UCPES, BERHAMPUR

LESSON PLAN

Session (2023-2024)

Discipline : Mechanical Engineering	**Semester:** 4th	**Name of the Teaching Faculty:** Rama Krishna Sahu,Lecturer St-II(Mech)
Subject: Theory of Machine (Th-1)	No. Of Days/Week: 4	**Start Date**: 16/ 01/2024 **End Date**: 26 /04/ 2024
Week	**Class Day**	**Theory Topics**
1st	1st	Link and types of link, Pair and types of pair, lower pair &higher pair.
	2nd	Joints and types of joints. Relation between link, joint and pair.Degrees of freedom. Kinematic Chain.
	3rd	Mechanism, Machine, Structure, Difference between machine and structure.
	4th	Four bar chain mechanism and its inversion
2nd	1st	Slider crank chain mechanism and its inversion
	2nd	Cam and Follower
	3rd	Review class
	4th	*Assignment Evaluation & Class Test*
3rd	1st	Revision on friction (Force of friction, coefficient of friction, limiting friction, angle of friction, angle of repose, friction onhorizontal plane and inclined plane)
	2nd	Screw Jack: Terminology, Friction between nut and screw forscrew jack. Torque required to raise or lower the load
	3rd	Efficiency of screw jack. Numerical
	4th	Bearing: Function of bearing, Classification, Ball, roller andneedle roller bearing
4th	1st	Torque transmission in flat collar bearing, Simple Problems
	2nd	Torque transmission in flat pivot bearing, Simple Problems
	3rd	Torque transmission in conical pivot bearing, Numerical
	4th	Clutch, Classification, Single and multiple clutch, Working ofsingle plate clutch
5th	1st	Torque transmission in Single and multiple clutch, SimpleProblems
	2nd	Working of simple frictional brakes
	3rd	Working of absorption type dynamometer
	4th	Review class
6th	1st	*Assignment Evaluation & Class Test*
	2nd	Concept of power transmission, types of drives – belt, chain, rope and gear drives.
	3rd	Types of belt drive, Pulley and types of pulley
	4th	Velocity ratio of belt drive, Length of open and crossed beltdrive
7th	1st	Numerical Discussion
	2nd	Ratio of tension, Power transmission in belt, Numerical
	3rd	Initial tension in belt, Centrifugal tension, Determination of belt thickness and width for given permissible stress for openand crossed belt considering centrifugal tension
	4th	Numerical Discussion
8th	1st	V-belt and V-belt pulley, Crowning of pulley, Gear drives and its terminology
	2nd	Working principle of simple, compound gear trains

	3rd	Working principle of reverted and epicyclic gear trains
	4th	Review class
9th	1st	*Assignment Evaluation & Class Test*
	2nd	Function of governor, Classification of governor, Working ofcentrifugal governor
	3rd	Working of Watt and Porter Governor
	4th	Working of Proell and Hartnell governor
10th	1st	Sensitiveness and Stability of governor, isochronous governor
	2nd	Numerical Discussion
	3rd	Flywheel: Function of flywheel, difference between flywheel and governor
	4th	Fluctuation of energy, coefficient of fluctuation of energy, coefficient of fluctuation of speed
11th	1st	Numerical Discussion
	2nd	Review class
	3rd	*Assignment Evaluation & Class Test*
	4th	Concept of static and dynamic balancing
12th	1st	Principle of Balancing of reciprocating masses
	2nd	Static Balancing of rotating masses
	3rd	Static Balancing of rotating masses: Continue
	4th	Causes and effects of unbalance
13th	1st	Numerical Discussion
	2nd	Review class
	3rd	*Assignment Evaluation & Class Test*
	4th	Introduction to vibration and the terms Amplitude, time period,frequency and cycle
14th	1st	Classification of vibration, Concept of natural, forced anddamped vibration
	2nd	Longitudinal and Transverse vibration
	3rd	Torsional Vibration
	4th	Causes and remedies of vibration
15th	1st	Review class
	2nd	*Assignment Evaluation & Class Test*
	3rd	*Discussion on Previous year question paper*
	4th	*Discussion on Previous year question paper*
14th	1st	Classification of vibration, Concept of natural, forced anddamped vibration
	2nd	Longitudinal and Transverse vibration
	3rd	Torsional Vibration
	4th	Causes and remedies of vibration
15th	1st	Review class
	2nd	*Assignment Evaluation & Class Test*
	3rd	*Discussion on Previous year question paper*
	4th	*Discussion on Previous year question paper*

Signature of Concerned Teacher