GANDHI INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Lesson Plan

Name of the Program	**Diploma in MechanicalEngineering**				
Course Name	**Engineering Mechanics**			Course Code	**C104**
Course Year	**First**	Semester	**1st**	Academic Period	**2022-23**
No. of Classes allotted per Week	**05**	Planned Classes Required to Complete the Course			**60**

Sl. No.	Topics to be covered	Topic	No. of hoursRequired	Mode of Teaching
1	Definitions of Mechanics, Statics, Dynamics, Rigid Bodies	I	02	LM/ IM
2	Force System. Definition, Classification of force system according to plane & line of action.	I	03	LM/ IM
3	Characteristics of Force & effect of Force. Principles of Transmissibility & Principles of Superposition. Action & Reaction Forces & concept of Free Body Diagram	I	03	LM/ IM
4	Definition, Method of Resolution, Types of Component forces, Perpendicular components & non-perpendicular components.	I	02	LM/ IM/ ICT
5	Definition, Resultant Force, Method of composition of forces, such as analytical Method such as Law of Parallelogram of forces & method of resolution.	I	02	LM/ IM
6	Graphical Method. Introduction, Space diagram, Vector diagram, Polygon law of forces. Resultant of concurrent, non-concurrent & parallel force system by Analytical & Graphical Method.	I	01	LM/ IM
7	Definition, Geometrical meaning of moment of a force, measurement of moment of a force & its S.I units. Classification of moments according to direction of rotation, sign convention,	I	02	LM/ IM
8	Law of moments, Varignon's Theorem, Couple – Definition, S.I. units, measurement of couple, properties of couple.	I	02	LM/ IM/ ICT
9	Definition, condition of equilibrium, Analytical & Graphical conditions of equilibrium for concurrent, non-concurrent & Free Body Diagram.	II	02	LM/ IM
10	Lamia's Theorem – Statement, Application for solving various engineering problems	II	02	LM/ IM
11	Definition of friction, Frictional forces, Limiting frictional force, Coefficient of Friction	III	01	LM/ IM
12	Angle of Friction & Repose, Laws of Friction, Advantages & Disadvantages of Friction.	III	01	LM/ IM
13	Equilibrium of bodies on level plane – Force applied on horizontal & inclined plane (up &down).	III	03	LM/ IM
14	Ladder, Wedge Friction.	III	03	LM/ IM
15	Centroid – Definition, Moment of an area about an axis, centroid of geometrical figures such as squares, rectangles	IV	02	LM/ IM

16	centroid of geometrical figures such as triangles, circles, semicircles & quarter circles	III	03	LM/ IM/ ICT
17	Centroid of composite figures.	IV	01	LM/ IM
18	Moment of Inertia – Definition, Parallel axis	IV	01	LM/ IM/ ICT
19	Perpendicular axis Theorems.	IV	01	LM/ IM
20	M.I. of plane lamina & different engineering sections.	IV	02	LM/ IM
21	Definition of simple machine, velocity ratio of simple and compound gear train	V	02	LM/ IM
22	explain simple & compound lifting machine, define M.A, V.R. & Efficiency	V	02	LM/ IM/ ICT
23	State the relation between them, State Law of Machine, Reversibility of Machine, Self-Locking Machine	V	02	LM/ IM
24	Study of simple machines – simple axle & wheel, single purchase crab winch	V	02	LM/ IM
25	Double purchase crab winch, Worm & Worm Wheel, Screw Jack.	V	04	LM/ IM
26	Types of hoisting machine like derricks etc, Their use and working principle. No problems	V	01	LM/ IM/ ICT
27	Kinematics & Kinetics, Principles of Dynamics, Newton's Laws of Motion	VI	01	LM/ IM
28	Motion of Particle acted upon by a constant force, Equations of motion, De-Alembert's Principle.	VI	01	LM/ IM
29	Work, Power, Energy & its Engineering Applications	VI	02	LM/ IM
30	Kinetic & Potential energy & its application	VI	01	LM/ IM/ ICT
31	Momentum & impulse, conservation of energy	VI	01	LM/ IM
32	Linear momentum, collision of elastic bodies, and Coefficient of Restitution.	VI	02	LM/ IM

Signature of the Faculty **Signature of the HoD**