

Government Polytechnic, Tikarpada || Lesson Plan

Government Polytechnic, Tikarpada Lesson Plan			
Discipline : MECHANICAL ENGG.		Semester: 4th Sem	Name of the Teaching Faculty : Anup Kumar Panda
Subject : THEORY OF MACHINES & MECHANISM		No. of Days / per week class allotted : 03	Semester From date : 22.12.2025 To Date : 18.04.2026
MONTH	Week	Day	Topics
DECEMBER	4th	3RD	Link ,kinematic pair and types (Lower pair and higher pair)
		5TH	kinematic chain, mechanism
		5TH	Inversion, four bar link mechanism and its inversion
JANUARY	5TH	3RD	Concept; Definition and application of Cams and Followers
		5TH	Classification of Cams and Followers
	1ST	5TH	Different follower motions and their displacement diagrams like uniform velocity
		2nd	3RD
	5TH		Types of Drives – Belt, Chain, Rope, Gear drives & their comparison
	5TH		Belt Drives - flat belt, V– belt & its applications
	3rd	5TH	Material for flat and V-belt; Angle of lap, Belt length
		5TH	Slip and Creep; Determination of Velocity Ratio, Ratio of tight side and slack side tension
	4TH	3RD	Centrifugal tension and Initial tension; Condition for maximum power transmission (Simple numerical)
	5TH	3RD	Chain Drives – Advantages & Disadvantages; Selection of Chain & Sprocket wheels
		5TH	Methods of lubrication; Gear Drives – Spur gear terminology
		5TH	Types of gears and gear trains, their selection for different applications
FEBRUARY	1ST	3RD	Train value & Velocity ratio for compound, reverted and simple epicyclic gear train
		5TH	Methods of lubrication; Law of gearing; Rope Drives – Types
		5TH	applications, advantages & limitations of Steel ropes.
	2ND	3RD	Flywheel - Concept, function and application of flywheel with the help of turning moment diagram for single cylinder 4-Stroke I.C. Engine (no Numerical)
		5TH	Coefficient of fluctuation of energy, Coefficient of fluctuation of speed and its significance
		5TH	CLASS TEST -1
	3RD	3RD	Governors - Types and explanation with neat sketches (Centrifugal, Watt and Porter),Simple numerical on Watt and Porter Governor. Comparison between Flywheel and Governor
		5TH	Concept, function and applications & Terminology of Governors (sensitivity, stability and isochronisms
		5TH	INTERNAL ASSESSMENT 1
	4TH	3RD	Function of brakes and dynamometers; Types of brakes and Dynamometers
		5TH	Comparison between brakes and dynamometers; Construction and working of i) shoe brake, ii) Band Brake
		5TH	Numerical problems to find braking force and braking torque for shoe & band brakes
1ST	5TH	5TH	Concept of Self Locking & Self energizing brakes Construction and working of i) Rope Brake Dynamometer, ii) Hydraulic Dynamometer

MARCH		5TH	Clutches- Uniform pressure and Uniform Wear theories; Function of Clutch and its application
	2ND	3RD	Construction and working of i) Single plate clutch, ii) Multiplate clutch,
		5TH	iii) Centrifugal Clutch iv) Cone clutch and v) Diaphragm clutch
		5TH	(Simple numerical on single and Multiplate clutch)
	3RD	3RD	Bearings – i) Simple Pivot, ii) Collar Bearing, iii) Conical pivot
		5TH	Torque & power lost in friction (no derivation). Simple numerical.
		5TH	Concept of balancing; Balancing of single rotating mass
4TH	3RD	Graphical method for balancing of several masses revolving in same plane;	
APRIL	2ND	3RD	Concept and terminology used in vibrations
		5TH	INTERNAL ASSESSMENT 2
		5TH	Causes of vibrations in machines; their harmful effects and remedies
	3RD	3RD	REVISION OF CHAPTER- 01
		5th	REVISION OF CHAPTER- 01
		5TH	CLASS TEST -2

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