

UCP Engineering School, Berhampur
LESSON PLAN-4TH SEMESTER (2022-23)

Subject- Theory of Machine (TH-1)

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MONTH	MODULE/UNIT	COURSE TO BE COVERED	CLASSES REQUIRED	REMARKS (IF ANY)
	Module-1	Simple Mechanism	08	
		Link ,kinematic chain, mechanism, machine	1	
		Inversion, four bar link mechanism and its inversion	2	
		Lower pair and higher pair	2	
		Cam and followers	1	
		Problems	2	
	Module-2	Friction	12	
		Friction between nut and screw for square thread, screw jack	1	
		Bearing and its classification, Description of roller, needle roller& ball bearings	1	
		Torque transmission in flat pivot& conical pivot bearings	2	
		Flat collar bearing of single and multiple types.	1	
		Torque transmission for single and multiple clutches	2	
		Working of simple frictional brakes.	1	
		Working of Absorption type of dynamometer	2	
		Problems	2	
	Module-3	Power Transmission	12	
		Concept of power transmission and Type of drives, belt, gear and chain drive.	1	
		Computation of velocity ratio, length of belts (open and cross)with and without slip.	02	
		Ratio of belt tensions, centrifugal tension and initial tension.	1	
		Power transmitted by the belt.	1	
		Determine belt thickness and width for given permissible stress for open and crossed belt considering centrifugal tension.	1	
		V-belts and V-belts pulleys.	1	
		Concept of crowning of pulleys	1	
		Gear drives and its terminology	1	
		Gear trains, working principle of simple, compound, reverted and epicyclic gear trains.	02	
		Problems	1	
	Module-4	Governors and Flywheel	12	

		Function of governor	1	
		Classification of governor	1	
		Working of Watt, Porter, Proel and Hartnell governors	4	
		Conceptual explanation of sensitivity, stability and isochronisms.	1	
		Function of flywheel.	1	
		Comparison between flywheel & governor.	1	
		Fluctuation of energy and coefficient of fluctuation of speed.	1	
		Problems	2	
	Module-5	Balancing of Machine	8	
		Concept of static and dynamic balancing.	1	
		Static balancing of rotating parts.	2	
		Principles of balancing of reciprocating parts.	2	
		Causes and effect of unbalance.	1	
		Difference between static and dynamic balancing	1	
		Solve simple problems	1	
	Module-6	Vibration of Machine Parts	08	
		Introduction to Vibration and related terms (Amplitude, time period and frequency, cycle)	1	
		Classification of vibration.	1	
		Basic concept of natural, forced & damped vibration	1	
		Torsional and Longitudinal vibration	1	
		Causes & remedies of vibration. using Euler's formula (no derivation) in Columns with various end conditions	2	
		Solve simple problems	2	