

MECHANICAL ENGINEERING DEPARTMENT

Session 2024-2025(2nd semester)

Subject:-Applied Mechanics.

Load:-3 hrs Theory ,4 hrs Practical

LESSON PLAN

Week	THEORY		Practical
	Day Lecture	Topic (Including Assignment/Test)	Topic
1	1	Introduction: Concept of Mechanics,Classification of mechanics ,utility of mechanics in engineering field	Verification of Polygon Law of forces using Universal force Table/Gravesend Appartus
	2	Concept of rigid bodies,scalar and vector quantities, Physical quantity, fundamental and derived quantities	
	3	Law of forces -Defination of force,SI unit,its representation	
2	1	Types of forces in details,Various force system	Verification of Lami Theoram
	2	Principle of transmissibility of forces law of superposition,free body diagram	
	3	Composition and resolution of coplaner concurrent forces,resultant force	
3	1	Law of forces,parallelogram law of forces	To verify the forces in different members in Jib Crane
	2	Traingle law of forces,polygon law of forces Free body diagram, Equilibrium force and its Determination	
	3	Lami's theorm Simple numerical problems	
4	1	Moment -Concept of moment	Revision
	2	Moment of a force and units of moment,Varignon's Theorem,Principle of moment	
	3	Levers-Simple and compound,steel yard,Safety valve	
5	1	Numericals	Revision
	2	Assignment 1	
	3	1st Sessional test	
	4	Parallel forces(Like and unlike parallel forces),Calculating their resultant	
6	1	Concept of Couple,its properties and effects,Types of couple	To determine coefficient of friction between three pairs of given surface
	2	General conditions of equilibrium of bodies under coplanar forces	
	3	Position of resultant force by moment	
7	1	Friction :-Definition and concept of friction, types of friction, force of friction, Limiting Friction Laws of static friction, coefficient of	To find out center of gravity of regular lamina

		friction,angle of friction, angle of repose	
	2	Equilibrium of a body lying on a horizontal plane,Inclined Plane	
	3	Ladder friction,Advantages and Disadvantages of friction	
8	1	Centre of gravity and Centroid:- Concept,definition of centroid of plain figures of symmetrical solid bodies	To find out center of gravity of irregular lamina
	2	Axis of Symmetry ,Reference axis .Determination of centre of gravity of solid bodies-cone,cylinder	
	3	Hemisphere and sphere ,composite and bodies with portion removed	
9	1	Laws of motion : Newtons laws of Motion and their applications,Concept of momentum	To Find MA,VR and efficiency of a screw jack
	2	Derivation of second law of motion,Boties ties with string	
	3	Newtons third law conservation of momentum ,impulse and Impulsive forces ,Simple numericals	
10	1	Test	Revision
	2	2nd Sessional test	
	3	Simple machines -Introduction	
11	1	Definition of Simple and compound machine (Examples)	To Find MA,VR and efficiency of a worm and worm wheel
	2	Definition of load, effort, velocity ratio, mechanical advantage and efficiency of a machine	
	3	load, effort, velocity ratio, mechanical advantage their relationship,	
12	1	law of machines and efficiency of a Machine Definition of ideal machine, reversible and self locking machine	To Find MA,VR and efficiency of Single purchase crab
	2	Effort lost in friction, Load lost in Friction .Determination of maximum mechanical advantage and maximum efficiency	
	3	System of pulleys (first, second),Third system of pulleys	
14	1	Working principle and application of wheel and axle,Weston's Differential Pulley Block	Viva
	2	Simple screw jack, worm and worm wheel,single and double winch crab.[Simple problems on the above topics]	
	3	3rd Sessional	