GOVT. POLYTECHNIC, NAYAGARH

3rd SEMESTER MECHANICAL ENGINEERING (2023-24)
SUBJECT- STRENGTH OF MATERIAL

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

TOTAL PERIOD-60
THEORY-4P/WEEK
Semester from :01/07/2024 to 08/11/2024

Sl No.	week	Day	Topics to be covered
1	1st	1st day	Simple stress& strain
		2nd 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
		3rd day	Principle of super position, stresses in composite section.
		4th day	Temperature stress, determine the temperature stress in composite bar (single core)
Sl No.	week	Day	Topics to be covered
2	2nd	1st day	Strain energy and resilience, Stress due to gradually applied, suddenly applied and impact load
		2nd day	Simple problems on above.
		3rd day	Thin cylinder and spherical shell under internal pressure
		4th day	Definition of hoop and longitudinal stress, strain
Sl No.	week	Day	Topics to be covered
3	3rd	1st day	Computation of the change in length, diameter and volume
		2nd day	Determination of normal stress, shear stress and resultant stress on oblique plane
		3rd day	Location of principal plane and computation of principal stress
		4th day	Location of principal plane and computation of principal stress and Maximum shear stress using Mohr's circle
Sl No.	week	Day	Topics to be covered
4	4th	1st day	Types of beam and load
		2nd day	Concepts of Shear force and bending moment
		3rd 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
		4th day	Numerical on above
Sl No.	week	Day	Topics to be covered
5	5th	1st 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
		2nd day	Numerical on above

| | | 3rd day | Theory of simple bending |
| | | 4th day | Simple problems solving |

Sl No.	week	Day	Topics to be covered
6	6th	1st day	Bending equation, Moment of resistance, Section modulus& neutral axis
		2nd day	Combined direct & bending stresses
		3rd day	Define column
		4th day	Axial load, Eccentric load on column,

Sl No.	week	Day	Topics to be covered
7	7th	1st day	Direct stresses, Bending stresses,
		2nd day	Maximum& Minimum stresses
		3rd day	Numerical problems on above
		4th day	Numerical problems on above

Sl No.	week	Day	Topics to be covered
8	8th	1st day	Columns with various end conditions
		2nd day	Columns with various end conditions
		3rd day	Direct stresses, Bending stresses,
		4th day	Numerical problems on above

Sl No.	week	Day	Topics to be covered
9	9th	1st day	Torsion
		2nd day	Assumption of pure torsion
		3rd day	The torsion equation for solid and hollow circular shaft
		4th day	Comparison between solid and hollow shaft subjected to pure torsion

Sl No.	week	Day	Topics to be covered
10	10th	1st day	The torsion equation for solid and hollow circular shaft
		2nd day	Numerical problems on above
		3rd day	Numerical problems on above
		4th day	Numerical problems on above

Sl No.	week	Day	Topics to be covered
11	11th	1st day	Numerical problems on above
		2nd day	Numerical problems on above
		3rd day	Numerical problems on above
		4th day	Numerical problems on above

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

Ramya Lashmi Rout, Lect (GF)
13/08/24