

LESSON PLAN

Session (2023-24) W

Discipline: Mechanical Engineering	Semester - I st	Name of the Teaching Faculty: Mihir Kumar Swain
Subject: Engg. Mechanics	No. Of Days/ Per week Class Allotted: 04	Semester From Date 29/8/23 to 21/12/23 No. Of weeks: 15
Week	Class Day	Topic to be taught (Theory)
1st	1	Fundamentals. Definitions of Mechanics, Statics, Dynamics, Rigid Bodies Force System. Definition, Classification of force system according to plane & line of action. - - Characteristics of Force & effect of Force.
	2	Principles of Transmissibility & Principles of Superposition. Action & Reaction Forces concept of Free Body Diagram.
	3	Simple problems on above
	4	Resolution of a Force. Definition, Method of Resolution,
2nd	5	Types of Component forces, Perpendicular components & non-perpendicular components
	6	Simple problems on above
	7	Composition of Forces. Definition, Resultant Force, Method of composition of forces, such as Analytical Method such as Law of Parallelogram of forces & method of resolution
	8	Simple problems on above
3rd	9	Graphical Method. Introduction, Space diagram, Vector diagram, Polygon law of forces. Resultant of concurrent, non-concurrent & parallel force system by Analytical & Graphical Method.
	10	Simple problems on above
	11	Moment of Force. 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.
	12	Law of moments, Varignon's Theorem proof
4th	13	Simple problems on above
	14	Couple – Definition, S.I. units, measurement of couple, properties of couple, Simple problems on above
	15	Definition, condition of equilibrium, Analytical & Graphical conditions of

	15	Definition, condition of equilibrium, Analytical & Graphical conditions of equilibrium for concurrent forces
	16	Analytical & Graphical conditions of equilibrium for non-concurrent forces
5th	17	Analytical & Graphical conditions of equilibrium for Free Body Diagram
	18	Lamia's Theorem – Statement & proof
	19	Solve simple problems on above
	20	Solve simple problems on above
6th	21	Solve simple problems on above
	22	Solve simple problems on above
	23	Definition of friction, Frictional forces, Limiting frictional force, Coefficient of Friction. Solve simple problems
	24	Angle of Friction & Repose, Laws of Friction, Advantages & Disadvantages of Friction.
7th	25	Solve simple problems
	26	Equilibrium of bodies on level plane – Force applied on horizontal plane
	27	Solve simple problems
	28	Equilibrium of bodies on level plane – Force applied on inclined plane (up & down).
8th	29	Solve simple problems
	30	Solve simple problems
	31	Ladder Friction, solve simple problems
	32	Wedge friction, solve simple problems
9th	33	Centroid – Definition, Moment of an area about an axis,
	34	centroid of geometrical figures such as squares, rectangles, triangles,
	35	Solve simple problems
	36	centroid of geometrical figures such as circles, semicircles & quarter circles
10th	37	Solve simple problems
	38	centroid of composite figures
	39	Solve simple problems
	40	Moment of Inertia – Definition, Parallel axis & Perpendicular axis Theorems.
11th	41	Solve simple problems
	42	Solve simple problems
	43	M.I. of plane lamina & different engineering sections
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12th	45	Solve simple problems