



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



LESSON PLAN

SUBJECT: TH-04 (MECHATRONICS)

Name Of The Faculty :- Er.PRADYUMNA KUMAR KHILAR & Er. D. OJHA

Branch :- Automobile Engineering


Semester :- 5th


Academic Year : 2025-26

Examination :- 2025 (W)

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	Introduction to Mechatronics	5	8
2	Sensors and Transducers	10	14
3	Actuators-Mechanical, Electrical	10	13
4	Programmable logic controllers	15	17
5	Elements of CNC Machines	15	15
6	Robotics	5	8
	Total Period:	60	75

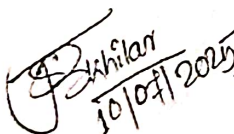
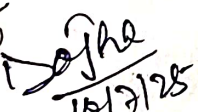

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Sign of Faculty

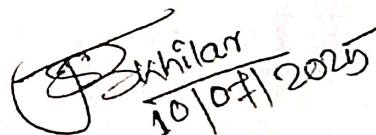

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Name of the programme: Diploma in AUTOMOBILE ENGINEERING	Semester: 5TH	Name of the Teaching Faculty: Er.PRADYUMNA KUMAR KHILAR & Er. D. OJHA	
		Academic Year : 2025-26	Examination : 2025 (W)
Course Code: TH-04	Course Year: Third Year	No. of Classes Alloted Per Week :	5
		Planned Classes Required to Complete the Course	75
Week	Class Day	Topics to be Covered	
1 st	1 st	1.1 Definition of Mechatronics	
		1.2 Advantages & disadvantages of Mechatronics	
	2 nd	1.3 Application of Mechatronics	
	3 rd	1.4 Scope of Mechatronics in Industrial Sector	
	4 th	1.5 Components of a Mechatronics System	
	5 th	1.6 Importance of mechatronics in automation	
2 nd	1 st	2.1Defination of Transducers	
	2 nd	2.2 Classification of Transducers	
	3 rd	2.3 Electromechanical Transducers	
	4 th	2.4 Transducers Actuating Mechanisms	
	5 th	2.5 Displacement Sensors	
3 rd	1 st	2.5 Position Sensors	
	2 nd	2.6 Velocity, motion, force Sensors	
	3 rd	2.6 Pressure Sensors	
	4 th	2.7 Temperature Sensors	
	5 th	2.8 Light Sensors	
4 th	1 st	3.1Mechanical Actuators	
	2 nd	3.1.1 Machine, Kinematic Link, Kinematic Pair	
	3 rd	3.1.2 Mechanism, Slider crank Mechanism	
	4 th	3.1.3 Gear Drive	
	5 th	Spur gear, Bevel gear, Helical gear	
5 th	1 st	worm gear	
	2 nd	3.1.4 Belt & Belt drive	
	3 rd	3.1.4 Belt & Belt drive	
	4 th	3.1.5 Bearings	
	5 th	3.2 Electrical Actuator	
6 th	1 st	3.2.1 Switches and relay ,3.2.2 Solenoid	
	2 nd	3.2.3 D.C Motors ,3.2.4 A.C Motors	

Week	Class Day	Topics to be Covered
6 th	3 rd	3.2.5 Stepper Motors
	4 th	3.2.6 Specification and control of stepper motors
	5 th	3.2.7 Servo Motors D.C & A.C
7 th	1 st	3.2.7 Servo Motors D.C & A.C
	2 nd	Revision of Unit III
	3 rd	Revision of Unit III
	4 th	4.1 Introduction about PLC
	5 th	4.1 Introduction about PLC
8 th	1 st	4.2 Advantages of PLC
	2 nd	4.2 Advantages of PLC
	3 rd	4.3 Selection of PLC
	4 th	4.3 Selection of PLC
	5 th	4.3 Uses of PLC
9 th	1 st	4.3 Uses of PLC
	2 nd	4.4 Architecture basic internal structures
	3 rd	4.4 Architecture basic internal structures
	4 th	4.5 Input/output Processing and Programming
	5 th	4.5 Input/output Processing and Programming
10 th	1 st	4.5 Input/output Processing and Programming
	2 nd	4.6 Mnemonics
	3 rd	4.6 Mnemonics
	4 th	4.7 Master Controllers
	5 th	4.7 Master Controllers
11 th	1 st	4.7 Master Controllers
	2 nd	4.7 Jump Controllers
	3 rd	4.7 Jump Controllers
	4 th	REVISION OF PROGRAMMABLE LOGIC CONTROLLERS(PLC)
	5 th	5.1 Introduction to Numerical Control of machines and CAD/CAM
12 th	1 st	5.1.1 NC machines
	2 nd	5.1.2 CNC machines
	3 rd	5.1.3.CAD/CAM
	4 th	5.1.4 Software and hardware for CAD/CAM
	5 th	5.1.5 Functioning of CAD/CAM system
13 th	1 st	5.1.6 Features and characteristics of CAD/CAM system
	2 nd	5.1.7 Application areas for CAD/CAM

Week	Class Day	Topics to be Covered
13 th	3 rd	5.2.1 elements of CNC machines Introduction
	4 th	5.2.2 Machine Structure
	5 th	5.2.3 Introduction and Types of Guideways
14 th	1 st	5.2.3 Factors of design of guideways
	2 nd	5.2.4 Spindle drives
	3 rd	5.2.4 Feed drive
	4 th	5.2.5 Spindle
	5 th	5.2.5 Bearings
15 th	1 st	6.1 Definition, Function and laws of robotics
	2 nd	6.2 Types of industrial robots
	3 rd	6.3 Robotic system, Robotics System
	4 th	6.4 Advantages and Disadvantages of robots
	5 th	6.4 Advantages and Disadvantages of robots, Robots used in various industries


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