ACADEMIC SESSION : 2023-24 (WINTER-2023)		
DESCIPLINE: MECHANICAL ENGINEERING	SEMESTER: 1ST	NAME OF THE TEACHING FACULTY: Sri DIBYAJYOTI PANDA Lect. Mechanical Engineering (PTGF), GP, Sonepur
SUBJECT: ENGINEERING MECHANICS	NO OF DAYS PER WEEK- 04	SEMESTER FROM DATE 01/08/2023 TO 30/11/2023
WEEK	CLASS DAY	THEORY
1st	1st	Definitions of Mechanics, Statics, Dynamics, Rigid Bodies
	2nd	Force System, Characteristics of Force & effect of Force. Principles of Transmissibility & Principles of Superposition
	3rd	Action & Reaction Forces & concept of Free Body Diagram.
2nd	1st	Resolution of a Force
	2nd	Composition of Forces
	3rd	Parallelogram of forces
	4th	Space diagram, Vector diagram, Polygon law of forces
3rd	1st	Solve some Numerical based on Parallelogram Law
	2nd	Resultant of concurrent, non-concurrent & parallel force system by Analytical & Graphical Method
	3rd	Moment of Force
4th	1st	Varignon's Theorem
	2nd	Couple
	3rd	Solve some Numerical based on Moment of force and Varignon'sTherom
	4th	Definition & condition of equilibrium,
5th	1st	Free Body Diagram
	2nd	Lamia's Theorem, Statement, Application for solving various engineering problems.
	3rd	Definition of friction, Frictional forces
6th	1st	Limiting frictional force, Coefficient of Friction.
	2nd	Angle of Friction & Repose
	3rd	Laws of Friction, Advantages & Disadvantages of Friction
7th	1st	Laws of Friction
	2nd	Advantages & Disadvantages of Friction
	3rd	Equilibrium of bodies on level plane
	4th	Force applied on horizontal & inclined plane (up)
8th	1st	Force applied on horizontal & inclined plane (Down)
	2nd	Ladder Problem
9th	1st	Wedge Friction
	2nd	Solve some Numerical based on Friction Concept
	3rd	Centroid – Definition, Moment of an area about an axis, centroid of geometrical figures such as squares, rectangles, triangles
	4th	centroid of geometrical figures such as circles, semicircles
10th	1st	centroid of geometrical figures such as quarter circles
	2nd	centroid of composite figures
	3rd	centroid of composite figures

11th	1st	Moment of Inertia – Definition
	2nd	Parallel axis & Perpendicular axis Theorems.
	3rd	M.I. of plane lamina
	4th	M.I. of plane lamina
12th	1st	M.I. of different engineering sections
	2nd	M.I. of different engineering sections
	3rd	Solve some Numerical based on Moment of inertia and Centroid Concept
	4th	Definition of simple machine, Velocity ratio of simple and compound gear train
13th	1st	Simple & compound lifting machine
	2nd	M.A, V.R. & Efficiency & relation between M.A. and V.R.
	3rd	State Law of Machine, Reversibility of Machine
14th	1st	Self Locking Machine.
	2nd	Study of simple machines
	3rd	Types of hoisting machine like derricks etc, Their use and working principle
	4th	Kinematics & Kinetics, Principles of Dynamics,
15th	1st	Newton's Laws of Motion
	2nd	Motion of Particle acted upon by a constant force, Equations of motion
	3rd	DeAlembert's Principle.
16th	1st	Work, Power, Energy & its Engineering Applications
	2nd	Momentum
	3rd	impulse
	4th	Conservation of energy & linear momentum
17th	1st	Collision of elastic bodies, and Coefficient of Restitution
	2nd	Solve some Numerical based on Dynamics Concept
	3rd	Solve some Numerical based on Dynamics Concept

29/07/23

Prepared by
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31/07/23

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