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

LESSON PLAN

SUBJECT: TH-4(MECHATRONICS)

CHAPTERWISE DISTRIBUTION OF PERIORDS

SLNO	NAME OF THE CHAPTER AS PER SYLLABUS	NO OF SYLLABUS AS PER SYLLABUS	NO OF PERIODS ACTUALLY NEEDED
1	INTRODUCTION TO MECHATRONICS	5	5
2	SENSORS AND TRANSDUCERS	10	12
3	ACTUATORS,MECHANICAL ,ELECTRICAL	15	16
4	PROGRAMMABLE LOGIC CONTROLLERS	12	12
5	ELEMENTS OF CNC MACHINES	13	13
6	ROBOTICS	5	4
	TOTAL PERIOD	60	62

DISCIPLIN: AUTOMOBILE ENGINEERING	SEMESTER: 5TH	Name of the Teaching Faculty: Er.Pradyumna Kumar Khilar and Er. Dharmapada Ojha	
		SESSION:2023-24	EXAMINATION:2023(W)
Week	**Class Day**	**Theory / Practical Topics**	
1st	1st	1.1 Definition of Mechatronics 1.2 Advantages & disadvantages of mechatronics	
	2nd	1.3 Application of Mechatronics	
	3rd	1.4 Scope of Mechatronics in Industrial Sector	
	4th	1.5 Components of a Mechatronics System	
2nd	1st	1.6 Importance of mechatronics in automation	
	2nd	2.0 SENSORS AND TRANSDUCERS 2.1 Defination of Transducer	
	3rd	2.2 Classification of Transducer	
	4th	2.3 Electromechanical Transducers	
3rd	1st	2.4 Transducers Actuating Mechanisms	
	2nd	2.4 Transducers Actuating Mechanisms	
	3rd	2.5 Displacement &Positions Sensors	
	4th	2.5 Displacement &Positions Sensors	
4th	1st	2.6 Velocity, motion, force and pressure sensors.	
	2nd	2.6 Velocity, motion, force and pressure sensors.	
	3rd	2.7 Temperature and light sensors.	
	4th	2.7 Temperature and light sensors.	
5th	1st	2.7 Temperature and light sensors.	
	2nd	3.1.1 Machine, Kinematic Link, Kinematic Pair 3.1.2 Mechanism, Slider crank Mechanism	
	3rd	3.1.1 Machine, Kinematic Link, Kinematic Pair 3.1.2 Mechanism, Slider crank Mechanism	
	4th	3.1.1 Machine, Kinematic Link, Kinematic Pair 3.1.2 Mechanism, Slider crank Mechanism	
6th	1st	3.1.3 Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear	
	2nd	3.1.3 Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear	
	3rd	3.1.4 Belt and belt drive	

Week	Class Day	Theory / Practical Topics
6th	4th	3.1.4 Belt and belt drive
7th	1st	3.1.5 Bearings
	2nd	3.1.5 Bearings
	3rd	3.2 Electrical Actuator 3.2.1 Switches and relay
	4th	3.2 Electrical Actuator 3.2.1 Switches and relay
8th	1st	3.2.2 Solenoid 3.2.3 D.C Motors
	2nd	3.2.2 Solenoid 3.2.3 D.C Motors
	3rd	3.2.4 A.C Motors 3.2.5 Stepper Motors
	4th	3.2.6 Specification and control of stepper motors
9th	1st	3.2.7 Servo Motors D.C & A.C
	2nd	4.0 PROGRAMMABLE LOGIC CONTROLLERS(PLC)
	3rd	4.0 PROGRAMMABLE LOGIC CONTROLLERS(PLC)
	4th	4.1 Introduction 4.2 Advantages of PLC
10th	1st	4.3 Selection and uses of PLC
	2nd	4.4 Architecture basic internal structures
	3rd	4.4 Architecture basic internal structures
	4th	4.5 Input/output Processing and Programming
11th	1st	4.5 Input/output Processing and Programming
	2nd	4.6 Mnemonics
	3rd	4.6 Mnemonics
	4th	4.7 Master and Jump Controllers
12th	1st	4.7 Master and Jump Controllers
	2nd	**INTERNAL ASSESMENT**
	3rd	**INTERNAL ASSESMENT**
	4th	5.0 ELEMENTS OF CNC MACHINES
13th	1st	5.1 Introduction to Numerical Control of machines and CAD/CAM
	2nd	5.1.1 NC machines 5.1.2 CNC machines

Week	Class Day	Theory / Practical Topics
13th	3rd	5.1.3.CAD/CAM 5.1.3.1 CAD
	4th	5.1.3.CAD/CAM 5.1.3.1 CAD
14th	1st	5.1.3.3 Software and hardware for CAD/CAM 5.1.3.4 Functioning of CAD/CAM system
	2nd	5.1.3.4 Features and characteristics of CAD/CAM system 5.1.3.5 Application areas for CAD/CAM
	3rd	5.2 elements of CNC machines
	4th	5.2.1 Introduction 5.2.2 Machine Structure 5.2.3 Guideways/Slide ways
15th	1st	5.2.3.1 Introduction and Types of Guideways 5.2.3.2 Factors of design of guideways
	2nd	5.2.4 Drives
	3rd	5.2.4.1 Spindle drives 5.2.4.2 Feed drive
	4th	5.2.5 Spindle and Spindle Bearings
16th	1st	6.0 ROBOTICS 6.1 Defination,Function and Laws of robotics
	2nd	6.2Types of industrial robots
	3rd	6.3 Robotic systems
	4th	6.4 Advantages and Disadvantages of robots