GOVT. POLYTECHNIC UMRI ,KKR

LESSON PLAN

NAME OF FACULTY	**MR. MANISH KUMAR**
DISCIPLINE	**MECHANICAL ENGG.**
SEMESTER	**2ND**
SUBJECT	**APPLIED MECHANICS**
LESSON PLAN DURATION :	**16 WEEK**
WORK LOAD (LECTURE/ PRACTICAL) :03 LECTURES/WEEK , PRACTICALS -02 HOURS/TURN/WEEK	
DATE OF START LESSON PL	**06/03/2023 TO 23/06/2023**

| WEEK | THEORY | | PRACTICAL | |
	LECTURE DAY	TOPIC	PRACTICAL DAY	TOPIC
1st	1st	Concept of mechanics, Classification of mechanics, utility of mechanics in engineering field	1st	Verification of polygon law of forces using universal force table/Gravesend apparatus
	2nd	Concept of rigid body, scalar and 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, characteristics of a force,		
2nd	4th	Different force systems (coplanar and non-coplanar), principle of transmissibility of forces,	2nd	Verification of Lami's theorem
	5th	law of superposition, Free body diagram, Composition and resolution of coplanar concurrent forces, resultant force,		
	6th	method of composition of forces, laws of forces, parallelogram law of forces (with derivation),		
3rd	7th	Triangle law of forces	3rd	To verify law of moments by using Bell crank lever
	8th	polygon law of forces - graphically, analytically, resolution of forces, resolving a force into two rectangular components		
	9th	Lami's theorem, Simple numericals, Equilibrium of forces and its determination.		

	10th	Concept of moment, Moment of a force and units of moment, Varignon's theorem (definition only),	4TH	Revision of previous practical
4th	11th	Principle of moment and its applications (Levers – simple and compound		
	12th	**REVISION**		
5th		**SESSIONAL TEST**		
	13th	steel yard, safety valve		
	14th	Simple numericals		
6th	15th	Parallel forces (like and unlike parallel force), calculating their resultant, Concept of couple, its properties and effects	6th	To verify the forces in different members of jib crane.
7th	16th	General conditions of equilibrium of bodies under coplanar forces, Position of resultant force by moment.	7th	To determine coefficient of friction between three pairs of given surface
	17th	Definition and concept of friction, types of friction, force of friction, Laws of static friction, coefficient of friction, angle of friction, angle of repose, cone of friction,		
	18th	Equilibrium of a body lying on a horizontal plane, equilibrium of a body lying on a rough inclined plane.		
8th	19th	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	To find out center of gravity of regular lamina.
	20th	Subjected to a force acting at some angle with the inclined plane, Simple numericals		
	21st	Concept, definition of centroid of plain figures and centre of gravity of symmetrical solid bodies. Axis of symmetry, Reference axis.		

9th	22nd	Determination of centroid of plain and composite lamina (T, L, C and I shape) using moment method only, centroid of bodies with removed portion.	9th	To find out center of gravity of irregular lamina.
	23rd	Determination of center of gravity of solid bodies - cone, cylinder, hemisphere and sphere; composite bodies and bodies with portion removed.		
	24th	**Simple numericals**		
10th		**SESSIONAL TEST**		
11th	25th	Newton's laws of motion and their applications, Concept of momentum. Derivation of force equation from second law of motion,	11th	To find the mechanical advantage, velocity ratio and efficiency of a screw jack.
	26th	conservation of momentum, impulse and impulsive force.		
	27th	numerical problems on second law of motion. Bodies tied with string, Newton's third law of motion, numerical problems,		
12th	28th	Definition of effort, velocity ratio, mechanical advantage and efficiency of a machine and their relationship, law of machines, Simple and compound machine (Examples)	12th	To find the mechanical advantage, velocity ratio and efficiency of worm andworm wheel.
	29th	Definition of ideal machine, rever		
	30th	Effort lost in friction, Load lost i		
13th	31st	System of pulleys first determination of velocity ratio, mechanical advantage and efficiency	13th	Revision of previous practical
	32nd	System of pulleys second determination of velocity ratio, mechanical advantage and efficiency		
	33rd	System of pulleys third,determination of velocity ratio, mechanical advantage and efficiency		

	34th	Determination of velocity ratio, mechanical advantage and efficiency. Working principle and application of wheel and axle,		
14th	35th	determination of velocity ratio, mechanical advantage and efficiency. Working principle and application of Weston's Differential Pulley Block,	14th	To find mechanical advantage, velocity ratio and efficiency of single purchase crab.
	36th	determination of velocity ratio, mechanical advantage and efficiency. Working principle and application simple screw jack		
15th	37th	determination of velocity ratio, mechanical advantage and efficiency. Working principle and application worm and worm wheel,	15th	Viva Voice
	38th	determination of velocity ratio, mechanical advantage and efficiency. Working principle and application single winch crab		
	39th	determination of velocity ratio, mechanical advantage and efficiency. Working principle and application double winch crab		
16th		**SESSIONAL TEST**		