PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF ENGINEERING & TECHNOLOGY, BARGARH

LESSON PLAN

Session-2023-2024

Discipline: Mechanical Engg. Semester: 3rd

Subject: SM

Name of the Teaching Faculty: Dillip Kumar Meher

Subject: SM No. of Days/per week class allotted 4

Semester From Date : 01/08/2023 To Date : 30/11/2023 No. of Weeks : 15

Week	Class Day	Theory /Practical Topics
01	1	Types of load, stresses & strain
	2	Hooke's law, Young's modulus
	3	Bulk modulus, Poission's ratio
	4	Relation between three elastic constants
2	5	Principle of Super Position Stress in composite section
	6	Temp. stress, Temperature Stress in composite section (Single core)
	7	Problems on above
	8	strain energy, stress due to gradually applied load
3	9	Stress due to suddenly applied & impact load
	10	Simple problems
	11	Defination of hoop, Longitudinal stress & strain
	12	Derivation of hoop stress, Longitudinal stress

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Week	Class Day	Theory /Practical Topics
04	13	Hoop Strain, Volumetric Strain (Derivation)
	14	Longitudinal strain (Derivation)
	15	Simple Problems
	16	Computation of the change in length
05	17	Computation of change in diameter & volume
	18	Simple problems
	19	Determination of normal stress, Shear stress
	20	Determination of resultant stress (Oblique plane)
06	21	Resultant stress on oblique plane
	22	Location of Principal plane
	23	Computation of Principal Stress
	24	Simple problems

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Week	Class Day	Theory /Practical Topics
07	25	Location of Principal plane
	26	Computation of Principal stress
	27	Maximum shear stress using Mohr's circle
	28	Simple problems
08	29	Types of beam & load
	30	Concepts of S/F & B/M
	31	SF, BM diagrams
	32	Salient features of S/F & B/M
09	33	Illustration of cantilever beam with point load
	34	Cantilever beam with UDL
	35	Simply supported beam with point load
	36	Simply supported beam with UDL

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Semester From Date : 01/08/2023 To Date : 30/11/2023 No. of Weeks : _____

Week	Class Day	Theory /Practical Topics
10	37	Overhang beam with point load
	38	Overhang beam with UDL
	39	Explain simple bending
	40	Assumption in theory of bending
11	41	Bending equation
	42	Simple problems
	43	Moment of resistance
	44	Section modulus & neutral axis
12	45	Position of neutral axis
	46	Simple problems
	47	Section modulus (Z)
	48	Simple Problems

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Semester From Date : 01/08/2023 To Date : 30/11/2023 No. of Weeks : _____

Week	Class Day	Theory /Practical Topics
13	49	Define Column
	50	Axial load, Eccentric load on Column
	51	Direct stress, Bending stress
	52	Max. & Min. stresses
14	53	Some Problems
	54	Euler's formula (no derivation) with various end conditions
	55	Explain Torsion
	56	Pure torsion (assumption)
15	57	Torsion equation for solid & hollow circular shaft
	58	Simple Problems
	59	Comparision between solid & hollow circular shaft subjected to pure torsion
	60	Simple Problems

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