MAHARAJA POLYTECHNIC, TARABAI, BHUBANESWAR.

LESSON PLAN

NAME OF FACULTY:- RUDRAPRASAD MALLIA
BRANCH & SEMESTER:- MECHANICAL ENGG & 3rd SEM
TOTAL NO. OF STUDENT IN THE CLASS:-
TOTAL NO. OF CLASSES REQUIRED:-60
SESSION:-2022-23

SUBJECT NAME:- STRENGTH OF MATERIAL
SUBJECT CODE:-TH. 2

Sl. No.	Topics to be covered	Topics covered on date	Total no. of students present	Verified byHoD	Verified by the principal	Remark
1.	**UNIT:1 Simple stress& strain**					
2.	Types of load					
3.	stresses & strains,(Axial and tangential)					
4.	Hooke's law,					
5.	Young's modulus,					
6.	bulk modulus,					
7.	modulus of rigidity					

8.	, Poisson's ratio,					
9.	derive the relation between three elastic constants,					
10.	Principle of super position					
11.	Principle of stresses in composite section					
12.	Temperature stress,					
13.	determine the temperature stress in composite bar (single core)					
14.	Strain energy and resilience, , and					
15.	Stress due to gradually applied and suddenly applied					
16.	impact load					
17.	Simple problems on above.					
18.	**UNIT:2 Thin Cylinder And Spherical Shell Under Internal Pressure**					
19.	Definition of hoop and longitudinal stress, strain					
20.	Derivation of hoop stress.					
21.	Derivation of longitudinal stress.					
22.	Derivation of hoop strain.					
23.	Derivation of longitudinal strain .					
24.	Derivation of volumetric strain.					
25.	Computation of the change in length.					
26.	Computation of the change in diameter .					
27.	Computation of the change in volume.					
28.	Simple problems on above					

29.

30.

31.	**UNIT:3 Two Dimensional Stress Systems**					
32.	Determination of normal stress on oblique plane					
33.	Determination of shear stress on oblique plane					
34.	Determination of resultant stress on oblique plane					
35.	Location of principal plane.					
36.	computation of principal stress					
37.	Maximum shear stress using Mohr's circle					
38.	**UNIT:4 Bending Moment& Shear Force**					
39.	Types of beam .					
40.	Types of load					
41.	Concepts of Shear force .					
42.	Concepts bending moment					
43.	Shear Force diagram and its salient features illustration in cantilever beam, simply supported beam and over hanging beam under point load and uniformly distributed load					
44.	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					
45.	**UNIT:5 Theory of simple bending**					
46.	Assumptions in the theory of bending, .					
47.	Bending equation					

	, Moment of resistance					
48.	, Section modulus& neutral axis					
49.	Solve simple problems					
50.	**UNIT:6 Combined direct & bending stresses**					
51.	Define column					
52.	Axial load on column, .					
53.	Eccentric load on column,					
54.	Direct stresses, Bending stresses, Maximum& Minimum stresses. Numerical problems on above					
55.	Buckling load computation using Euler's formula (no derivation) in Columns with various end conditions					
56.	**UNIT:7 Torsion**					
57.	Assumption of pure torsion					
58.	The torsion equation for solid and hollow circular shaft .					
59.	Comparison between solid and hollow shaft subjected to pure torsion					

SIGN OF FACULTY **SIGN OF HOD** **SIGN OF PRINCIPAL**