LESSON PLAN FOR ACADEMIC SESSION 2025-26 (Summer)

Discipline: Electrical Engineering	Semester: 2nd	Name of the Teaching Faculty: Dinesh Kumar Sahu
Subject: Engineering Mechanics	No of days/ week class allotted=4	Semester From: 09/01/2026 to 08/05/2026 Nos of weeks per semester :15

Week	Class Day	Theory Topics
1st	1st	**Unit – I Basics of mechanics and force system** Discussion of the syllabus, Significance and relevance of Mechanics
	2nd	Applied mechanics, Statics, Dynamics.
	3rd	Space, time, mass, particle, flexible body and rigid body.
	4th	Scalar and vector quantity, Units of measurement (SI units) - Fundamental units and derived units.
2nd	1st	Force – unit, representation as a vector and by Bow's notation, characteristics and effects of a force,
	2nd	Principle of transmissibility of force
	3rd	Force system and its classification
	4th	Resolution of a force - Orthogonal components of a force
3rd	1st	Moment of a force, Varignon's Theorem
	2nd	Composition of forces – Resultant, analytical method for determination of resultant for concur- rent, non-concurrent and parallel co-planar force systems
	3rd	Law of triangle, parallelogram and polygon of forces.
	4th	
4th	1st	**Unit– II Equilibrium** Equilibrium and Equilibrant, Free body and Free body diagram,
	2nd	Analytical and graphical methods of analysing equilibrium
	3rd	Lami's Theorem – statement and explanation, Application for various engineering problems.
	4th	Types of beam
5th	1st	Types of supports (simple, hinged, roller and fixed)
	2nd	loads acting on beam (vertical
	3rd	and inclined point load, uniformly distributed load, couple),
	4th	Beam reaction for cantilever, simply supported beam with or
6th	1st	without overhang – subjected to combination of Point load and uniformly distributed load
	2nd	Beam reaction graphically for simply supported beam subjected to vertical point loads only.
	3rd	**Unit– III Friction** Friction and its relevance in engineering
	4th	types and laws of friction
7th	1st	limiting equilibrium, limiting friction,
	2nd	co-efficient of friction, angle of friction, angle of repose,
	3rd	Relation between co-efficient of friction and angle of friction.
	4th	Equilibrium of bodies on level surface subjected to force parallel
8th	1st	and inclined to plane.
	2nd	Equilibrium of bodies on inclined plane subjected to force parallel
	3rd	to the plane only
	4th	**Unit– IV Centroid and centre of gravity**
9th	1st	Centroid of geometrical plane figures (square, rectangle, triangle, circle, semi-circle, quarter circle)
	2nd	Centroid of composite figures composed of not more than three

	3rd		Centroid of composite figures composed of not more than three geometrical figures
10th	4th		Centre of Gravity of simple solids (Cube, cuboid, cone, cylinder, sphere, hemisphere)
	1st		
	2nd		Centre of Gravity of composite solids composed of not more than two simple solids
	3rd		
	4th		**Unit – V Simple lifting machine**
11th	1st		Simple lifting machine
	2nd		Load, effort, mechanical advantage,
	3rd		Applications and advantages
	4th		Velocity ratio, efficiency of machines,
12th	1st		law of machine.
	2nd		Ideal machine, friction in machine
	3rd		Maximum Mechanical advantage and efficiency
	4th		Reversible and non-reversible machines,
13th	1st		Conditions for reversibility
	2nd		Velocity ratios of Simple axle and wheel
	3rd		Differential axle and wheel,
	4th		Worm and worm wheel,
14th	1st		Single purchase and double purchase crab winch
	2nd		Simple screw jack,
	3rd		Weston's differential pulley block,
	4th		Geared pulley block
15th	1st		Revision
	2nd		Revision
	3rd		Revision
	4th		Revision

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06/01/26

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