BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK

LESSON PLAN

SUBJECT: ENGINEERING MECHANICS (TH-4)

FACULTY: BIBEKANANDA PRATIHARI

ACCADEMIC SESSION: 2022-23

SEMESTER: 2nd

SEC: I

Discipline: ETC, AE & I engineering	Semester: 2nd		Section-I	Name of the teaching faculty: Bibekananda Pratihari (PTGF)
Subject: Engineering Mechanics	No. of Days/ per week class allotted: 04periods per week (Tue-4Th, Wed-4th , Thu -4th Fri-4thperiod,)			Semester From Date: 20-03-2023 To Date: 27-06-2023 No. of weeks: 15 weeks
Week	Class Day	No of period available		Theory Topics
1ST	21/03/2023	1		1.FUNDAMENTALS OF ENGINEERING MECHANICS 1.1 Fundamentals. Definitions of Mechanics, Statics, Dynamics, Rigid Bodies,
	22/03/2023	1		1.2 Force & its types.
	23/03/2023	1		Force System. Definition, Classification of force system according to plane & line of action.
	24/03/2023	1		Characteristics of Force & effect of Force. Principles of Transmissibility Principles of Superposition.
2ND	28/03/2023	1		Concept of Free Body Diagram.
	29/04/2023	1		1.3 Resolution of a Force. Definition, Method of Resolution
	31/04/2023	1		Types of Component forces, Perpendicular components & non-perpendicular components

3RD	04/04/2023	1	1.4 Composition of Forces. Definition, Resultant Force, Method of composition of forces, such as 1.4.1 Analytical Method such as Law of Parallelogram of forces
	05/04/2023	1	Method of composition of forces, such as method of resolution.
	06/04/2023	1	1.4.2. Graphical Method. Introduction, Space diagram, Vector diagram, Polygon law of forces
4TH	11/04/2023	1	1.5 Moment of Force.Definition, Geometrical meaning of moment of a force, measurement of Moment of a force & its S.I units
	12/04/2023	1	.Classification of moments according to direction of rotation, sign convention
	13/04/2023	1	Law of moments and varignons theorem,with resultant of parallal force. Couple – Definition, S.I. units, measurement of couple, properties of couple
5TH	18/04/2023	1	**2. EQUILIBRIUM** 2.1 Definition, condition of equilibrium, Analytical conditions& Graphical conditions
	19/04/2023	1	Analytical conditions of equilibrium for concurrent, non-concurrent force system
	20/04/2023	1	Graphical conditions of equilibrium for concurrent, non-concurrent force system
	21/04/2023	1	Free Body Diagram

6TH	25/04/2023	1	2.2 Lamia's Theorem – Statement, Application for solving various engineering problems
	26/04/2023	1	Revision & PYQ
	27/04/2023	1	CLASS TEST-01
	28/04/2023	1	**3.FRICTION** 3.1 Definition of friction, Frictional forces, Limiting frictional force, Coefficient of Friction.
7TH	02/05/2023	1	Angle of Friction & Repose, Laws of Friction
	03/05/2023	1	Advantages & Disadvantages of Friction.
	04/05/2023	1	3.2Equilibrium of bodies on level plane – Force applied on horizontal & inclined plane (up &down).
8TH	09/05/2023	1	Problem praticse
	10/05/2023	1	3.3Ladder FrictionWedge Friction
	11/05/2023	1	4.1 Centroid – Definition, Moment of an area about an axis.
	12/05/2023	1	Centroid of geometrical figures such as squares, rectangles, triangles, circles, semicircles & quarter circles.
9TH	16/05/2023	1	Centroid of composite figures.
	17/05/2023	1	4.2 Moment of Inertia – Definition and its type
	18/05/2023	1	Parallel axis theorem
	19/05/2023	1	Perpendicular axis Theorems
10TH	23/05/2023	1	M.I. of plane lamina
	24/05/2023	1	M.I. of different engineering sections
	25/05/2023	1	**Internal Assessment Exam**
	26/05/2023	1	**Internal Assessment Exam**
11TH	30/05/2023	1	**5. SIMPLE MACHINES**

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			5.1 Definition of simple machine, velocity ratio of simple and compound gear train.
	31/05/2023	1	Explain simple & compound lifting machine, define M.A, V.R. & Efficiency &State the relation between them.
	01/06/2023	1	State Law of Machine, Reversibility of Machine, Self-Locking Machine.
	02/06/2023	1	Solve Simple problem.
	06/06/2023	1	5.2 Study of simple machines – simple axle & wheel, single purchase crab winch & double purchase crab winch
12TH	07/06/2023	1	Worm & Worm Wheel, Screw Jack.
	08/06/2023	1	5.3 Types of hoisting machine like derricks etc., Their use and working principle.
	09/06/2023	1	**Revision &PYQ**
13TH	13/06/2023	1	**6. DYNAMICS** 6.1 Kinematics & Kinetics, Principles of Dynamics, Newton's Laws of Motion
	21/06/2023	1	Motion of Particle acted upon by a constant force, Equations of motion, De- Alembert's Principle.
14th	22/06/2023	1	6.2 Work, Power, Energy & its Engineering Applications, Kinetic & Potential energy & its application Momentum & impulse, conservation of energy & linear momentum
	23/06/2023		Collision of elastic bodies, and Coefficient of Restitution.
15TH	27/06/2023	1	RevisionPrevious Year Questions Discussion