

Discipline : Civil ENGINEERING					
Subject:- Applied Mechanics					
Semester: 2nd		Theory -03		Practical-02	
WEEK	THEORY		WEEK		
	LECTURE DAY	TOPIC		Expt. No.	Experiment
1st	1st	Concept of mechanics,classification of mechanics	1st	1	Verification of polygon law of forces using Gravesand's apparatus.
	2nd	Utility of mechanics in engineering field, Scalar & vector Quantities			
	3rd	Definition of force, measurement of force in SI units, its representation, types of force: Point force/concentrated force & Uniformly distributed force, effects of force			
2nd	1st	characteristics of a force ,force, Different force systems (coplanar and non-coplanar)	2nd	2	Verification of Lami's theorem.
	2nd	principle of transmissibility of forces			
	3rd	law of superposition, Free body diagram,			
3rd	1st	Composition and resolution of coplanar concurrent forces, resultant force, method of composition of forces, laws of forces,	3rd	3	To verify law of moments by using Bell crank lever.
	2nd	parallelogram law of forces (with derivation), triangle law of forces, polygon law of forces - graphically,			
	3rd	analytically, resolution of forces, resolving a force into two rectangular components, Lami's theorem,			
4th	1st	Simple numericals, Equilibrium of forces and its determination.	4th	4	To verify the forces in different members of jib crane.
	2nd	Concept of moment, Moment of a force and units of moment,Varignon's theorem (definition only), Principle of moment and its applications (Lever- – simple and compound, steel yard,safety valve)			
	3rd	Simple numericals. Parallel forces (like and unlike parallel force), Assignment			
5th	1st	Sessional Week	5th		
	2nd				
	3rd				
6th	1st	calculating their resultant, Concept of couple, its properties and effects, General conditions of equilibrium of	6th	5	To determine coefficient of friction between three pairs of given surface.
	2nd	bodies under coplanar forces, Position of resultant force by moment.			
	3rd	Definition and concept of friction, types of friction, force of friction, Limiting Friction,Laws of static friction, coefficient of friction			
7th	1st	angle of friction, angle of repose ,4.3Equilibrium of a body lying on a horizontal plane	7th	6	To find out center of gravity of regular lamina.
	2nd	Equilibrium of a body lying on a rough inclined plane.			
	3rd	Calculation of least force required to maintain equilibrium of a body on a rough inclined plane subjected to a force: Acting along the inclined plane			
8th	1st	At some angle with the inclined plane,	8th	7	To find out center of gravity of irregular lamina.
	2nd	Simple Numericals			
	3rd	Centre of gravity- Concept, definition of centroid of plain figures,centre of gravity of symmetrical solid bodies,			

9th	1st	Reference axis. Determination of centroid of plain and Composite lamina (T, L, C and I shape) using moment method only	9th	8	To find the mechanical advantage, velocity ratio and efficiency of a screw jack.
	2nd	centroid of bodies with removed portion, Determination of center of gravity of solid bodies - cone, cylinder			
	3rd	hemisphere and sphere; composite bodies and bodies with portion removed. Assignment			
10th	1st	Sessional Week	10th		
	2nd				
	3rd				
11th	1st	Laws of Motion- Newton's laws of motion and their applications, Concept of momentum.	11th	9	To find the mechanical advantage, velocity ratio and efficiency of worm and worm wheel.
	2nd	Derivation of force equation from second law of motion, numerical problems on second law of motion.			
	3rd	motion. Bodies tied with string, Newton's third law of motion, numerical problems			
12th	1st	conservation of momentum, impulse and impulsive force.	12th	10	To find mechanical advantage, velocity ratio and efficiency of single purchase crab.
	2nd	Simple Machines- Definition of effort, velocity ratio,, law of machines,			
	3rd	mechanical advantage and efficiency of a machine and their relationship Simple and compound machine (Examples). Definition of ideal machine, reversible and self-locking machine.			
13th	1st	Effort lost in friction, Load lost in friction, determination of maximum mechanical advantage and maximum efficiency, Simple numerical.	13th		
	2nd	System of pulleys (first, second, third system of pulleys), determination of velocity ratio, mechanical advantage and efficiency. Working principle and application of wheel and axle, Weston's Differential Pulley Block, simple screw jack,			
	3rd	worm and worm wheel, single and double winch crab. Expression for their velocity ratio and field of their application.			
14th	1st	Sessional Week	14th		
	2nd				
	3rd				
15th	1st	Revision, Assignment	15th		
	2nd	Revision			
	3rd	Revision			