

**ORISSA SCHOOL OF MINING ENGINEERING, KEONJHAR**  
**DEPARTMENT OF MECHANICAL ENGINEERING**

LESSON PLAN

Discipline <b>Mechanical</b>	Semester: 4th	Name of the Teaching Faculty: Dr. NIHARIKA MAHANTA
Subject <b>THEORY OF MACHINES &amp;</b>	No. of days/week class allotted 4	Semester From date: 22.12.2025 To date: 18.04.2026 No. of Week: 15
<b>Course Outcomes</b>	1. Identify various links in popular mechanisms. 2. Select suitable mechanism for various applications 3. Analyze the motion of cams and followers. 4. Select relevant belts, chains and drives for different applications. 5. Select relevant brakes and clutches for various applications.	
<b>Week</b>	<b>Class Day</b>	<b>Theory/Practical Topics</b>
1st	1st	Measure the ratio of time of cutting stroke to the return stroke in shaping machine available in institute's workshop by varying the stroke length.
	2nd	Measure the ratio of time of cutting stroke to the return stroke in shaping machine available in institute's workshop by varying the stroke length.
2nd	1st	Estimate important kinematic data related to following mechanisms and sketch them (any one) a. Bicycle free wheel sprocket mechanism b. Geneva mechanism c. Ackerman's steering gear mechanism d. Foot operated air pump mechanism
	2nd	Estimate important kinematic data related to following mechanisms and sketch them (any one) a. Bicycle free wheel sprocket mechanism b. Geneva mechanism c. Ackerman's steering gear mechanism d. Foot operated air pump mechanism
3rd	1st	Study of construction and working principle of Eddy current Dynamometers
	2nd	Study of construction and working principle of Eddy current Dynamometers
4th	1st	Determine velocity and acceleration of various links of the given mechanism (any two) by relative velocity method for analysis of motion of links size drawing sheet
	2nd	Determine velocity and acceleration of various links of the given mechanism (any two) by relative velocity method for analysis of motion of links size drawing sheet
5th	1st	Determine velocity and acceleration of various links of the given mechanism (any two) by relative velocity method for analysis of motion of links size drawing sheet
	2nd	Determine velocity and acceleration in an I. C. engine's slider crank mechanism by Kleins's construction
6th	1st	Determine velocity and acceleration in an I. C. engine's slider crank mechanism by Kleins's construction
	2nd	Determine velocity and acceleration in an I. C. engine's slider crank mechanism by Kleins's construction
7th	1st	Drawing of profile of radial cam with knife-edge and roller follower with offset reciprocating motion (graphical method)
	2nd	Drawing of profile of radial cam with knife-edge and roller follower with offset reciprocating motion (graphical method)
8th	1st	Drawing of profile of radial cam with knife-edge and roller follower with offset reciprocating motion (graphical method)
	2nd	Drawing of profile of radial cam with knife-edge and roller follower without offset reciprocating motion (graphical method).
9th	1st	Drawing of profile of radial cam with knife-edge and roller follower without offset reciprocating motion (graphical method).
	2nd	Drawing of profile of radial cam with knife-edge and roller follower without offset reciprocating motion (graphical method).
10th	1st	Estimate slip, length of belt, angle of contact in an open and cross belt drive.
	2nd	Estimate slip, length of belt, angle of contact in an open and cross belt drive.

11th	1st	Estimate slip, length of belt, angle of contact in an open and cross belt drive
	2nd	Calculate braking torque at different speeds and load situations of i) internal expanding shoe brake ii) Disc Brake
12th	1st	Calculate braking torque at different speeds and load situations of i) Internal expanding shoe brake ii) Disc Brake
	2nd	Calculate braking torque at different speeds and load situations of i) internal expanding shoe brake ii) Disc Brake
13th	1st	Assemble and disassemble different clutches
	2nd	Assemble and disassemble different clutches
14th	1st	Measure radius and height of any two types of governors for different rotational speeds, mass of balls and spring stiffness (in spring loaded governors)
	2nd	Measure radius and height of any two types of governors for different rotational speeds, mass of balls and spring stiffness (in spring loaded governors)
15th	1st	Perform balancing of rotating unbalanced system
	2nd	Perform balancing of rotating unbalanced system

M/S. S. S. S. S. S.  
22/12/21  
Signature of  
Faculty

S. S. S. S. S.  
Signature of HOD/

S. S. S. S. S.  
Signature of Academic  
Coordinator  
M/S. S. S. S. S.  
22/12/21  
Signature of Principal