JHARSUGUDA ENGINEERING SCHOOL,JHARSUGUDA
MECHANICAL ENGINEERIND DEPT

Name of the Faculty: R.K Mahanta, S. Dwibedi	Session: 2022-23
Course code :Th.2	Course Name: SOM
Programe: Diploma	Department: Mechanical Dept.
Semester: 3rd	Section:M1/M2
Branch: Mechanical	

Sl. No.	Unit	Hours	Topic to be Covered
1.			Types of load, stresses & strains,(Axial and tangential)
2.			Hooke's law, Young's modulus, bulk modulus, modulus of rigidity
3.			Poisson's ratio, derive the relation between three elastic constants
4.			Principle of super position
5.	1	10	stresses in composite section
6.			Problem on stresses in composite section
7.			Temperature stress, determine the temperature stress in composite bar
8.			Strain energy and resilience
9.			Stress due to gradually applied, suddenly applied and impact load
10.			Problem on Stress due to gradually applied, suddenly applied and impact load
11.			Definition of hoop and longitudinal stress, strain
12.			Derivation of hoop stress, longitudinal stress
13.			Derivation of hoop strain, longitudinal strain
14.			Derivation of volumetric strain
15.	2	8	Problem on hoop stress, longitudinal stress
16.			Problem on hoop strain, longitudinal strain and volumetric strain
17.			Computation of the change in length, diameter and volume
18.			Problem on Computation of the change in length, diameter and volume
19.			Determination of normal stress, shear stress
20.			Problem on Determination of normal stress, shear stress
21.			Determination of resultant stress on oblique plane

22.			Problem on resultant stress on oblique plane
23.			
24.			Location of principal plane
25.			Computation of principal stress
26.	3	10	Problem on Location of principal plane and computation of principal stress
27.			Location of principal plane and computation of principal stress and Maximum shear stress using Mohr's circle
28.			Problem on Location of principal plane and computation of principal stress and Maximum shear stress using Mohr's circle
29.			Types of beam
30.			Types of load
31.			Concepts of Shear force and bending moment
32.			Shear Force and Bending moment diagram
33.			Problem on Shear Force and Bending moment diagram
34.			Different types of beam: cantilever beam, simply supported beam and over hanging beam
35.	4	10	salient features of Different types of beam
36.			
37.			Beam under point load and uniformly distributed load
38.			Problem on Different types of beam under point load and uniformly distributed load
39.			Assumptions in the theory of bending
40.			Bending equation
41.			Formulation of Bending equation
42.			Problem on Bending equation
43.			Moment of resistance
44.			Problem on Moment of resistance
45.			Section modulus
46.	5	10	Problem on Section modulus
47.			neutral axis
48.			Problem on neutral axis
49.			Define column
50.			Axial load, Eccentric load on column,
51.			Direct stresses, Bending stresses, Maximum& Minimum stresses
52.			Problem on Axial load, Eccentric load on column
53.			Buckling load computation using Euler's formula in Columns with various end conditions
54.			Problem based on Euler's formula
55.			What is torsion
56.			Assumption of pure torsion
57.			torsion equation for solid circular shaft
58.	6	10	torsion equation for hollow circular shaft
59.			Comparison between solid and hollow shaft subjected to pure torsion
60.			Problem on torsion

S. Deeribedi
Signature of faculty

Signature of i/c HOD

Problem on slip & coefficient of discharge