



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



LESSON PLAN

SUBJECT: TH-4 (MECHATRONICS)

Name Of The Faculty :- Er. Pradyumna Kumar Khilar and Er Dharmapada ojha

Branch :- Automobile Engineering

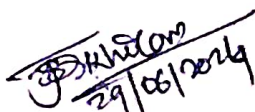
Semester :- 5th

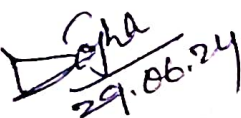
Session :- 2024-25


Examination :- 2024 (w)

CHAPTERWISE DISTRIBUTION OF PERIODS

SLNO	NAME OF THE CHAPTER AS PER SYLLABUS	NO OF PERIODS AS PER SYLLABUS	NO OF PERIODS ACTUALLY NEEDED
1	INTRODUCTION TO MECHATRONICS	5	7
2	SENSORS AND TRANSDUCERS	10	12
3	ACTUATORS, MECHANICAL, ELECTRICAL	15	16
4	PROGRAMMABLE LOGIC CONTROLLERS	12	14
5	ELEMENTS OF CNC MACHINES	13	13
6	ROBOTICS	5	8
	TOTAL PERIOD	60	72


29/06/2024
Sign of Faculty


29.06.24


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DISCIPLIN: AUTOMOBILE ENGINEERING	SEMESTER: 5TH	Name of the Teaching Faculty: Er.Pradyumna Kumar Khilar and Er. Dharmapada Ojha	
		SESSION:2024-25	EXAMINATION:2024(W)
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	
2 nd	1 st	1.5 Components of a Mechatronics System	
	2 nd	1.6 Importance of mechatronics in automation	
	3 rd	1.6 Importance of mechatronics in automation	
	4 th	2.0 SENSORS AND TRANSDUCERS 2.1 Defination of Transducer	
3 rd	1 st	2.2 Classification of Transducer	
	2 nd	2.3 Electromechanical Transducers	
	3 rd	2.4 Transducers Actuating Mechanisms	
	4 th	2.4 Transducers Actuating Mechanisms	
4 th	1 st	2.5 Displacement & Positions Sensors	
	2 nd	2.5 Displacement & Positions Sensors	
	3 rd	2.6 Velocity, motion, force and pressure sensors.	
	4 th	2.6 Velocity, motion, force and pressure sensors.	
5 th	1 st	2.7 Temperature and light sensors.	
	2 nd	2.7 Temperature and light sensors.	
	3 rd	2.7 Temperature and light sensors.	
	4 th	3.1.1 Machine, Kinematic Link, Kinematic Pair 3.1.2 Mechanism, Slider crank Mechanism	
6 th	1 st	3.1.1 Machine, Kinematic Link, Kinematic Pair 3.1.2 Mechanism, Slider crank Mechanism	
	2 nd	3.1.1 Machine, Kinematic Link, Kinematic Pair 3.1.2 Mechanism, Slider crank Mechanism	
	3 rd	3.1.3 Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear	
	4 th	3.1.3 Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear	
7 th	1 st	3.1.4 Belt and belt drive	
	2 nd	3.1.4 Belt and belt drive	
	3 rd	3.1.5 Bearings	
	4 th	3.1.5 Bearings	
8 th	1 st	3.2 Electrical Actuator 3.2.1 Switches and relay	
	2 nd	3.2 Electrical Actuator 3.2.1 Switches and relay	

Week	Class Day	Topics to be covered
8 th	3 rd	3.2.2 Solenoid 3.2.3 D.C Motors
	4 th	3.2.2 Solenoid 3.2.3 D.C Motors
9 th	1 st	3.2.4 A.C Motors
	2 nd	3.2.6 Specification and control of stepper motors
	3 rd	3.2.7 Servo Motors D.C & A.C
	4 th	4.0 PROGRAMMABLE LOGIC CONTROLLERS(PLC)
10 th	1 st	4.0 PROGRAMMABLE LOGIC CONTROLLERS(PLC)
	2 nd	4.1 Introduction 4.2 Advantages of PLC
	3 rd	4.1 Introduction 4.2 Advantages of PLC
	4 th	4.3 Selection and uses of PLC
11 th	1 st	4.3 Selection and 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
12 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 and Jump Controllers
13 th	1 st	4.7 Master and Jump Controllers
	2 nd	INTERNAL ASSESMENT
	3 rd	INTERNAL ASSESMENT
	4 th	5.0 ELEMENTS OF CNC MACHINES
14 th	1 st	5.1 Introduction to Numerical Control of machines and CAD/CAM
	2 nd	5.1.1 NC machines 5.1.2 CNC machines
	3 rd	5.1.3.CAD/CAM 5.1.3.1 CAD
	4 th	5.1.3.CAD/CAM 5.1.3.1 CAD
15 th	1 st	5.1.3.3 Software and hardware for CAD/CAM 5.1.3.4 Functioning of CAD/CAM system
	2 nd	5.1.3.4 Features and characteristics of CAD/CAM system
	3 rd	5.2 elements of CNC machines
	4 th	5.2.1 Introduction 5.2.2 Machine Structure 5.2.3 Guideways/Slide ways
16 th	1 st	5.2.3.1 Introduction and Types of Guideways 5.2.3.2 Factors of design of guideways

Week	Class Day	Topics to be covered
16 th	2 nd	5.2.4 Drives
	3 rd	5.2.4.1 Spindle drives 5.2.4.2 Feed drive
	4 th	5.2.5 Spindle and Spindle Bearings
17 th	1 st	6.0 ROBOTICS
	2 nd	6.2 Types of industrial robots
	3 rd	6.2 Types of industrial robots
	4 th	6.3 Robotic systems
18 th	1 st	6.3 Robotic systems
	2 nd	6.4 Advantages and Disadvantages of robots
	3 rd	6.4 Advantages and Disadvantages of robots
	4 th	Revision

Pawhitar
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Dafha
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