C. V. RAMAN POLYTECHNIC, BHUBANESWAR

LESSON PLAN

Session (2025-2026)

Discipline: Mechanical Engineering	**Semester:** 4th Semester, Summer-2026	**Name of the Faculty:** Dr. Soumya Dash, Assistant Professor **Email ID:** soumya.dash@cvrp.edu.in
Subject: Theory of Machines & Mechanism, Theory-1, Course code: MEPC202	**No. of Days/week:** 03	**Start Date:** 22.12.2025 **End Date:** 18.04.2026

Week	Class Day	Theory Topics
1st	1st	Simple mechanism: Link, kinematic pair and types (Lower pair and higher pair), kinematic chain, mechanism
	2nd	Inversion, four bar link mechanism and its inversion
	3rd	Cams and Followers: Concept; Definition and application of Cams and Followers
2nd	1st	Classification of Cams and Followers
	2nd	Different follower motions and their displacement diagrams like uniform velocity, SHM, uniform acceleration and Retardation
	3rd	Different follower motions and their displacement diagrams like uniform velocity, SHM, uniform acceleration and Retardation
3rd	1st	Different follower motions and their displacement diagrams like uniform velocity, SHM, uniform acceleration and Retardation
	2nd	**Power Transmission:** Types of Drives – Belt, Chain, Rope, Gear drives & their comparison
	3rd	Belt Drives - flat belt, V– belt & its applications
4th	1st	Material for flat and V-belt; Angle of lap, Belt length. Slip and creep
	2nd	Determination of Velocity Ratio, Ratio of tight side and slack side tension
	3rd	Centrifugal tension and Initial tension; Condition for maximum power transmission (Simple numerical)
5th	1st	Chain Drives – Advantages & Disadvantages, Selection of Chain & Sprocket wheels; Methods of lubrication
	2nd	ear Drives – Spur gear terminology; Types of gears and gear trains, their selection for different applications

	3rd	Train value & Velocity ratio for compound, reverted and simple epicyclic gear train
6th	1st	Methods of lubrication; Law of gearing;
	2nd	Rope Drives – Types, applications, advantages & limitations of Steel ropes
	3rd	**REVISION**
7th	1st	**Flywheel and Governors:** Flywheel - Concept, function and application of flywheel with the help of turning moment diagram for single cylinder 4-Stroke I.C. Engine (no Numerical)
	2nd	Flywheel - Concept, function and application of flywheel with the help of turning moment diagram for single cylinder 4-Stroke I.C. Engine (no Numerical)
	3rd	Coefficient of fluctuation of energy, Coefficient of fluctuation of speed and its significance
8th	1st	Governors - Types and explanation with neat sketches (Centrifugal, Watt and Porter)
	2nd	Governors - Types and explanation with neat sketches (Centrifugal, Watt and Porter)
	3rd	Concept, function and applications & Terminology of Governors (sensitivity, stability and isochronism)
9th	1st	Concept, function and applications & Terminology of Governors (sensitivity, stability and isochronisms)
	2nd	Simple numericals on Watt and Porter Governor
	3rd	Comparison between Flywheel and Governor
10th	1st	Simple numericals on Watt and Porter Governor. Comparison between Flywheel and Governor
	2nd	**Brakes, Dynamometers, Clutches & Bearings:**
	3rd	Function of brakes and dynamometers; Types of brakes and Dynamometers, Comparison between brakes and dynamometers
11th	1st	Construction and working of i) shoe brake, ii) Band Brake, Numerical problems to find braking force and braking torque for shoe & band brakes
	2nd	Construction and working of i) shoe brake, ii) Band Brake, Numerical problems to find braking force and braking torque for shoe & band brakes
	3rd	Concept of Self Locking & Self energizing brakes
12th	1st	Construction and working of i) Rope Brake Dynamometer, ii) Hydraulic DynamometerClutches- Uniform pressure and Uniform Wear theories
	2nd	Construction and working of i) Rope Brake Dynamometer, ii) Hydraulic Dynamometer Clutches- Uniform pressure and Uniform Wear theories
	3rd	Function of Clutch and its application; Construction and working of i) Single plate clutch, ii) Multiplate clutch,

		iii) Centrifugal Clutch iv) Cone clutch and v) Diaphragm clutch. (Simple numericals on single and Multiplate clutch)
13th	1st	Function of Clutch and its application; Construction and working of i) Single plate clutch, ii) Multiplate clutch, iii) Centrifugal Clutch iv) Cone clutch and v) Diaphragm clutch. (Simple numericals on single and Multiplate clutch)
	2nd	Bearings – i) Simple Pivot, ii) Collar Bearing, iii) Conical pivot. Torque & power lost in friction (no derivation). Simple numericals.
	3rd	**Balancing & Vibrations:** Concept of balancing
14th	1st	Balancing of single rotating mass;
	2nd	Graphical method for balancing of several masses revolving in same plane;
	3rd	Graphical method for balancing of several masses revolving in same plane;
15th	1st	Concept and terminology used in vibrations, Causes of vibrations in machines; their harmful effects and remedies.
	2nd	Concept and terminology used in vibrations, Causes of vibrations in machines; their harmful effects and remedies.
	3rd	**REVISION**

Concerned Faculty

HOD