LESSON PLAN

SESSION	SUMMER - 2023
SEMESTER	2ND
SECTION	C & D
BRANCH	MECHANICAL / CIVIL / ETC
THEORY NO.	4
SUBJECT	ENGINEERING MECHANICS
LECTURER	ER. R L DASH (SEC-C) & ER. S PANDA (SEC-D)

SL NO.	MONTH	CHAPTER NO.	DATE	TOPICS TO BE COVERED	NO. OF ACADEMIC DAYS AVAILABLE	% COVERED
1	MARCH	1	20.3.23	1. FUNDAMENTALS OF ENGINEERING MECHANICS 1.1 Fundamentals. Definitions of Mechanics, Statics, Dynamics, Rigid Bodies,	9	15%
			21.3.23	1.2 Force Force System. Definition, Classification of force system according to plane & line of action.		
			22.3.23	Characteristics of Force & effect of Force. Principles of Transmissibility & Principles of Superposition. Action & Reaction Forces & concept of Free Body Diagram.		
			23.3.23	1.3 Resolution of a Force. Definition, Method of Resolution, Types of Component forces, Perpendicular components & non-perpendicular components. 1.4 Composition of Forces. Definition, Resultant Force, Method of composition of forces		
			24.3.23	1.4.1 Analytical Method such as Law of Parallelogram of forces		
			25.3.23	NUMERICALS		
			27.3.23	NUMERICALS		
			28.3.23	NUMERICALS		
			29.3.23	1.4.1 Analytical Method such as method of resolution.		
2	APRIL	1	3.4.23	NUMERICALS	20	33%
			4.4.23	NUMERICALS		
			5.4.23	1.4.2. Graphical Method. Introduction, Space diagram, Vector diagram, Polygon law of forces.		

2	APRIL	1	6.4.23	1.5 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, Law of moments,	20	33%
			7.4.23	Varignon's Theorem,		
			10.4.23	NUMERICALS		
			11.4.23	1.4.3 Resultant of concurrent, non-concurrent & parallel force system by Analytical & Graphical Method		
			12.4.23	NUMERICALS		
			13.4.23	1.5 Couple – Definition, S.I. units, measurement of couple, properties of couple.		
			17.4.23	NUMERICALS		
		2	18.4.23	2. EQUILIBRIUM 2.1 Definition, condition of equilibrium, Analytical & Graphical conditions of equilibrium for concurrent, non-concurrent & Free Body Diagram.		
			19.4.23	2.2 Lamia's Theorem – Statement, Application for solving various engineering problems.		
			20.4.23	NUMERICALS		
			21.4.23	NUMERICALS		
			24.4.23	NUMERICALS		
		3	25.4.23	3. FRICTION 3.1 Definition of friction, Frictional forces, Limiting frictional force, Coefficient of Friction.		
			26.4.23	Angle of Friction & Repose, Laws of Friction, Advantages & Disadvantages of Friction.		
			27.4.23	3.2 Equilibrium of bodies on level plane – Force applied on horizontal plane NUMERICALS		
			28.4.23	3.2 Equilibrium of bodies on level plane – Force applied on inclined plane (up &down).		
			29.4.23	3.2 Equilibrium of bodies on level plane – Force applied on inclined plane (up &down).		
3	MAY	3	1.5.23	NUMERICALS	21	34%
			2.5.23	NUMERICALS		
			3.5.23	NUMERICALS		
			4.5.23	3.3 Ladder Friction NUMERICALS		
			5.5.23	NUMERICALS		
			6.5.23	Wedge Friction. NUMERICALS		
			8.5.23	NUMERICALS		

3	MAY	4	9.5.23	4. CENTROID & MOMENT OF INERTIA 4.1 Centroid – Definition, Moment of an area about an axis, centroid of geometrical figures such as squares, rectangles, triangles, circles, semicircles & quarter circles,	21	34%
			10.5.23	centroid of composite figures NUMERICALS		
			11.5.23	NUMERICALS		
			12.5.23	NUMERICALS		
			13.5.23	NUMERICALS		
			22.5.23	4.2 Moment of Inertia – Definition, Parallel axis Theorem		
			23.5.23	Perpendicular axis Theorem, M.I. of plane lamina		
			24.5.23	M.I. of different engineering sections. NUMERICALS		
			25.5.23	NUMERICALS		
			26.5.23	NUMERICALS		
			27.5.23	NUMERICALS		
		5	29.5.23	5. SIMPLE MACHINES 5.1 Definition of simple machine, velocity ratio of simple gear train		
			30.5.23	velocity ratio of compound gear train NUMERICALS		
			31.5.23	explain simple & compound lifting machine, define M.A, V.R. & Efficiency & State the relation between them, NUMERICALS		
4	JUNE	5	1.6.23	State Law of Machine, Reversibility of Machine, Self Locking Machine.	11	18%
			2.6.23	NUMERICALS		
			3.6.23	NUMERICALS		
			5.6.23	5.2 Study of simple machines – simple axle & wheel, single purchase crab winch		
			6.6.23	5.2 Study of simple machines – double purchase crab winch, Worm & Worm Wheel,		
			7.6.23	5.2 Study of simple machines – Screw Jack. 5.3 Types of hoisting machine like derricks etc, Their use and working principle.		
			8.6.23	5.3 Types of hoisting machine like derricks etc, Their use and working principle.		
		6	9.6.23	6. DYNAMICS 6.1 Kinematics & Kinetics, Principles of Dynamics, Newton's Laws of Motion, Motion of Particle acted upon by a constant force,		
			10.6.23	Equations of motion, De Alembert's Principle 6.2 Work, Power, Energy & its Engineering Applications, Kinetic & Potential energy & its application.		
			12.6.23	6.3 Momentum & impulse, conservation of energy		
			13.6.23	conservation of linear momentum, collision of elastic bodies, Coefficient of Restitution.		

MONTH WISE

MONTH	PROGRESS	% COVERED
MARCH	CH-1	15%
APRIL	CH-1, CH-2, CH-3	33%
MAY	CH-3, CH-4, CH-5	34%
JUNE	CH-5, CH-6	18%

SIGNATURE OF LECTURERS

18.3.23

SIGNATURE OF H.O.D.