TH 1- THEORY OF MACHINES

LESSON PL	AN
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SUBJECT CODE : TH-1

NAME OF SUBJECT : THEORY OF MACHINES

BRANCH : MECHANICAL

SEMESTER : Diploma-IV

CREDIT POINTS : 4

NUMBER OF MODULES : 6

CLASSES REQUIRED : 60

Sl.No.	Periods	Actual classes	Course Content
	allotted	taken	
1	8		Module1: Simple mechanism
		2	1.1 Link, kinematic chain, mechanism, machine
		3	1.2 Inversion, four bar link mechanism and its
			inversion
		1	1.3 Lower pair and higher pair
		2	1.4 Cam and follower and its types
2	12		Module 2: Friction
		3	2.1 Friction between nut and screw for square thread,
			screw jack (max efficiency, overhauling, self
			locking screws)
		2	2.2 Bearing and its classification, Description of roller,
			needle roller& ball bearings.
		1	2.3 Torque transmission in flat pivot& conical pivot
			bearings
		2	2.4 Flat collar bearing of single and multiple types
		2	2.5 Torque transmission for single and multiple
			clutches
		2	2.6 Working of simple frictional brakes.
		1	2.7 Working of Absorption type of dynamometer
3	12		Module 3 : Power Transmission
		1	3.1 Concept of power transmission
		1	3.2 Type of drives, belt, gear and chain drive.
		2	3.3 Computation of velocity ratio, length of belts (open
			and cross) with and without slip.
		1	3.4 Ratio of belt tensions, centrifugal tension and initial
			tension.
		1	3.5 Power transmitted by the belt.
		1	3.6 Determine belt thickness and width for given
			permissible stress for open and crossed belt
			considering centrifugal tension.
		1	3.7 V-belts and V-belts pulleys.
		1	3.8 Concept of crowning of pulleys.
		2	3.9 Gear drives and its terminology.
		2	3.10 Gear trains, working principle of simple,
			compound, reverted and epicyclic gear trains.
4	12		Module 4: Governors and flywheel
		1	4.1 Function of governor
		1	4.2 Classification of governor

		3	4.3 Working of Watt, Porter, Proel and Hartnell	
			governors.	
		2	4.4 Conceptual explanation of sensitivity, stability and	
			isochronisms	
		1	4.5 Function of flywheel.	
		1	4.6 Comparison between flywheel &governor.	
		2	4.7 Fluctuation of energy and coefficient of fluctuation	
			of speed (related numericals)	
5	8		Module 5: Balancing of Machine	
		1	5.1 Concept of static and dynamic balancing.	
		1	5.2 Static balancing of rotating parts.	
		2	5.3 Principles of balancing of reciprocating parts.	
		1	5.4 Causes and effect of unbalance.	
		2	5.5 Difference between static and dynamic balancing	
6	8		Module 6: Vibration of machine parts	
		2	6.1 Introduction to Vibration and related terms	
			(Amplitude, time period and frequency, cycle)	
		2	6.2 Classification of vibration.	
		2	6.3 Basic concept of natural, forced & damped	
			vibration	
		1	6.4 Torsional and Longitudinal vibration	
		1	6.5 Causes & remedies of vibration	

REFERENCES

- 1. Text Book of Theory of Machine by R.S Khurmi (S.Chand)
- 2. Text Book of Theory of Machine by R.K. Rajput (S.Chand)
- 3. Text Book of Theory of Machine by P.L.Ballany (Dhanpat Rai)
- 4. Text Book of Theory of Machine by Thomas Bevan (Pearson)