

Lesson Plan

Name of faculty : **Dimple Rani (Theory and Practical)**

Discipline : **Mechanical Engineering**

Semester : **3rd**

Subject : **Applied mechanics**

Lesson Plan Duration : **15 weeks (from July-2018 to Nov-2018)**

Work Load : **Lectures-4, Practicals-2**

Week	Lecture	Theory Topic	Practicals	
			Day	Practical Topic
1	1st	Unit 1- Concept of engineering mechanics definition of mechanics, statics, dynamics,	1st	Verification of the polygon law of forces using Gravesand's apparatus
	2nd	Different systems of units (FPS, CGS, MKS and SI) and their conversion from		
	3rd	work, power, velocity, acceleration(Simple Numerical Problems),	1st	Verification of the polygon law of forces using Gravesand's apparatus
	4th	Concept of rigid body, scalar and vector quantities		
2	1st	Unit 2- Definition of force, Bow's Notations, types of force: Point	2nd	To verify the forces in different members of jib crane.
	2nd	effects of force, characteristics of a force, Different force systems,		
	3rd	principle of transmissibility of forces, law of super-position, Composition and	2nd	To verify the forces in different members of jib crane.

	4th	, method of composition of forces, laws of forces, triangle law of forces,		
3	1st	polygon law of forces - graphically, analytically,	3rd	To verify the reaction at the supports of a simply supported beam.
	2nd	resolution of forces, Free body diagram, numerical problems		
	3rd	Equilibrant force and its determination, numerical problems	3rd	To verify the reaction at the supports of a simply supported beam.
	4th	Lami's theorem , numerical problems		
4	1st	Unit 3. Concept of moment.	4th	To find the mechanical advantage, velocity ratio and efficiency in case of an inclined plane.
	2nd	Moment of force and unit of moment		
	3rd	Varignon's theorem (definition only),	4th	To find the mechanical advantage, velocity ratio and efficiency in case of an inclined plane.
	4th	Principle of moment and its applications		
5	1st	Determine parallel forces , calculating their resultant	5th	To find the mechanical advantage, velocity ratio and efficiency of a screw jack.
	2nd	Parallel forces (like and unlike parallel force), calculating their resultant		
	3rd	Concept of couple, its properties and effects	5th	To find the mechanical advantage, velocity ratio and

	4th	General conditions of equilibrium of bodies under coplanar forces, Position of		efficiency of a screw jack.
6	1st	Numerical problems	6th	To find the mechanical advantage, velocity ratio and efficiency of worm and
	2nd	Unit 4: Definition and concept of friction, types		
	3rd	Laws of static friction, coefficient of friction, an	6th	To find the mechanical advantage, velocity ratio and efficiency of worm and
	4th	equilibrium of a body lying on a horizontal plane, equilibrium of a body		
7	1st	Numerical problems	7th	To find mechanical advantage, velocity ratio and efficiency of single purchase crab.
	2nd	Calculation of least force required to maintain equilibrium of a body on a rough		
	3rd	Ladder friction, Advantages and Disadvantages of friction	7th	To find mechanical advantage, velocity ratio and efficiency of single purchase crab.
	4th	Methods of increasing/decreasing the force of		
8	1st	Numerical problems	8th	To find out center of gravity of regular lamina
	2nd	Unit 5. Concept, definition of centroid of plain figures and centre of gravity of		
	3rd	Determination of centroid of plain and composite lamina using moment method	8th	To find out center of gravity of regular lamina
	4th	centroid of bodies with removed portion, Determination of center of gravity		

9	1st	Determination of center of gravity of solid bodies -cube.	9th	To find out center of gravity of irregular lamina.
	2nd	Determine of center of gravity of cuboid.		
	3rd	Determine of center of gravity of sphere.		To find out center of gravity of irregular lamina.
	4th	composite bodies and bodies with portion removed		
10	1st	Numerical problems	10th	Revision
	2nd	Numerical problems		
	3rd	Numerical problems	10th	Revision
	4th	Numerical problems		
11	1st	Unit 6: Definition of Simple and compound machine (Examples)	11th	friction b/w three phase of given surface
	2nd	Definition of load, effort, velocity ratio, mechanical advantage and efficiency of -a		
	3rd	ideal machine, reversible and self locking machine		To determine coefficient of friction b/w three phase of
	4th	Effort lost in friction, Load lost in friction, determination of maximum mechanical		
	1st	System of pulleys first system of pulleys, determination of velocity ratio, mechanical		Revision
	2nd	System of pulleys second system of pulleys, determination of velocity ratio,		

12	3rd	System of pulleys third system of pulley , determination of velocity ratio, mechanical	12th	Revision
	4th	Working principle and application of wheel and axle, Weston's Differential	12th	
13	1st	Working principle and application of of simple screw jack, worm and worm	13th	Revision
	2nd	Working principle and application of of single and double winch crab.		
	3rd	Numerical problems	13th	Revision
	4th	Numerical problems		
14	1st	Revision	14th	Internal viva
	2nd	Revision		
	3rd	Revision	14th	Internal viva
	4th	Revision		
15	1st	Revision	15th	Internal viva
	2nd	Revision		
	3rd	Revision	15th	Internal viva
	4th	Revision		

