

**BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK  
DEPARTMENT OF MECHANICAL ENGINEERING**



**LESSON PLAN**

SUBJECT: MECHATRONICS (TH 4)

FACULTY: Er. CHIRANJEEVI PATTNAIK

ACCADEMIC SESSION: 2022-23

SEMESTER: 5<sup>TH</sup>

SEC: B

Sd/-  
PTGF (MECH. Engg.)

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<b>Discipline:</b> Mechanical Engineering	<b>Semester: 5<sup>th</sup> A</b>		<b>Name of the teaching faculty:</b> Er. CHIRANJEEVI PATNAIK
<b>Subject:</b> Mechatronics	<b>No. of Days/ per week class allotted: 04 periods per week Tue-1 period, Thu-1 period, Fri-1 period, Sat -1 period)</b>		<b>Semester From Date: 15-09-2022 To Date: 22-12-2022 No. of weeks: 14 weeks</b>
<b>Week</b>	<b>Class Day</b>	<b>No of period available</b>	<b>Theory Topics</b>
1ST	15/09/2022	1	5.1 Introduction to Numerical Control of machines and CAD/CAM
	16/09/2022	1	5.1.1 NC machines
2ND	19/09/2022	1	5.1.2 CNC machines
	21/09/2022	1	5.1.3.1 CAD
	22/09/2022	1	5.1.3.2 CAM
	23/09/2022	1	5.1.3.4 Functioning of CAD/CAM system
3RD	26/09/2022	1	5.1.3.4 Features and characteristics of CAD/CAM system
	28/09/2022	1	5.1.3.5 Application areas for CAD/CAM
	29/09/2022	1	5.2 Elements of CNC machines 5.2.1 Introduction
	30/09/2022	1	5.2.2 Machine Structure
4TH	10/10/2022	1	5.2.3 Guideways/Slide ways

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4TH	13/10/2022	1	5.2.3.1 Introduction and Types of Guideways 5.2.3.2 Factors of design of guideways
4TH			
	14/10/2022	1	5.2.4 Drives  5.2.4.1 Spindle drives 5.2.4.2 Feed drive
	15/10/2022	1	5.2.5 Spindle and Spindle Bearings <b>Class test-01</b>
			<b>6.0 ROBOTICS</b>
	17/10/2022	1	6.1 Definition, Function and laws of robotics
5TH	19/10/2022	1	6.2 Types of industrial robots
	20/10.2022	1	6.3 Robotic systems
	21/10/2022	1	6.4 Advantages and Disadvantages of robots
			<b>1.0 INTRODUCTION TO MECHATRONICS</b>
6TH	26/10/2022	1	1.1 Definition of Mechatronics
	27/10/2022	1	1.2 Advantages & disadvantages of Mechatronics.

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	28/10/2022	1	1.3 Application of Mechatronics
7TH	31/10/2022	1	1.4 Scope of Mechatronics in Industrial Sector
	02/11/2022	1	1.5 Components of a Mechatronics System
	03/11/2022	1	1.6 Importance of mechatronics in automation
	04/11/2022	1	<b>2.0 SENSORS AND TRANSDUCERS</b> 2.1 Definition of Transducers 2.2 Classification of Transducers
	07/11/2022	1	<b>Class test-02</b>
8TH	09/11/2022	1	2.3 Electromechanical Transducers 2.4 Transducers Actuating Mechanisms
	10/11/2022	1	2.5 Displacement & Positions Sensors 2.3 Electromechanical Transducers 2.4 Transducers Actuating Mechanisms
9TH	11/11/2022)	1	2.5 Displacement & Positions Sensors
	14/11/2022	1	2.6 Velocity, motion, force and pressure sensors.
	16/11/2022	1	2.7 Temperature and light sensors
	17/11/2022	1	<b>Internal examination</b>

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10TH	18/11/2022	1	<b>Internal examination</b>
	21/11/2022	1	<b>3.0 ACTUATORS-MECHANICAL,ELECTRICAL</b> 3.1 Mechanical Actuators 3.1.1 Machine, Kinematic Link, Kinematic Pair
	23/11/2022)	1	3.1.2 Mechanism, Slider crank Mechanism
	24/11/2022	1	3.1.3 Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear
	25/11/2022	1	3.1.4 Belt & Belt drive 3.1.5 Bearings
	28/11/2022	1	<b>Class test-03</b>
11TH	30/11/2022	1	3.2 Electrical Actuator 3.2.1 Switches and relay
	01/12/2022)	1	3.2.2 Solenoid.
	02/12/2022		3.2.3 D.C Motors
12TH	05/12/2022	1	3.2.4 A.C Motors 3.2.5 Stepper Motors .

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	07/12/2022	1	3.2.6 Specification and control of stepper motors
	08/12/2022	1	3.2.7 Servo Motors D.C & A.C
	09/12/2022	1	<b>4.0 PROGRAMMABLE LOGIC CONTROLLERS(PLC)</b> 4.1 Introduction
	12/12/2022		4.2 Advantages of PLC 4.3 Selection and uses of PLC
13TH	(14.12.2022)	1	4.4 Architecture basic internal structures
	Thursday (15.12.2022)	1	4.5 Input/output Processing and Programming
	Friday	1	4.6 Mnemonics 4.7 Master and Jump Controllers

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	(16.12.2022)		
	Monday (19.12.2022)	1	<b>REVISION</b>
14TH	Wednesday (21.12.2022)	1	<b>REVISION</b>
	Thursday (22.12.2022)	1	<b>REVISION</b>