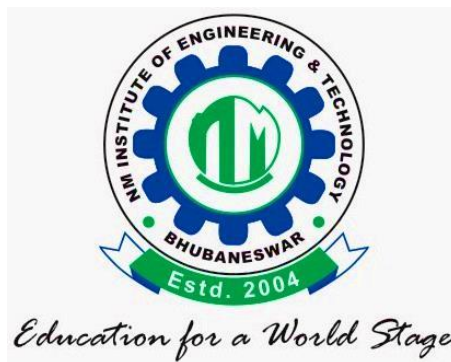


**NM INSTITUTE OF ENGINEERING & TECHNOLOGY  
BHUBANESWAR**

**Mechanical Engineering Department**



**LESSON PLAN  
Session 2022-2023**

Semester: 4<sup>TH</sup>

Subject: THEORY OF MACHINES

Faculty Name: JITENDRA PADHI

Subject: TOM

No of Days/per week class allotted: 4

Semester from date: 14/02/2023 to date: 23/05/2023

No. of Weeks: 15

Week	Class Day	Theory topics
1	1	Introduction to machine & Simple mechanism.
	2	Kinematic links & types, kinematic pair & types.
	3	kinematic chain & its types, Types of joints in a chain
	4	Mechanism, Kutzbach criterion for plane mechanism
2	1	Inversion, four bar link mechanism and its inversion
	2	Mechanism of Lower pair and higher pair
	3	Cam and followers , Types of Follower
	4	Previous year questions discussion.
3	1	Introduction to friction & types of friction.
	2	Laws of friction, angle of friction, angle of repose, coefficient of friction.
	3	Screw friction & Describe helix, Pitch, Lead.
	4	Friction in screw jack between nut & screw.
4	1	Friction between nut and screw for square thread, screw jack
	2	Bearing and its classification.
	3	Description of roller, needle roller& ball bearings.
	4	Torque transmission in flat pivot& conical pivot bearings
5	1	Flat collar bearing of single and multiple types.
	2	Torque transmission for single and multiple clutches
	3	Working of simple frictional brakes
	4	Working of Absorption type of dynamometer
6	1	Introduction to Concept of power transmission by belt, gear & chain drives.
	2	Type of drives, belt, gear and chain drive.
	3	Computation of velocity ratio, length of belts (open and cross)with and without slip.
	4	Ratio of belt tensions, centrifugal tension and initial tension
7	1	Power transmitted by the belt.
	2	Solving previous semester questions and MCQ discussion.
	3	Determine belt thickness and width for given permissible stress for open belt considering centrifugal tension.
	4	Determine belt thickness and width for given permissible stress for crossed belt considering centrifugal tension.

  
Signature of Faculty

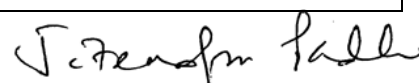
Subject: FM

No of Days/per week class allotted: 4

Semester from date: 14/02/2023 to date: 23/05/2023

No. of Weeks: 15

Week	Class Day	Theory topics
8	1	V-belts and V-belts pulleys.
	2	Concept of crowning of pulleys
	3	Gear drives and its terminology.
	4	Gear trains, working principle of simple, compound, reverted and epicyclic gear trains.
9	1	Introduction to function of Centrifugal Governor.
	2	Classification of governor, Terms in Governor.
	3	Working principle of Watt governor, derive "h".
	4	Working principle of Porter governor, derive "H"
10	1	Working principle of Hartnell governors, derive "N"
	2	Working principle of Proel governor, derive "h".
	3	Conceptual explanation of sensitivity, stability of Governors.
	4	Conceptual explanation of isochronism, isochronous Governor & Hunting.
11	1	Solving previous semester questions and MCQ discussion.
	2	Function of flywheel & comparison with Governor.
	3	Fluctuation of energy and coefficient of fluctuation of speed
	4	Solving numerical questions and MCQ discussion related to flywheel.
12	1	Introduction to Concept of static and dynamic balancing.
	2	Static balancing of rotating parts & types.
	3	Balancing of several masses rotating in same plane.
	4	Balancing of several masses rotating in different planes.
13	1	Principles of balancing of reciprocating parts.
	2	Primary & secondary unbalanced forces of reciprocating masses.
	3	Causes and effect of unbalancing.
	4	Difference between static and dynamic balancing.
14	1	Introduction to Vibration of machine parts.
	2	Introduction to Vibration and related terms (Amplitude, time period and frequency, cycle)
	3	Classification of vibration
	4	Discuss basic concept of natural, forced & damped vibration
15	1	Longitudinal and Transverse Vibrations.
	2	Logarithmic Decrement, Damping factor, whirling of shaft.
	3	Causes & remedies of vibration
	4	Solving previous semester questions and MCQ discussion.



Signature of Faculty