

# GANDHI INSTITUTE OF TECHNOLOGY AND MANAGEMENT

## LessonPlan

Name of the Program	Diploma in Mechanical Engineering			
Course Name	STRENGTH OF MATERIAL		Course Code	TH-2
Course Year	Second	Semester	3rd	Academic Period
				2022-23
No. of Classes allotted per Week	05	Planned Classes Required to Complete the Course		60

Sl.No.	Topic to be covered	Module	No. of hours Required	Mode of Teaching
1	Simple stress & strain	I	01	LM/IM
2	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,	I	03	LM/IM
3	Principle of superposition, stresses in composite section	I	01	LM/IM
4	Temperature stress, determine the temperature stress in composite bar (single core)	I	02	LM/IM/ICT
5	Strain energy and resilience, Stress due to gradually applied, suddenly applied and impact load	I	02	LM/IM
6	Simple problems on above	I	01	LM/IM
7	Thin cylinder and spherical shell under internal pressure	II	01	LM/IM
8	Definition of hoop and longitudinal stress, strain	II	02	LM/IM/ICT
9	Derivation of hoop stress, longitudinal stress, hoop strain, longitudinal strain and volumetric strain	II	02	LM/IM
10	Computation of the change in length, diameter and volume	II	02	LM/IM
11	Simple problems on above	II	01	LM/IM
12	Two dimensional stress systems	III	01	LM/IM
13	Determination of normal stress, shear stress and resultant stress on oblique plane	III	03	LM/IM
14	Location of principal plane and computation of principal stress	III	03	LM/IM
15	Biaxial stress systems with the state of simple shear (Beyond the Syllabus)	III	02	LM/IM
16	Location of principal plane and computation of principal stress and Maximum shear stress using Mohr's circle	III	03	LM/IM/ICT
17	Bending moment & shear force	IV	01	LM/IM
18	Types of beam and load	IV	03	LM/IM/ICT
19	Concepts of Shear force and bending moment	IV	02	LM/IM
20	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	IV	04	LM/IM
21	SF and BM for Uniformly Varying Load (Beyond the Syllabus)	IV	02	LM/IM

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22	Theory of simple bending	V	01	LM/IM/ICT
23	Assumptions in the theory of bending	V	02	LM/IM
24	Bending equation, Moment of resistance, Section modulus & neutral axis.	V	03	LM/IM
25	Solves simple problems.	V	04	LM/IM
26	Combined direct & bending stresses	VI	01	LM/IM/ICT
27	Define column	VI	01	LM/IM
28	Axial load, Eccentric load on column,	VI	01	LM/IM
29	Direct stresses, Bending stresses, Maximum & Minimum stresses. Numerical problems on above	VI	02	LM/IM
30	Buckling load computation using Euler's formula (no derivation) in Columns with various end conditions	VI	01	LM/IM/ICT
31	Torsion	VII	01	LM/IM
32	Assumption of pure torsion	VII	01	LM/IM
33	The torsion equation for solid and hollow circular shaft	VII	02	LM/IM
34	Comparison between solid and hollow shafts subjected to pure torsion	VII	02	LM/IM/ICT
35	Closely Coiled Helical Spring (Beyond Syllabus)	VII	01	LM/IM

Signature of the Faculty

Signature of the HoD