

GOVT. POLYTECHNIC, NAYAGARH
LESSON PLAN
4th SEMESTER MECHANICAL ENGINEERING (2022-23)

(w.e.f 14/02/2023)

SUBJECT-THEORY OF MACHINE (TH-1)
BRANCH-MECHANICAL ENGINEERING.
NAME- RAMIYA RASHMI ROUT, Lecturer(PTGF)

TOTAL PERIODS-60
THEORY-4P/WEEK

Sl No.	week	Day	Topics to be covered
1	1st	1st day	Simple mechanism.
		2nd day	Link ,kinematic chain.
		3rd day	mechanism and machine.
		4th day	Degree of freedom, Grashof's law, Grubler's law.
2	2nd	1st day	Inversion, four bar link mechanism and its inversion.
		2nd day	Single slider crank chain mechanism.
		3rd day	Double slider crank chain mechanism.
		4th day	Lower pair and higher pair. Cam and followers
3	3rd	1st day	Friction between nut and screw for square thread, screw jack.
		2nd day	Bearing and its classification, Description of roller bearing.
		3rd day	Description of needle roller and ball bearing.
		4th day	Torque transmission in flat pivot bearing.
4	4th	1st day	Torque transmission in conical pivot bearing.
		2nd day	Flat collar bearing of single and multiple types.
		3rd day	Torque transmission for single clutch.
		4th day	Torque transmission for multiple clutches.
5	5th	1st day	Working of simple frictional brakes.
		2nd day	Working principle of shoe and drum brakes.
		3rd day	Types of dynamometer.
		4th day	Working of Absorption type of dynamometer.
6	6th	1st day	Concept of power transmission.

		2nd day	Type of drives, belt, gear and chain drive.
		3rd day	Computation of velocity ratio, length of belts (open and cross) with and without slip.
		4th day	Ratio of belt tensions, centrifugal tension and initial tension.
7	7th	1st day	Power transmitted by the belt.
		2nd day	Determine belt thickness and width for given permissible stress for open and crossed belt considering centrifugal tension.
		3rd day	V-belts and V-belts pulleys.
		4th day	Concept of crowning of pulleys.
8	8th	1st day	Gear drives and its terminology.
		2nd day	Gear trains, working principle of simple gear train.
		3rd day	working principle of compound gear train.
		4th day	working principle of reverted and epicyclic gear trains.
9	9th	1st day	Function of governor.
		2nd day	Classification of governor.
		3rd day	Working of Watt governor.
		4th day	Working of Porter governor.
10	10th	1st day	Working of Proel governor.
		2nd day	Working of Hartnell governor.
		3rd day	Conceptual explanation of sensitivity, stability and isochronisms.
		4th day	Function of flywheel.
11	11th	1st day	Construction and working of flywheel.
		2nd day	Comparison between flywheel & governor.
		3rd day	Concept of Fluctuation of energy.
		4th day	coefficient of fluctuation of speed.
12	12th	1st day	Need of balancing of machine parts.
		2nd day	Concept of static and dynamic balancing.
		3rd day	Static balancing of rotating parts.
		4th day	Dynamic balancing of rotating parts.

13	13th	1st day	Principles of balancing of reciprocating parts.
		2nd day	Causes of unbalance.
		3rd day	Effect of unbalance.
		4th day	Difference between static and dynamic balancing.
14	14th	1st day	Vibration of machine parts. Causes and effects.
		2nd day	Introduction to Vibration and related terms (Amplitude, time period and frequency, cycle)
		3rd day	Classification of vibration.
		4th day	Longitudinal and transverse vibration.
15	15th	1st day	Basic concept of natural vibration.
		2nd day	forced & damped vibration.
		3rd day	Torsional and Longitudinal vibration.
		4th day	Causes & remedies of vibration.

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 Dt - 13/02/2023