



Orissa School of Mining Engineering Keonjhar

Subject: Engineering Mechanics (TH 4(b))			
Discipline: Mining Engineering (Sec-H)		Name of the Faculty: Er. Sudarsan Panda	
Course Code:	Th.4(b)	Semester:	2nd
Total Periods:	60	Examination:	2026 summer
Theory Periods:	4P/W	Class Test:	30
Maximum Marks:	100	End Semester Examination:	70

Department of Mechanical Engineering

Lesson Plan w.e.f 09.01.2026 TO 08.05.2026

Month	Day	Availability of classes	Class Day	Theory Topics	
JAN	1st	02	9/01/2026	Unit – I Basics of mechanics and force system Significance and relevance of Mechanics, Applied mechanics, Statics, Dynamics.	
			09/01/2026	Space, time, mass, particle, flexible body and rigid body.	
	2nd	02	12/01/2026	Scalar and vector quantity, Units of measurement (SI units) - Fundamental units and derived units.	
			12/01/2026	Force – unit, representation as a vector and by Bow's notation.	
	3rd	02	16/01/2026	characteristics and effects of a force, Principle of transmissibility of force.	
			16/01/2026	Force system and its classification and numerical.	
	4th	02	19/01/2026	Resolution of a force - Orthogonal components of a force.	
			19/01/2026	moment of a force, Varignon's Theorem.	
	5th	02	30/01/2026	Composition of forces – Resultant, analytical method for determination of resultant for concurrent.	
			30/01/2026	non-concurrent and parallel co-planar force systems – Law of triangle, parallelogram.	
	FEB	6th	02	2/02/2026	non-concurrent and parallel co-planar force systems –polygon of forces. Topic end, Question answer discussion, Assignment 1
				2/02/2026	Unit– II Equilibrium Equilibrium and Equilibrant, Free body.
		7th	02	6/02/2026	Free body diagram, Analytical and graphical methods of analyzing equilibrium.

		6/02/2026	Lami's Theorem – statement and explanation, Application for various engineering problems.	
8th	02	9/02/2026	Lami's Theorem solving simple numerical problem.	
		9/02/2026	Types of beam, supports (simple, hinged, roller and fixed)	
9th	02	13/02/2026	loads acting on beam (vertical and inclined point load)	
		13/02/2026	loads acting on beam uniformly distributed load, couple)	
10th	02	16/02/2026	Beam reaction for cantilever, simply supported beam with or without overhang – subjected to combination of Point load	
		16/02/2026	Beam reaction for cantilever, simply supported beam with or without overhang– uniformly distributed load.	
11st	02	20/02/2026	Beam reaction graphically for simply supported beam subjected to vertical point loads only.	
		20/02/2026	Solving numerical problem. Topic end, Question answer discussion, Assignment 2	
12nd	02	23/02/2026	CLASS TEST- 1	
		23/02/2026	Unit– III Friction- Friction and its relevance in engineering, types and laws of friction.	
13rd	02	27/02/2026	limiting equilibrium, limiting friction, co-efficient of friction.	
		27/02/2026	angle of friction, angle of repose, relation between co-efficient of friction and angle of friction.	
MARCH	14th	02	2/03/2026	INTERNAL ASSESSMENT
		02	2/03/2026	Equilibrium of bodies on level surface subjected to force parallel and inclined to plane.
	15th	02	6/03/2026	Solving numerical problem.
			6/03/2026	Equilibrium of bodies on inclined plane subjected to force parallel to the plane only.
	16th	02	9/03/2026	Solving numerical problem. Topic end, Question answer discussion, Assignment 3
			9/03/2026	Unit– IV Centroid and centre of gravity Centroid of geometrical plane figures (square, rectangle, triangle, circle, semi-circle, quarter circle)
	17th	02	13/03/2026	Centroid of composite figures composed of not more than three geometrical figures
			13/03/2026	Centre of Gravity of simple solids (Cube, cuboid, cone, cylinder, sphere, hemisphere)
	18th	02	16/03/2026	Centre of Gravity of composite solids composed of not more than two simple solids

		16/03/2026	Solving numerical problem.	
19th	02	20/03/2026	Solving numerical problem. Topic end, Question answer discussion, Assignment 4	
		20/03/2026	CLASS TEST 2	
20th	02	23/03/2026	Unit – V Simple lifting machine Simple lifting machine, load, effort, mechanical advantage, applications and advantages.	
		23/03/2026	Velocity ratio, efficiency of machines.	
21st	02	30/03/2026	law of machine, Ideal machine	
		30/03/2026	Solving numerical problem.	
22nd	02	6/04/2026	friction in machine, maximum Mechanical advantage and efficiency.	
		6/04/2026	reversible and non-reversible machines.	
23rd	02	10/04/2026	conditions for reversibility and numerical.	
		10/04/2026	Velocity ratios of Simple axle and wheel, and numerical.	
24th	02	13/04/2026	Velocity ratios of Differential axle and wheel, and numerical.	
		13/04/2026	Velocity ratios of Worm and worm wheel and numerical.	
25th	02	17/04/2026	Velocity ratios of Single purchase crab winch and numerical.	
		17/04/2026	Velocity ratios of double purchase crab winch and numerical.	
26th	02	20/04/2026	Velocity ratios of Simple screw jack and numerical	
		20/04/2026	Weston's differential pulley block	
27th	02	24/04/2026	Weston's geared pulley block. Topic end, Question answer discussion, Assignment 5	
		24/04/2026	CLASS TEST 3	
28th	02	27/04/2026	REVISION	
		27/04/2026	REVISION	
MAY	29th	02	4/05/2026	REVISION
	30th	02	8/05/2026	VST

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Prepared by Er Sudarsan Panda Lecturer stage- I	HOD, Mechanical Engg OSME, Keonjhar	Principal OSME, Keonjhar
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