

## Lesson Plan

Subject: **ENGINEERING MECHANICS (Th -4)** Name of faculty: Satyabrata Khilar

Semester: 1<sup>st</sup> Class allotted: 4p/week Branch: Mechanical Session: 2023(W)

Discipline	Semester	From date:	To date:	Teaching Aid
Subject:	No. of days/ per week	Theory/ Practical –Topics/Lesson		
Week	Date/Period			
<b>1</b>	16/08/2023  TO  19/08/2023	<p>FUNDAMENTALS OF ENGINEERING MECHANICS</p> <p>Fundamentals. Definitions of Mechanics, Statics, Dynamics, Rigid Bodies,</p> <p>Force Force System. Definition, Classification of force system according to plane &amp; line of action. Characteristics of Force &amp; effect of Force.</p> <p>Principles of Transmissibility &amp; Principles of Superposition. Action &amp; Reaction Forces &amp; concept of Free Body Diagram.</p>		White Board Marker Smart board
<b>2</b>	21/8/2023  TO  26/8/2023	<p>Resolution of a Force. Definition, Method of Resolution, Types of Component forces, Perpendicular components &amp; non-perpendicular components.</p> <p>Composition of Forces. Definition, Resultant Force, Method of composition of forces, such as Analytical Method such as Law of Parallelogram of forces &amp; method of resolution.</p>		White Board Marker Smart board
<b>3</b>	28/8/2023  TO  2/9/2023	<p>Graphical Method. Introduction, Space diagram, Vector diagram, Polygon law of forces. Resultant of concurrent, non-concurrent &amp; parallel force system by Analytical &amp; Graphical Method.</p> <p>Moment of Force. Definition, Geometrical meaning of moment of a force, measurement of moment of a force &amp; its S.I units.</p>		White Board Marker Smart board
<b>4</b>	4/9/2023  TO  9/9/2023	<p>Classification of moments according to direction of rotation, sign convention, Law of moments, Varignon's Theorem, Couple – Definition, S.I. units, measurement of couple, properties of couple.</p> <p>EQUILIBRIUM Definition, condition of equilibrium, Analytical &amp; Graphical conditions of equilibrium for concurrent</p>		White Board Marker Smart board

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5	11/9/2023 TO 16/9/2023	Non-concurrent & Free Body Diagram. Lamia's Theorem – Statement, Application for solving various engineering problems.	White Board Marker Smart board
6	18/9/2023 TO 23/9/2023	FRICITION Definition of friction, Frictional forces, Limiting frictional force, Coefficient of Friction. Angle of Friction & Repose, Laws of Friction.	White Board Marker Smart board
7	25/9/2023  TO  30/9/2023	Advantages & Disadvantages of Friction.  Equilibrium of bodies on level plane – Force applied on horizontal & inclined plane (up &down).	Marker White Board
8	3/10/2023 TO 7/10/2023	Ladder, Wedge Friction.  <b>CENTROID &amp; MOMENT OF INERTIA</b> Centroid – Definition, Moment of an area about an axis.	White Board Marker Smart board
9	9/10/2023 TO 14/10/2023	Centroid of geometrical figures such as squares, rectangles, triangles, circles, semicircles & quarter circles, centroid of composite figures.	White Board Marker Smart board
10	16/10/2023 TO 20/10/2023	Moment of Inertia – Definition, Parallel axis & Perpendicular axis Theorems.	Marker White Board Smart board
11	30/10/2023 TO 4/11/2023	M.I. of plane lamina & different engineering sections.	White Board Marker Smart board
12	6/11/2023  TO  11/11/2023	SIMPLE MACHINE  Definition of simple machine, velocity ratio of simple and compound gear train, explain simple & compound lifting machine,  Define M.A, V.R. & Efficiency & State the relation between them, State Law of Machine, Reversibility of Machine, Self Locking Machine.	Marker White Board Smart board
13.	13/11/2023  TO  18/11/2023	Study of simple machines – simple axle & wheel, single purchase crab winch & double purchase crab winch, Worm & Worm Wheel, Screw Jack.  Types of hoisting machine like derricks etc, Their use and working principle. No problems.	White Board Marker Smart board
14	20/11/2023  TO  25/11/2023	DYNAMICS Kinematics & Kinetics, Principles of Dynamics, Newton's Laws of Motion, Motion of Particle acted upon by a constant force,  Equations of motion, De-Alembert's Principle.	White Board Marker Smart board

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15	28/11/2023	Work, Power, Energy & its Engineering Applications, Kinetic & Potential energy & its application.	White Board Marker Smart board
	TO 2/12/2023		
16	4/12/2023	REVISION.....	White Board Marker Smart board
	TO 9/12/2023		
17	11/12/2023	REVISION.....	White Board Marker Smart board