

# OSME Keonjhar

## Department of Mechanical Engineering

### Lesson Plan

Discipline: <b>Math and Science</b>		Semester: 1st		Faculty: <i>Mr Barun Kumar Barik</i>
Subject: <b>Engineering Mechanics ( TH4)</b>		No of day/week of class allotted:4		Semester starts from-25/10/2022 To:31/01/2023
MONTH	WEEK	AVAILABILITY OF CLASSES	CLASS DAY	THEORY TOPICS
October	1 <sup>st</sup>	03	26/10/2022	<b>Module 1:fundamentals of Engineering mechanics</b> Defination of mechanics, static, dynamics, rigid body
			29/10/2022 29/10/2022	Defination of force, force system. Classification of force system according to plane and line of action. characteristics of force and effect of force.
November	2nd	04	31/10/2022	Principle of transmissibility, principle of super position ,law of action and reaction
			2/11/2022	Free body diagram.
			5/11/2022 5/11/2022	Resolution of force (perpendicular and non perpendicular component),Composition of force (resultant force, triangle law)
	3rd	04	7/11/2022	Parallelogram law and polygon law of force.
			9/11/2022	Method of resolution and graphical method of resultant force.
			12/11/2022 12/11/2022	<b>Numerical solve on resultant force.</b>
	4th	04	14/11/2022	Moment of force (defination, law and classification)
			16/11/2022	Couple (defination ,classification and properties)
			19/11/2022 19/11/2022	<b>Numerical solve on moment of force and couple.</b>
	November	5 <sup>th</sup>	04	21/11/2022
23/11/2022				Lami's theorem (statement ,prove and application)
26/11/2022 26/11/22				<b>Numerical solve on lami's theorem</b>
6 <sup>th</sup>		04	28/11/2022	<b>CLASS TEST 1</b>
			30/11/2022	<b>Modue 3:FRICITION</b> Defination, frictional force and classification
			3/12/2022 3/12/22	Limiting friction, coefficient of friction, angle of repose. Law of limiting friction, advantages and disadvantages of friction.
			5/12/2022	Equilibrium of body –force applied on horizontal

				plane. Equilibrium of body-Force apply on inclined plane.
			7/12/2022	Ladder friction, Wedge friction.
			10/12/2022 10/12/2022	<b>Numerical on friction</b>
	8th	04	12/12/2022	<b>MODULE 4: CENTROID AND MOMENT OF INERTIA:</b> Defination, moment of an area about an axis, Centroid of geometrical figure such as square, rectangle ,triangles, circles.
			14/12/2022	Centroid of geometrical figures such as semicircles and quarter circles, centroid of composite figures.
			17/12/2022 17/12/2022	Numerical on centroid.
	9th	04	19/12/2022	Moment of inertia- defination, M.I. of plane lamina. M.I. of different engineering section
			21/12/2022	<b>CLASS TEST 2</b>
			24/12/2022 24/12/2022	Parallel and perpendicular axis theorem. <b>Numerical practice</b>
JANUARY	10th	04	02/01/2023	<b>MODULE 5: SIMPLE MACHINE</b> Defination of simple machine, compound machine, Mechanical advantage, Velocity Ratio ,efficiency.
			04/01/2023	Relation between M.A , V.R and efficiency. V.R. of Simple and compound gear train.
			07/01/2023 07/01/2023	Law of machine, reversibility of machine, self locking machine. <b>Numerical solve</b>
	11th	02	09/01/2023	Study of simple machine- simple axle and wheel, worm and worm wheel.
			11/01/2023	Single purchase crab winch and double purchase crab winch. <b>Numerical solve</b>
	12th	04	16/01/2023	Screw jack. <b>Numerical solve</b>
			18/01/2023	Hoisting machine like derricks use and working principle
			21/01/2023 21/01/2023	<b>MODULE 6: DYNAMICS:</b> Kinematics and kinetics, principle of dynamics, Newton's law of motion.
	13th	03	25/01/2023	<b>CLASS TEST 3</b>
			28/01/2023 28/01/2023	Motion of particles acted upon by a constant force, equation of motion, De albert's principle. Work ,power, energy and its engineering application. Kinetic energy and potential energy and its application. <b>Numerical solve</b>
	14th	02	30/01/2023	Momentum and impulse, conservation of energy and linear momentum, collision of elastic bodies and co efficient of restitution. Numerical solve
			31/01/2023	<b>PREVIOUS YOUR QUESTION SOLVE</b>