



Orissa School of Mining Engineering Keonjhar

Subject: Engineering Mechanics (TH 4(b))			
Discipline: Mechanical Engineering (Sec-F)		Name of the Faculty: Er. Devi Prasad Acharya	
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.
			9/01/2026	Space, time, mass, particle, flexible body and rigid body.
	2nd	01	15/01/2026	Scalar and vector quantity, Units of measurement (SI units) - Fundamental units and derived units.
	3rd	02	16/01/2026	Force – unit, representation as a vector and by Bow's notation.
			16/01/2026	characteristics and effects of a force, Principle of transmissibility of force.
	4th	02	17/01/2026	Force system and its classification and numerical.
			17/01/2026	Resolution of a force - Orthogonal components of a force.
	5th	01	22/01/2026	moment of a force, Varignon's Theorem.
	6th	01	29/01/2026	Composition of forces – Resultant, analytical method for determination of resultant for concurrent.
	7th	02	30/01/2026	non-concurrent and parallel co-planar force systems – Law of triangle, parallelogram.
			30/01/2026	non-concurrent and parallel co-planar force systems –polygon of forces. Topic end, Question answer discussion, Assignment 1
	8th	02	31/01/2026	Unit– II Equilibrium Equilibrium and Equilibrant, Free body.
			31/01/2026	Free body diagram, Analytical and graphical methods of analyzing equilibrium.

FEB	9TH	01	5/02/2026	Lami's Theorem – statement and explanation, Application for various engineering problems.
	10th	02	6/02/2026	Lami's Theorem solving simple numerical problem.
			6/02/2026	Types of beam, supports (simple, hinged, roller and fixed)
	11th	02	7/02/2026	loads acting on beam (vertical and inclined point load)
			7/02/2026	loads acting on beam uniformly distributed load, couple)
	12th	01	12/02/2026	Beam reaction for cantilever, simply supported beam with or without overhang – subjected to combination of Point load
	13th	02	13/02/2026	Beam reaction for cantilever, simply supported beam with or without overhang– uniformly distributed load.
			13/02/2026	Beam reaction graphically for simply supported beam subjected to vertical point loads only.
	14th	01	19/02/2026	Solving numerical problem. Topic end, Question answer discussion, Assignment 2
	15th	02	20/02/2026	CLASS TEST- 1
			20/02/2026	Unit– III Friction- Friction and its relevance in engineering, types and laws of friction.
	16th	01	26/02/2026	limiting equilibrium, limiting friction, co-efficient of friction.
				angle of friction, angle of repose, relation between co-efficient of friction and angle of friction.
	17th	02	27/02/2026	Equilibrium of bodies on level surface subjected to force parallel and inclined to plane.
27/02/2026			Solving numerical problem.	
March	18th	01	05/03/2026	Equilibrium of bodies on inclined plane subjected to force parallel to the plane only.
	19th	02	06/03/2026	Solving numerical problem. Topic end, Question answer discussion, Assignment 3
			06/03/2026	Unit– IV Centroid and centre of gravity Centroid of geometrical plane figures (square, rectangle, triangle, circle, semi-circle, quarter circle)
	20st	02	07/03/2026	Centroid of composite figures composed of not more than three geometrical figures
	21nd		07/03/2026	Centre of Gravity of simple solids (Cube, cuboid, cone, cylinder, sphere, hemisphere)
	22nd	01	12/03/2026	Centre of Gravity of composite solids composed of not more than two simple solids
	23rd	02	13/03/2026	Solving numerical problem.

		13/03/2026	Solving numerical problem. Topic end, Question answer discussion, Assignment 4	
24th	01	19/03/2026	CLASS TEST 2	
25th	02	20/03/2026	Unit – V Simple lifting machine Simple lifting machine, load, effort, mechanical advantage, applications and advantages.	
		20/03/2026	Velocity ratio, efficiency of machines.	
26th	01	26/03/2026	law of machine, ideal machine	
April	27th	01	02/04/2026	Solving numerical problem.
	28th	02	04/04/2026	friction in machine, maximum Mechanical advantage and efficiency.
			04/04/2026	reversible and non-reversible machines.
	29th	01	09/04/2026	conditions for reversibility and numerical.
	30th	02	10/04/2026	Velocity ratios of Simple axle and wheel, and numerical.
			10/04/2026	Velocity ratios of Differential axle and wheel, and numerical.
	31st	01	16/04/2026	Velocity ratios of Worm and worm wheel and numerical.
	32nd	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.
	33rd	02	18/04/2026	Velocity ratios of Simple screw jack and numerical
			18/04/2026	Weston's differential pulley block
	34th	01	23/04/2026	Weston's geared pulley block. Topic end, Question answer discussion, Assignment 5
	35th	02	24/04/2026	CLASS TEST 3
			24/04/2026	REVISION
36th	01	30/04/2026	REVISION	
May	37th	02	2/05/2026	REVISION
	38th	01	07/05/2026	VST
	39th	02	08/05/2025	VST
			08/05/2025	VST

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