



NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY
SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)



LESSON PLAN

SUBJECT : Th-1 (THEORY OF MACHINE)

Name Of The Faculty :- Er. Nihar Ranjan Sahoo

Branch :- Automobile Engineering

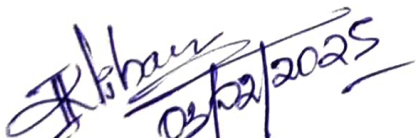
Session :- 2024-25

Semester :- 4th

Examination :- 2025 (S)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	Simple Mechanism	8	9
2	Friction	12	14
3	Power Transmission	12	14
4	Governors and Flywheel	12	14
5	Balancing of Machine	8	10
6	Vibration of machine parts	8	10
	Total Period:	60	71


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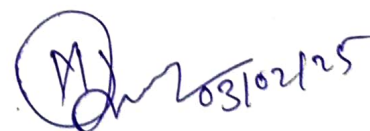

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Discipline: AUTOMOBILE ENGINEERING	Semester: 4th	Name of the Teaching Faculty: Er. Nihar Ranjan Sahoo	
		SESSION : 2024-25	EXAMINATION : 2025 (S)
Week	Class Day	Topics to be Covered	
1 st	1 st	Introduction to THEORY OF MACHINE.	
	2 nd	1.0 Simple mechanism	
	3 rd	1.1 Link, kinematic chain, mechanism, machine	
	4 th	1.2 Inversion, four bar link mechanism and its inversion	
	5 th	1.2 Inversion, four bar link mechanism and its inversion	
2 nd	1 st	1.2 Inversion, four bar link mechanism and its inversion	
	2 nd	1.2 Inversion, four bar link mechanism and its inversion	
	3 rd	1.2 Inversion, four bar link mechanism and its inversion	
	4 th	1.3 Lower pair and higher pair	
	5 th	1.4 Cam and followers	
3 rd	1 st	2.0 Friction	
	2 nd	2.1 Friction between nut and screw for square thread, screw jack	
	3 rd	2.2 Bearing and its classification, Description of roller, needle roller & ball bearings.	
	4 th	2.2 Bearing and its classification, Description of roller, needle roller & ball bearings.	
	5 th	2.3 Torque transmission in flat pivot & conical pivot bearings.	
4 th	1 st	2.3 Torque transmission in flat pivot & conical pivot bearings.	
	2 nd	2.3 Torque transmission in flat pivot & conical pivot bearings.	
	3 rd	2.4 Flat collar bearing of single and multiple types.	
	4 th	2.4 Flat collar bearing of single and multiple types.	
	5 th	2.5 Torque transmission for single and multiple clutches	
5 th	1 st	2.5 Torque transmission for single and multiple clutches	
	2 nd	2.5 Torque transmission for single and multiple clutches	
	3 rd	2.6 Working of simple frictional brakes.	
	4 th	2.7 Working of Absorption type of dynamometer	
	5 th	3.0 Power Transmission	
		3.1 Concept of power transmission	

Week	Class Day	Topics to be Covered
6 th	1 st	3.2 Type of drives, belt, gear and chain drive.
	2 nd	3.3 Computation of velocity ratio, length of belts (open&cross) with and without slip.
	3 rd	3.3 Computation of velocity ratio, length of belts (open&cross) with and without slip.
	4 th	3.4 Ratio of belt tensions, centrifugal tension and initial tension.
	5 th	3.5 Power transmitted by the belt.
7 th	1 st	3.6 Determine belt thickness and width for given permissible stress for open and crossed belt considering centrifugal tension
	2 nd	3.7 V-belts and V-belts pulleys.
	3 rd	3.8 Concept of crowning of pulleys.
	4 th	3.9 Gear drives and its terminology.
	5 th	3.10 Gear trains, Working principle of simple, compound, reverted and epicyclic gear trains.
8 th	1 st	3.10 Gear trains, Working principle of simple, compound, reverted and epicyclic gear trains.
	2 nd	3.10 Gear trains, Working principle of simple, compound, reverted and epicyclic gear trains.
	3 rd	3.10 Gear trains, Working principle of simple, compound, reverted and epicyclic gear trains.
	4 th	4.0 Governors and Flywheel 4.1 Function of governor
	5 th	4.2 Classification of governor
9 th	1 st	4.3 Working of Watt, Porter, Proel and Hartnel I governors.
	2 nd	4.3 Working of Watt, Porter, Proel and Hartnel I governors.
	3 rd	4.3 Working of Watt, Porter, Proel and Hartnel I governors.
	4 th	4.3 Working of Watt, Porter, Proel and Hartnel I governors.
	5 th	4.3 Working of Watt, Porter, Proel and Hartnel I governors.
10 th	1 st	4.3 Working of Watt, Porter, Proel and Hartnel I governors.
	2 nd	4.4 Conceptual explanation of sensitivity, stability and isochronism
	3 rd	4.4 Conceptual explanation of sensitivity, stability and isochronism
	4 th	4.5 Function of flywheel.
	5 th	4.6 Comparison between flywheel & governor.
11 th	1 st	4.7 Fluctuation of energy and coefficient of fluctuation of speed.
	2 nd	4.7 Fluctuation of energy and coefficient of fluctuation of speed.

Week	Class Day	Topics to be Covered
11 th	3 rd	INTERNAL ASSESMENT.
	4 th	INTERNAL ASSESMENT.
	5 th	5.0 Balancing of Machine 5.1 Concept of static and dynamic balancing.
12 th	1 st	5.2 Static balancing of rotating parts.
	2 nd	5.2 Static balancing of rotating parts.
	3 rd	5.2 Static balancing of rotating parts.
	4 th	5.3 Principles of balancing of reciprocating parts.
	5 th	5.3 Principles of balancing of reciprocating parts.
13 th	1 st	5.3 Principles of balancing of reciprocating parts.
	2 nd	5.4 Causes and effect of unbalance.
	3 rd	5.4 Causes and effect of unbalance.
	4 th	5.5 Difference between static and dynamic balancing
	5 th	6.0 Vibration of machine parts 6.1 Introduction to Vibration and related terms (Amplitude, time period and
14 th	1 st	6.2 Classification of vibration.
	2 nd	6.2 Classification of vibration.
	3 rd	6.3 Basic concept of natural, forced & damped vibration
	4 th	6.3 Basic concept of natural, forced & damped vibration
	5 th	6.3 Basic concept of natural, forced & damped vibration
15 th	1 st	6.4 Torsional and Longitudinal vibration.
	2 nd	6.4 Torsional and Longitudinal vibration.
	3 rd	6.4 Torsional and Longitudinal vibration.
	4 th	6.5 Causes & remedies of vibration.
	5 th	REVISION


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