UMA CHARAN PATNAIK ENGINEERING SCHOOL, BERHAMPUR

DEPARTMENT OF MECHANICAL ENGINEERING (2024-2025)

LESSONPLAN

Discipline: Mechanical engg.	**Semester: 4th**	**Name of the Teaching faculty: DEBASHISH BISI**
Subject: Theory of Machine (TH-1)	**No of Days /Week class alloted:4**	**No of weeks: 15**
1ST	**1st**	**SimpleMechanism Introduction**
		Link,kinematicchain, mechanism,machine
	2nd	Inversion,fourbarlink mechanismanditsinversion
	3rd	Lower pair and higher pair
		Cam and followers
	4th	Problems
2ND	**1st**	**Friction**
	2nd	Friction between nut and screw forsquarethread, screwjack
		Bearinganditsclassification,
	3rd	Description of roller, needle roller&ballbearings
	4th	Torque transmissionin flat pivot bearings
3RD	**1st**	Torque transmissionin conicalpivot bearings
	2nd	Flat collar bearing of singleand multipletypes.
	3rd	Torque transmission forsingle andmultipleclutches
	4th	Working ofsimple frictional brakes.
4TH	**1st**	Working of Absorptiontype of dynamometer
	2nd	Problems
	3rd	**PowerTransmission**
	4th	Conceptofpowertransmission and Typeofdrives,belt,gear and chain drive.
5TH	**1st**	Computation of velocityratio, length of belts open with and withoutslip.
	2nd	Computation of velocityratio, length of belts cross with and without slip.
	3rd	Ratio of belt tensions,
	4th	Centrifugal tension and initial tension.

6TH	1st	Power transmitted by the belt.
	2nd	Problems
	3rd	Determine belt thickness and width for given permissible stress for openandcrossedbelt consideringcentrifugaltension.
		Problems
	4th	V-beltsandV-belts pulleys.
7TH	1st	Concept of crowning of pulleys
		Gear drives and its terminology
	2nd	Gear trains,
	3rd	Working principle of simple gear trains
		Working principle of compound gear trains
	4th	Working principle of reverted gear trains.
8TH	1st	Working principle of epicyclic gear trains.
	2nd	Problems
	3rd	**GovernorsandFlywheel Introduction**
	4th	Function of governor
9TH	1st	Classification ofgovernor
	2nd	Working of Watt governors
	3rd	Working of Proel governors
	4th	Working of Hartnell governors
10TH	1st	Conceptualexplanationof sensitivity, stability and isochronisms.
	2nd	Functionofflywheel.
	3rd	Comparisonbetween flywheel &governor.
	4th	Fluctuationofenergy and coefficientoffluctuationof speed.
11TH	1st	Problems
	2nd	**Balancing of Machine Introduction**
	3rd	Concept of static and dynamic balancing.
	4th	Static balancing of rotating parts.
12th	1st	Principles of balancing of reciprocating parts.
	2nd	Causes and effect of unbalance.

	3rd	Difference between static and dynamic balancing
	4th	Solvesimpleproblems
13th	1st	**VibrationofMachineParts.** Introduction to Vibration
	2nd	Related terms (Amplitude, time period and frequency,cycle)
	3rd	Classification of vibration.
	4th	Basic concept of natural, forced &damped vibration
14th	1st	Torsional and Longitudinal vibration
	2nd	Causes & remedies of vibration.
	3rd	using Euler's formula (no derivation) in Columns with various end conditions
	4th	Solve simple problems
15th	1st	Doubt clearing class.
	2nd	Doubt clearing class.
	3rd	Previous year question discussion
	4th	Previous year question discussion