Orissa School of Mining Engineering Keonjhar

Department of Mechanical Engineering

Lesson Plan w.e.f 10.03.2022-30.06.2022

Subject: Theory of Machines			
Discipline: **Mechanical Engineering**		Name of the Faculty: *Dr .Niharika Mohanta*	
Course Code:	**TH-1**	Semester:	**4RD**
Total Periods:	**60**	Examination:	**2022(SUMMER)**
Theory Periods:	4P/W	Class Test:	20
Maximum Marks:	**100**	End Semester Examination:	80

Week	Class Day	Theory Topics
1st	1st	**Chapter 1: Simple mechanism,** Link, Types, Pair , Types of Pair
	2nd	Kinematic Chain, Types
	3rd	Mechanism, Machine, Structure, Difference
	4th	Four bar mechanism, Grashof's equation
2nd	1st	Inversion, Inversion of Four bar chain mechanism
	2nd	Inversion of Single Slider crank mechanism
	3rd	Inversion of Double Slider crank mechanism
	4th	Cams and Followers
3rd	1st	**Chapter 2 Friction**, Friction on inclined surface
	2nd	Friction between nut and screw of a square thread
	3rd	Friction in screw jack
	4th	Numerical
4th	1st	Bearing and its classification, Description of roller, needle roller& ball bearings.
	2nd	Torque transmission in flat pivot& conical pivot bearings.
	3rd	Flat collar bearing of single and multiple types
	4th	Numericals
5th	1st	Torque transmission for single and multiple clutches
	2nd	Numericals
	3rd	Working of simple frictional brakes
	4th	Working of Absorption type of dynamometer
6th	1st	**Chapter 3 Power Transmission** Concept of power transmission, Type of drives, belt, gear and chain drive.
	2nd	Computation of velocity ratio in belt drive, Length of open belt drive
	3rd	Length of cross belt drive, with and without slip

	4th	Ratio of belt tensions, centrifugal tension and initial tension.
7th	1st	Power transmitted by the belt. Numerical
	2nd	Determination of belt thickness and width for given permissible stress for open and crossed belt considering centrifugal tension.
	3rd	Crowning of pulleys, V-belts and V-belts pulleys.
	4th	Gear drives and its terminology.
8th	1st	Gear drives and its terminology
	2nd	Gear trains, working principle of simple, compound, reverted gear train
	3rd	Epicyclic gear trains, derivation
	4th	Numerical
9th	1st	Chapter 4: **Governors and Flywheel,** Function of governor, Classification of governor
	2nd	Working of Watt Governor, height of governor
	3rd	Numerical
	4th	Working of Porter Governor
10th	1st	Numerical
	2nd	Working of Proel Governor
	3rd	Working of Hartnell Governor
	4th	Sensitivity, Stability and Isochronisms, Hunting of governors
11th	1st	Function of flywheel, Comparison between flywheel &governor.
	2nd	Fluctuation of energy and coefficient of fluctuation of speed
	3rd	Numerical
	4th	Numerical
12th	1st	**Chapter 5: Balancing of Machine,** Concept of static and dynamic balancing.
	2nd	Static balancing of rotating parts
	3rd	Static balancing of rotating parts
	4th	Numericals
13th	1st	Principles of balancing of reciprocating parts.
	2nd	Principles of balancing of reciprocating parts.
	3rd	Causes and effect of unbalance
	4th	Difference between static and dynamic balancing
14th	1st	Chapter 6: **Vibration of machine parts,** Introduction to Vibration and related terms (Amplitude, time period and frequency, cycle)
	2nd	Classification of vibration
	3rd	Basic concept of natural vibration
	4th	Basic concept of Forcrd vibration
15th	1st	Basic concept of Damped vibration
	2nd	Torsional vibration.
	3rd	Longitudinal vibration
	4th	Causes & remedies of vibration