BRANCH : ELECTRICAL	PNS SCHOOL OF ENGG. & TECH., MARSHAGHAI DEPARTMENT OF MECHANICAL ENGINEERING **LESSON PLAN** SUB: ENGINEERING MECHANICS(1ST SEM) NAME OF THE LECTURER: Er. RAMESH CHANDRA PRADHAN	
	SEMESTER FROM DATE : 16.08.2024 TO 10.12.2024 No. of Weeks : 10 Nos.	
WEEK	**CLASS / DAY**	**THEORY TOPICS**
1ST	1st	**UNIT -I: BASICS OF MECHANICS AND FORCE SYSTEM Significance and relevance of Mechanics,Applied mechanics,Statics,Dynamics.**
	2nd	Space,Time,Mass,Particle,Flexible body and Rigid body.
	3rd	Scalar and Vector quantity,Units of measurement(SI units,Fundamental units,Derived units)
	4th	Force(Unit,Bow's notation)
	5th	Charcterstics and effects of a Force
	6th	Principle of transmissibility of Force
2nd	1st	Force system and it's classification
	2nd	Force system and it's classification
	3rd	Resolution of a Force,Orthogonal components of a Force
	4th	Moment of Force,Varignon's theorem.
	5th	Compostion of Forces-Resultant
	6th	Resultant for Concurrent ,non concurrent and Parallel coplanar force systems
3rd	1st	Law of Triangle,Parallelogram and Polygon of forces.
	2nd	Problem solved
	3rd	Problem solved
	4th	Problem solved
	5th	**UNIT-II:EQUILIBRIUM Equilibrium and Equilibrant,Free body and Free Body Diagram.**
	6th	Analytical methods of analysing equilibrium
4th	1st	Graphical method
	2nd	Lami's theorem-statement and explanation
	3rd	Application for various engineering problems
	4th	Application for various engineering problems
	5th	Types of beam,support(simple,hinged,roller,fixed)
	6th	Loads acting on beam(Vertical and Inclined point load,Uniformly distributed load,couple)
5th	1st	Beam reaction for cantilever
	2nd	Simple supported beam with or without overhang subjected to combination of point load and Uniformly distributed load
	3rd	Simple supported beam with or without overhang subjected to combination of point load and Uniformly distributed load
	4th	Beam reaction graphically for simply supported beam subjected to vertical points load only
	5th	Problem solved
	6th	Problem solved
6th	1st	**UNIT-III:FRICTION Friction,It's relevance,types & laws of friction**
	2nd	Limiting equilibrium,Limiting friction,coefficient of friction,angle of friction,angle of repose.
	3rd	Relation between coefficient of friction and angle of friction
	4th	Equilibrium of bodies on level surface subjected to force parallel and inclined to plane.
	5th	Equilibrium of bodies on inclined plane subjected to force parallel to plane only.
	6th	Problem solved

7th	1st	Problem solved
	2nd	**UNIT-IV:CENTROID AND CENTER OF GRAVITY Centroid of geometrical plane figures(square,Rectangle,triangle)**
	3rd	Circle,semi circle,quarter circle
	4th	Centroid of composite figures composed of not more than 3 geometrical figures
	5th	Centroid of composite figures composed of not more than 3 geometrical figures
	6th	Center of gravity of simple solids(cube,cuboid,cone)
8th	1st	Center of gravity of simple solids(cylinder,sphere,Hemisphere)
	2nd	Center of gravity of composite solids composed of not more than 2 simple solids
	3rd	Center of gravity of composite solids composed of not more than 2 simple solids
	4th	Problem solved
	5th	Problem solved
	6th	**UNIT-V:SIMPLE LIFTING MACHINE Simple lifting machine,load,effort,Mechanical advantage**
9th	1st	Applications and advantages
	2nd	Velocity ratio,Efficiency of machines,Law of machine
	3rd	Ideal machine,friction in machine,Maximum MA and efficiency.
	4th	Reversible and non reversible machines,conditions for reversibility
	5th	Velocity ratios of Simple axis and wheel
	6th	Differential axis and wheel.
10th	1st	Worm and Worm wheel
	2nd	Single purchase crab winch
	3rd	Double purchase crab winch
	4th	Simple screw jack
	5th	Weston's differential pulley block,geared pulley block
	6th	Problem solved

SIGNATURE OF LECTURER **SIGNATURE OF H.O.D.** **SIGNATURE OF PRINCIPAL**