GOVERNMENT POLYTECHNIC, BALASORE
Government of Odisha
ସରକାରୀ ବହୁବୃତ୍ତି ଅନୁଷ୍ଠାନ, ବାଲେଶ୍ୱର

Lesson plan summer - 2023

Discipline : Mechanical engineering.	Semester:4th	Name of the Teaching Faculty :Manoj kumar sahoo
Subject: THEORY OF MACHINES.	No of Days /Per week class allotted	Semester from date 14.02.2023 to ------------ No of week:15
Week	Class day	Theory/Practical topics
1St	1st	**UNIT .1-Simple mechanism** **Link ,kinematic chain, mechanism**
	2nd	Definition of machine describe it?
	3rd	Defination of Inversion &types
	4th	four bar link mechanism and its inversion?
2nd	1st	Single slider crank mechanism &its inversion.
	2nd	Double slider mechanisim its inversion.
	3rd	What is DOF and numericals on its.
	4th	Lower pair and higher pair and types of cam and follower.
3rd	1st	**UNIT 2- FRICTION** **Introduction on it and example .**
	2nd	Type of friction and friction law.
	3rd	Friction between nut and screw for square thread.
	4th	screw jack derive the torque required for lifting the load
4th	1st	Bearing and its classification, Description of roller, needle roller& ball bearings
	2nd	Torque transmission in flat pivot& conical pivot bearings.
	3rd	Numerical on above
	4th	Flat collar bearing of single and multiple types.
5th	1st	Torque transmission for single and multiple clutches
	2nd	Simple problems on above.
	3rd	Working of Absorption type of dynamometer
	4th	Working of simple frictional brakes.

6th	1st	**Unit 3-Power Transmission** Concept of power transmission
	2nd	Type of drives, belt, gear and chain drive.
	3rd	Computation of velocity ratio, length of belts (open and cross) with and without slip.
	4th	Ratio of belt tensions, centrifugal tension and initial tension.
7th	1st	Power transmitted by the belt.
	2nd	Determine belt thickness and width for given permissible stress for open belt.
	3rd	Determine belt thickness and width for given permissible stress for crossedbelt considering centrifugal tension
	4th	V-belts and V-belts pulleys.
8th	1st	Concept of crowning of pulleys
	2nd	Gear drives and its terminology
	3rd	Gear trains, working principle of simple, compound, reverted and epicyclic gear trains.
	4th	Numerical on above
9th	1st	**Unit 4-Governors and Flywheel** Function of governor
	2nd	Classification of governor
	3rd	Working of watt governor and derive the height of governor.
	4th	Working of porter governor and derive the height of governor.
10th	1st	Working of proel governor and derive the height of governor.
	2nd	Working of Hartnell governor and derive the height of governor.
	3rd	Conceptual explanation of sensitivity, stability and isochronisms.
	4th	Numerical on above.
11th	1st	Function of flywheel.
	2nd	Comparison between flywheel &governor.
	3rd	Fluctuation of energy and coefficient of fluctuation of speed.
	4th	Numerical on flywheel.

12th	1st		**Unit 5-Balancing of Machine** Concept of static and dynamic balancing.
	2nd		Static balancing of rotating parts.
	3rd		How to balance with deribation & problem.
	4th		Principles of balancing of reciprocating parts
13th	1st		Simple problem on reciprocating parts.
	2nd		Causes and effect of unbalance.
	3rd		**How to balance rotating parts of a mass.**
	4th		Difference between static and dynamic balancing
14th	1st		**UNIT 6 -Vibration of machine parts** Introduction to Vibration and related terms.
	2nd		Defination Amplitude, time period andfrequency, cycle
	3rd		Classification of vibration.
	4th		Basic concept of natural, forced & damped vibration.
15th	1st		Torsional Vibration.
	2nd		Numerical on it
	3rd		Longitudinal Vibration
	4th		Causes & remedies of vibration.

14/2/23

MANOJ KUMAR SAHOO (PTGF)

MECHANICAL ENGINEERING

Manoj Ku. Sahoo

15/om