BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF AUTOMOBILE ENGINEERING

LESSON PLAN

SUBJECT: THEORY OF MACHINE

FACULTY: KULADEEP MOHAPATRA

ACCADEMIC SESSION: 2022-23

SEMESTER: 4th

H O D (Automobile Engg.)

Sr. Lecturer
Automobile Engg. Dep.
BOSE, Cuttack

AUTOMOBILE ENGINEERING DEPATMENT

VISSION:

To develop competent, disciplined imaginative Automobile engineers, equipped with core competency and technical skills useful to the learning / teaching community and the industrial fraternity.

MISSION:

M1: To provide with operational and technical inputs to get innovative and research ideas in the field of automotive engineering.

M2: To give inputs for higher education with management qualities for the betterment of the society.

M3: Skilling with modern engineering tools necessary to meet and solve engineering problems.

PROGRAM EDUCATIONAL OBJECTIVES

PEO1: To provide technical skills to diagnose and apply the concept of automotive system

PEO2: To prepare to design, fabricate and innovate in automobile sector to face the industrial challenges.

PEO3: To inculcate with good communication skills, ethics and entrepreneurship skills to play the key role in automotive industry.

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Discipline :- **Automobile Engg.** Semester :- **4TH** Name of the teaching faculty :- **KULADEEP MOHAPATRA**

Subject Name :- **THEORY OF MACHINE** No. Of Days/Week Class Allotted :- **04 Periods/Week (Monday ,Tuesday , Wednesday , Thursday – 1 Period Each)** Semester from Date :- **14/02/2023** To Date :- **23/05/2023** **No. of Weeks: 15**

Week	Class Day	Theory topics
1st	14.02.2023	Introduction of Theory of machine. **1. Simple mechanism** 1.1 Link, kinematic chain, mechanism, machine
	15.02.2023	1.2 Inversion, four bar link mechanism and its inversion
	16.02.2023	1.2 Inversion of four bar link mechanism
2nd	20.02.2023	1.2 Inversion of four bar link mechanism
	21.02.2023	1.2 Inversion of four bar link mechanism
	22.02.2023	1.3 Lower pair and higher pair
	23.02.2023	1.4 Cam and followers
	27.02.2023	**CLASS TEST**
	28.02.2023	**2. Friction** 2.1 Friction between nut and screw for square thread, screw jack
3rd	01.03.2023	2.1 Friction between nut and screw for square thread, screw jack
	02.03.2023	2.2 Bearing and its classification, Description of roller, needle roller & ball bearings.
4th	06.03.2023	2.3 Torque transmission in flat pivot bearing
	09.03.2023	2.3 Torque transmission in conical pivot bearings
	13.03.2023	2.4 Flat collar bearing of single and multiple types
	14.03.2023	2.5 Torque transmission for single plate clutch
5th	15.03.2023	2.5 Torque transmission for multi plate clutch.
	16.03.2023	2.6 Working of simple frictional brakes.

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		2.7 Working of Absorption type of dynamometer.
	20.03.2023	QUIZ TEST
6th	21.03.2023	**3. Power Transmission** 3.1 Concept of power transmission 3.2 Type of drives, belt, gear and chain drive.
	22.03.2023	3.3 Computation of velocity ratio, length of belts (open & cross) with and without slip.
	23.03.2023	3.4 Ratio of belt tensions, centrifugal tension and initial tension. 3.5 Power transmitted by the belt.
7th	27.03.2023	3.6 Determine belt thickness and width for given permissible stress for open and crossedbelt considering centrifugal tension.
	28.03.2023	3.5 V-belts and V-belts pulleys. 3.6 Concept of crowning of pulleys. 3.9 Gear drives and its terminology.
	29.03.2023	3.10 Gear trains, working principle of simple, compound
8th	03.04.2023	3.10 working principle of reverted and epicyclic gear trains.
	04.04.2023	CLASS TEST/INTERNAL
	05.04.2023	**4. Governors and Flywheel** 4.1 Function of governor 4.2 Classification of governor
	06.04.2023	4.3 Working of Watt governor
9th	10.04.2023	4.3 Working of Porter governor
	11.04.2023	4.3 Working of Proel governor
	12.04.2023	4.3 Working of Hartnell governors.
	13.04.2023	4.4 Conceptual explanation of sensitivity, stability and isochronism. 4.5 Function of flywheel.
	17.04.2023	4.6 Comparison between flywheel & governor.
	18.04.2023	4.7 Fluctuation of energy and coefficient of fluctuation of speed.

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10th	19.04.2023	**QUIZ TEST**
	20.04.2023	**5. Balancing of Machine** 5.1 Concept of static and dynamic balancing.
11th	24.04.2023	5.2 Static balancing of rotating parts.
	25.04.2023	5.3 Principles of balancing of reciprocating parts.
	26.04.2023	5.4 Causes and effect of unbalance.
	27.04.2023	5.5 Difference between static and dynamic balancing.
12th	01.05.2023	**CLASS TEST**
	02.05.2023	**6. Vibration of machine parts** 6.1 Introduction to Vibration and related terms (Amplitude, time period andfrequency, cycle)
	03.05.2023	6.2 Classification of vibration.
	04.05.2023	6.3 Basic concept of natural, forced & damped vibration
13th	08.05.2023	6.3 Basic concept of natural, forced & damped vibration
	09.05.2023	6.4 Torsional and Longitudinal vibration
	10.05.2023	6.5 Causes & remedies of vibration.
	11.05.2023	**MOCK TEST -1**
14th	15.05.2023	**REVISION AND QUESTION DISCUSSION**
	16.05.2023	**MOCK TEST -2**
	17.05.2023	**REVISION AND QUESTION DISCUSSION**
	18.05.2023	**MOCK TEST -3**
15th	22.05.2023	**REVISION AND QUESTION DISCUSSION**
	23.05.2023	**MOCK TEST -1**