ASIAN SCHOOL OF TECHNOLOGY, KHORDHA

Lesson plan

Discipline : Mechanical engineering.	Semester:4th	Name of the Teaching Faculty : GOPABANDHU SWAIN
Subject: THEORY OF MACHINES.	No of Days /Per week class allotted	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.