

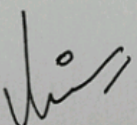
Department Of Civil Engineering

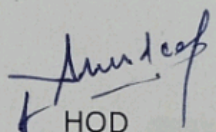
Name of the Faculty		Semester	
Nilesh Kumar		2nd	
Discipline		Lecture per week	
Civil Engineering		3	
Subject		Delivery Date of Lecture	
Applied Mechanics (Load L-03, Pr-2)		Remarks	
Duration			
20 Jan 2025 - 02 May, 2025 (15 weeks)			
Week	Lecture Day	Topic (including assignment / test)	
1st	1st	Ch-1, 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, Resultant 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 planar force system	
5th	1st	1 st 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	
7 th	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	
8 th	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 (1 st , 2 nd , 3 rd)		
	3rd	Law of conservation of momentum, Recoil of gun, Impulse & Impulsive forces		
10 th	1st	2 nd Sessional Test / Revision		
	2nd			
	3rd			
11 th	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		
12 th	1st	Irreversible machine self locking machine, law of machine, max ^m M.A., max ^m efficiency, numericals.		
	2nd	Types of simple machines, inclined plane		
	3rd	Worm and worm wheel, screw jack		
13 th	1st	Pulley, single fixed, single movable pulley		
	2nd	System of pulleys- 1 st , 2 nd and 3 rd system of pulley		
	3rd	Some numericals		
14 th	1st	Revision on numericals on moments		
	2nd	Revision of centre of gravity		
	3rd	Revision of friction		
15 th	1st	3 rd Sessional / revision		
	2nd			
	3rd			


 Subject Incharge
 (Nilesh Kumar)


 HOD