerical problems on above
		2 nd day	Numerical problems on above
		3 rd day	Numerical problems on above
		4 th day	Numerical problems on above

Sl No.	week	Day	Topics to be covered
12	12 th	1 st day	Numerical problems on above
		2 nd day	Numerical problems on above
		3 rd day	Numerical problems on above
		4 th day	
Sl No.	week	Day	Topics to be covered
13	13 th	1 st day	Numerical problems on above
		2 nd day	Numerical problems on above
		3 rd day	Numerical problems on above
		4 th day	Numerical problems on above
Sl No.	week	Day	Topics to be covered
14	14 th	1 st day	Numerical problems on above
		2 nd day	Numerical problems on above
		3 rd day	Numerical problems on above
		4 th day	Numerical problems on above
Sl No.	week	Day	Topics to be covered
15	15 th	1 st day	Numericals problem solving
		2 nd day	Numericals problem solving
		3 rd day	Doubt clearance and Revision
		4 th day	Doubt clearance and Revision

Ramya Lashmi Rout
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 01/08/2023