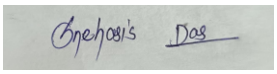
UTKAL INSTITUTE OF ENGINEERING & TECHNOLOGY

DISCIPLINE: ALL BRANCH	**SEMESTER:**			
	2ND SEM	**NAME OF THE TEACHING FACULTY: Er.SNEHASIS DAS**		
SUBJECT:	No of Days/Per week class allotted: 4 Class P/W**(60)**	Semester From Date:29/01/2024		
ENGINEERING MECHANICS		To Date:14/05/2024		
		No. Of Weeks: **15**		
WEEK	**CLASS DAY**	**THEORY TOPICS**	**REMARKS**	
1st	1st	Fundamentals. Definitions of Mechanics, Statics	Date	Dean/Principal
	2nd	Statics, Dynamics, Rigid Bodies		
	3rd	Force System. Definition		
	4th	Definition, Classification of force system according to plane & line of action		
2nd	1st	Characteristics of Force & effect of Force. Principles of Transmissibility & Principles of Superposition. Action & Reaction Forces & concept of Free Body Diagram		
	2nd	Resolution of a Force. Definition		
	3rd	Method of Resolution		
	4th	Types of Component forces, Perpendicular components & non-perpendicular components		
3rd	1st	Composition of Forces. Definition, Resultant Force		
	2nd	Method of composition of forces, such as 1.4.1 Analytical Method such as Law of Parallelogram of forces & method of resolution		
	3rd	Graphical Method. Introduction, Space diagram, Vector diagram, Polygon law of forces.		
	4th	Resultant of concurrent, non-concurrent & parallel force system by Analytical & Graphical Method.		
4th	1st	Moment of Force. Definition, Geometrical meaning of moment of a force, measurement of moment of a force & its S.I units		
	2nd	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		
	3rd	EQUILIBRIUM 2.1 Definition		

	4th	condition of equilibrium		
5th	1st	Analytical & Graphical conditions of equilibrium for concurrent		
	2nd	non-concurrent & Free Body Diagram		
	3rd	Lamia's Theorem		
	4th	Lamia's Theorem – Statement		
6th	1st	Application for solving various engineering problems		
	2nd	DOUBT CLEAR CLASS		
	3rd	Definition of friction		
	4th	Frictional forces		
7th	1st	Limiting frictional force		
	2nd	Coefficient of Friction		
	3rd	Angle of Friction & Repose		
	4th	Laws of Friction		
8th	1st	Advantages & Disadvantages of Friction.		
	2nd	Equilibrium of bodies on level plane		
	3rd	Equilibrium of bodies on level plane – Force applied on horizontal & inclined plane (up &down)		
	4th	Ladder, Wedge Friction		
9th	1st	CENTROID & MOMENT OF INERTIA		
	2nd	Centroid – Definition		
	3rd	Moment of an area about an axis		
	4th	centroid of geometrical figures such as squares		
10th	1st	rectangles		
	2nd	triangles		
	3rd	circles		
	4th	semicircles & quarter circles		
11th	1st	centroid of composite figures		
	2nd	Moment of Inertia		
	3rd	Moment of Inertia – Definition, Doubt Clear Class		
	4th	Parallel axis & Perpendicular axis Theorems		
12th	1st	M.I. of plane lamina & different engineering sections.		
	2nd	Assignment		
	3rd	Definition of simple machine		
	4th	DOUBT CLEAR CLASS		
13th	1st	velocity ratio of simple and compound gear train		
	2nd	explain simple & compound lifting machine, define M.A, V.R. & Efficiency & State the relation between them		
	3rd	State Law of Machine, Reversibility of Machine, Self Locking Machine		
	4th	Study of simple machines – simple axle & wheel		
	1st	single purchase crab winch & double purchase crab winch, Worm & Worm Wheel, Screw Jack.		

14th	2nd	Types of hoisting machine like derricks etc, Their use and working principle. No problems		
	3rd	Kinematics & Kinetics, Principles of Dynamics		
	4th	Newton's Laws of Motion, Motion of Particle acted upon by a constant force, Equations of motion, DeAlembert's Principle		
15th	1st	Work, Power, Energy & its Engineering Applications		
	2nd	Kinetic & Potential energy & its application.		
	3rd	Momentum & impulse		
	4th	conservation of energy & linear momentum, collision of elastic bodies, and Coefficient of Restitution.		



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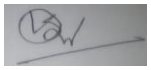

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