

LESSON PLAN

SUB: TOM

BRANCH:- MECHANICAL ENGG.

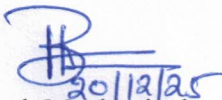
SEMESTER: 4TH

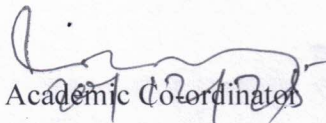
NAME OF FACULTY: SABYASACHI JAGANNATH MISHRA

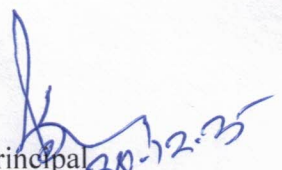


**GOVERNMENT POLYTECHNIC,
BHADRAK**

SESSION:2025-26


Hod ,Mechanical


Academic Co-ordinator


Principal
Govt. Polytechnic, Bhadrak

ACADEMIC LESSON PLAN FOR THEORY OF MACHINES & MACHANISM(TH-1)

Discipline: MECHANICAL E NGG.	Semester: 4TH	Name of the Teaching Faculty: SABYASACHI JAGANNATH MISHRA
Subject: THEORY OF MACHINES & MECHANISM	No. of days/per week class allotted: 03	Semester From date: 22/12/2025 To Date: 18/04/2026
		No. of Weeks: 15
Week	Class Day	Theory Topics
1ST	1ST	Simple mechanism: Link, kinematic pair and types (Lower pair and higher pair)
	2ND	Kinematic chain, mechanism, Inversion,
	3RD	Four bar link mechanism and its inversion.
2ND	1ST	Cams and Followers: Concept; Definition and application of Cams and Followers; 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	Revision & Question discussion.
	2ND	Power Transmission: Types of Drives – Belt, Chain, Rope, Gear drives & their comparison; Belt Drives - flat belt, V-belt & its applications;
	3RD	Material for flat and V-belt; Angle of lap, Belt length. Slip and Creep;
4TH	1ST	Determination of Velocity Ratio, Ratio of tight side and slack side tension;
	2ND	Centrifugal tension and Initial tension; Condition for maximum power transmission (Simple numericals);
	3RD	Chain Drives – Advantages & Disadvantages; Selection of Chain & Sprocket wheels;
5TH	1ST	Methods of lubrication; Gear Drives – Spur gear terminology;
	2ND	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	Train value & Velocity ratio for compound, reverted and simple epicyclic gear train;
	2ND	Methods of lubrication; Law of gearing; Rope Drives – Types, applications, advantages & limitations of Steel ropes.
	3RD	Revision & Question discussion.
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.

7 TH	2 ND	Concept, function and application of flywheel with the help of turning moment diagram for single cylinder 4-Stroke I.C. Engine.
	3 RD	Coefficient of fluctuation of energy, Coefficient of fluctuation of speed and its significance;
8 TH	1 ST	Governors - Types and explanation with neat sketches (Centrifugal, Watt and Porter)
	2 ND	Governors - Types and explanation with neat sketches (Centrifugal, Watt and Porter)
	3 RD	Concept, function and applications & Terminology of Governors (sensitivity, stability and isochronisms);
9 TH	1 ST	Concept, function and applications & Terminology of Governors (sensitivity, stability and isochronisms);
	2 ND	Simple numericals on Watt and Porter Governor.
	3 RD	Simple numericals on Watt and Porter Governor.
10 TH	1 ST	Comparison between Flywheel and Governor.
	2 ND	Brakes, Dynamometers, Clutches & Bearings: Function of brakes and dynamometers; Types of brakes and Dynamometers; Comparison between brakes and dynamometers;
	3 RD	Construction and working of i) shoe brake, ii) Band Brake,
11 TH	1 ST	Numerical problems to find braking force and braking torque for shoe & band brakes;
	2 ND	Concept of Self Locking & Self energizing brakes
	3 RD	Construction and working of i) Rope Brake Dynamometer, ii) Hydraulic Dynamometer
12 TH	1 ST	Clutches- Uniform pressure and Uniform Wear theories; Function of Clutch and its application;
	2 ND	Construction and working of i) Single plate clutch, ii) Multiplate clutch iii) Centrifugal Clutch iv) Cone clutch and v) Diaphragm clutch.
	3 RD	(Simple numericals on single and Multiplate clutch)
13 TH	1 ST	Bearings – i) Simple Pivot, ii) Collar Bearing, iii) Conical pivot. Torque & power lost in friction
	2 ND	Simple numericals.
	3 RD	Concept of balancing; Balancing of single rotating mass;
14 TH	1 ST	Graphical method for balancing of several masses revolving in same plane;
	2 ND	Concept and terminology used in vibrations.
	3 RD	Concept and terminology used in vibrations.
15 TH	1 ST	Causes of vibrations in machines; their harmful effects and remedies.

15 TH	2 ND	Causes of vibrations in machines; their harmful effects and remedies.
	3 RD	Revision & question discussion.

REFERENCES: 1. Theory of machines – S.S .Rattan ,Tata McGraw-Hill publications.

2. Theory of machines – R.K.Bansal ,Laxmi publications

3. Theory of machines – R.S. Khurmi & J.K.Gupta , S.Chand publications.

4. Dynamics of Machines – J B K Das, Sapna Publications.

5. Theory of machines – Jagdishlal, Bombay Metro – Politan book Ltd.

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