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GOVERNENT POLYTECHNIC ,DHENKANAL,

LESSON PLAN: THEORY OF MACHINES

4TH SEMESTER (2024- 2025)

Discipline: **Mechanical Engineering**	Semester: **4th**	Name of the Teaching Faculty: **PRADEEP KUMAR JENA**
Subject: **TOM**	No. of Days/ per week class allotted: **04**	Semester From Date: **04/02/2025** To Date: **17/05/2025** No of weeks: **14**
Week	**Class day**	**Theory / Practical Topics**
1ST	**1ST**	**SIMPLEMECHANISM:** Link, Kinematic chain, mechanism, machine
	2ND	Inversion, four bar link mechanism and its inversion
	3RD	Lower pair and higher pair
	4TH	Lower pair and higher pair
2ND	**1ST**	Cam and followers
	2ND	Cam and followers
	3RD	**FRICTION:** Friction between nut and screw for square thread, screw jack
	4TH	Bearing and its classification ,Description of roller, needle roller & ball bearings
3RD	**1ST**	Bearinganditsclassification,Descriptionofroller,needleroller&ball bearings
	2ND	Torque transmission in flat pivot & conical pivot bearings.
	3RD	Torque transmission in flat pivot & conical pivot bearings.
	4TH	Flat collar bearing of single and multiple types
4TH	**1ST**	Torque transmission for single and multiple clutches
	2ND	Working of simple frictional brakes.
	3RD	Working of simple frictional brakes.
	4TH	Working of Absorption type of dynamometer
5TH	**1ST**	**POWERTRANSMISSION:** Concept of power transmission
	2ND	Type of drives,belt,gear and chain drive.
	3RD	Computation of velocity ratio,length of belts (open and cross) with and without slip.
	4TH	Ratio of belt tensions,centrifugal tension and initial tension

6TH	1ST	Power transmitted by the belt.
	2ND	Determine belt thickness and width for given permissible stress for open and crossed belt considering centrifugal tension.
	3RD	Determine belt thickness and width for given permissible stress for open and crossed belt considering centrifugal tension.
	4TH	V-belts and V-belts pulleys
7TH	1ST	Concept of crowning of pulleys.
	2ND	Gear drives and its terminology.
	3RD	Gear trains,working principle of simple,compound,reverted and epicyclic gear trains.
	4TH	**GOVERNORS AND FLYWHEEL:** Function of governor
8TH	1ST	Classification of governor
	2ND	Working of Watt,Porter,Proel and Hartnell governors.
	3RD	Working of Watt,Porter,Proel and Hartnell governors.
	4TH	Conceptual explanation of sensitivity,stability and isochronisms.
9TH	1ST	Conceptual explanation of sensitivity,stability and isochronisms.
	2ND	Function of flywheel.
	3RD	Function of flywheel.
	4TH	Comparison between flywheel & governor.
10TH	1ST	Fluctuation of energy and coefficient of fluctuation of speed.
	2ND	**BALANCING OF MACHINE:** Concept of static and dynamic balancing
	3RD	Concept of static and dynamic balancing
	4TH	Static balancing of rotating parts.
11TH	1ST	Principles of balancing of reciprocating parts.
	2ND	Causes and effect of unbalance.
	3RD	Difference between static and dynamic balancing
	4TH	Difference between static and dynamic balancing
12TH	1ST	**Discussion and Revision**
	2ND	**VIBRATION OF MACHINE PARTS:** Introduction to Vibration and related terms (Amplitude,time period and frequency,cycle)
	3RD	Introduction to Vibration and related terms (Amplitude,time period and frequency,cycle)
	4TH	Classification of vibration.

13TH	1ST	Classification of vibration.
	2ND	Basic concept of natural, forced & damped vibration
	3RD	Basic concept of natural, forced & damped vibration
	4TH	Torsional and Longitudinal vibration.
14TH	1ST	Causes & remedies of vibration.
	2ND	Causes & remedies of vibration.
	3RD	**Revision**
	4TH	**Revision**

Signature of Faculty Concerned

Signature of H.O.D