Department Of Civil Engineering

Name of the Faculty	Nilesh Kumar	Semester	2nd
		Lecture per week	3
Discipline	Civil Engineering	Delivery Date of Lecture	Remarks
Subject	Applied Mechanics (Load L-03, Pr-2)		
Duration	20 Jan 2025 - 02 May, 2025 (15 weeks)		

Week	Lecture Day	Topic (including assignment / test)		
1st	1st	Ch-1, Introduction, Concept of Mechanics, Applied Mechanics, Classification of Mechanics, Application of Applied Mechanics, Physical Qty, Units & its needs Fundamental		
	2nd	Fundamental and derived units, System of units, Rigid Body, Scalar and Vector Qty, D/B Scalar and Vector Qty, General Trigonometry.		
	3rd	Ch-2 Concept of Force, Characteristics of Force, Units of Force, Effect and representation of Force		
2nd	1st	Classification of Forces, Force System, FBD, Principle of Physical Independent Forces		
	2nd	Law of Superposition of Forces, Principle of Transmissibility, Resultant Force, Resultan of Coplanar Concurrent forces, Collinear Forces		
	3rd	Parallelogram Law of Forces, Derivation , Some Numerical		
3rd	1st	Triangle law of forces, Resultant of a number of coplanar concurrent forces by parallelogram law of forces		
	2nd	Component of a force, Resolving a force into two rectangular components, two components which are not mutually perpendicular		
	3rd	Some numerical exercises		
4th	1st	Condition of equilibrium of coplanar concurrent forces, Equivalent Force, Lami's Theorem, Simple Numerical		
	2nd	Ch-3 Moments, Concept, Units of Moment, types of moments, Varignon's Theorem, Law of Moments		
	3rd	Conditions of equilibrium for bodies under coplanar forces, Parallel forces, resultant of parallel forces, coplanar Concurrent non plannar force system		
5th	1st	1st sessional Test/ Revisions		
	2nd			
	3rd			
6th	1st	Lever, Types of lever, Simple, compound lever, common steel yard		
	2nd	Safety Valve, Couple, Arm of Couple, moment, effect classification, characteristics of couple		
	3rd	Some simple numericals		
7th	1st	Ch-4, Friction, Concept, Types of Friction, Limiting Friction, Dynamic Friction, Normal reaction, coeff of friction		
	2nd	Angle of friction, angle of repose, cone of friction, laws of friction, importance of friction, method of reducing friction		
	3rd	Equilibrium of a body lying on rough horizontal plane, inclined plane		
8th	1st	Ch-5 Centre of Gravity, & Centroid, Cente of Area, D/B Centroid & COG, Centroidal Axis, Axis of reference, Symmetry		
	2nd	Method of finding COG, by geometrical consideration, by method of moments		
	3rd	Symmetrical sections, Centroid of composite sections, numericals		

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	1st	Numerical on centre of gravity by methods of moments		
	2nd	Ch-6 Laws of motion, Momentum, Newtons law of motion (1st, 2nd,3rd)		
	3rd	Law of conservation off momentum, Recoil of gun, Impulse & Impulsive forces		
10th	1st	2nd Sessional Test / Revision		
	2nd			
	3rd			
11th	1st	Revision, Motion of lift, motion of two weights connected by a string over a smooth pulley		
	2nd	Ch-7 Simple Machines, Simple machines, compound machines, lifting machine, use of machine, important terms		
	3rd	Relationship b/w mechanical advantage, VR, and efficiency of a machine, reversible machine, conditions of reversibility of a machine		
12th	1st	Irreversible machine self locking machine, law of machine, maxm M.A., maxm efficiency, numericals,		
	2nd	Types of simple machines, inclined plane		
	3rd	Worm and worm wheel, screw jack		
13th	1st	Pulley, single fixed, single movable pullry		
	2nd	System of pulleys- 1st, 2nd and 3rd system of pulley		
	3rd	Some numericals		
14th	1st	Revision on numericals on moments		
	2nd	Revision of centre of gravity		
	3rd	Revision of friction		
15th	1st	3rd Sessional / revision		
	2nd			
	3rd			

Subject Incharge

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