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	10
3	ACTUATORS,MECHANICAL ,ELECTRICAL	10	10
4	PROGRAMMABLE LOGIC CONTROLLERS	15	14
5	ELEMENTS OF CNC MACHINES	15	14
6	ROBOTICS	5	5
	TOTAL PERIOD	60	60

DISCIPLIN: MECH/AUTO ENGINEERING	SEMESTER: 5TH	NAME OF THE TEACHING FACULTY:-Er PRADYUMNA KUMAR KHILAR
Week	**Class Day**	**Theory / Practical Topics**
1st	1st	*1.1 Definition of Mechatronics*
	2nd	1.2 Advantages & disadvantages of Mechatronics
	3rd	1.3 Application of Mechatronics
	4th	1.4 Scope of Mechatronics in Industrial Sector
	5th	1.5 Components of a Mechatronics System
2nd	1st	1.6 Importance of mechatronics in automation
	2nd	2.0 SENSORS AND TRANSDUCERS
	3rd	2.1Defination of Transducers
	4th	2.2 Classification of Transducer
	5th	2.3 Electromechanical Transducers
3rd	1st	2.4 Transducers Actuating Mechanisms
	2nd	*2.5 Displacement &Positions Sensors*
	3rd	2.6 Velocity, motion, force and pressure sensors.
	4th	2.7 Temperature and light sensors.
	5th	3.1Mechanical Actuators
4th	1st	3.1.1 Machine, Kinematic Link, Kinematic Pair 3.1.2 Mechanism, Slider crank Mechanism
	2nd	3.1.1 Machine, Kinematic Link, Kinematic Pair 3.1.2 Mechanism, Slider crank Mechanism
	3rd	3.1.3 Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear
	4th	3.1.3 Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear
	5th	3.1.5 Bearings

5th	1st	3.2 Electrical Actuator 3.2.1 Switches and relay
	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*
	5th	3.2.7 Servo Motors D.C & A.C
6th	1st	4.0 PROGRAMMABLE LOGIC CONTROLLERS(PLC)
	2nd	4.1 Introduction 4.2 Advantages of PLC
	3rd	4.3 Selection and uses of PLC
	4th	4.4 Architecture basic internal structures
7th	1st	4.4 Architecture basic internal structures
	2nd	4.5 Input/output Processing and Programming
	3rd	4.5 Input/output Processing and Programming
	4th	4.6 Mnemonics
	5th	4.7 Master and Jump Controllers
8th	1st	4.7 Master and Jump Controllers
	2nd	4.7 Master and Jump Controllers
	3rd	MID SEM EXAM
	4th	MID SEM EXAM
9th	1st	5.0 ELEMENTS OF CNC MACHINES
	2nd	5.1 Introduction to Numerical Control of machines and CAD/CAM
	3rd	5.1.1 NC machines
	4th	5.1.2 CNC machines

10th	1st	5.1.2 CNC machines
	2nd	5.1.3.CAD/CAM 5.1.3.1 CAD 5.1.3.2 CAM
	3rd	5.1.3.CAD/CAM 5.1.3.1 CAD 5.1.3.2 CAM
	4th	5.1.3.3 Software and hardware for CAD/CAM
	5th	5.1.3.4 Functioning of CAD/CAM system
11th	1st	5.1.3.4 Functioning of CAD/CAM system
	2nd	5.1.3.4 Features and characteristics of CAD/CAM system
	3rd	5.1.3.4 Features and characteristics of CAD/CAM system
	4th	*5.1.3.5 Application areas for CAD/CAM*
	5th	5.2 elements of CNC machines
12th	1st	5.2.1 Introduction 5.2.2 Machine Structure
	2nd	5.2.3 Guideways/Slide ways
	3rd	5.2.3.1 Introduction and Types of Guideways 5.2.3.2 Factors of design of guideways
	4th	5.2.3.1 Introduction and Types of Guideways 5.2.3.2 Factors of design of guideways
13th	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	5.2.4.1 Spindle drives 5.2.4.2 Feed drive
14th	1st	5.2.5 Spindle and Spindle Bearings
	2nd	5.2.5 Spindle and Spindle Bearings
	3rd	6.0 ROBOTICS
	4th	6.1 Definition, Function and laws of robotics
	5th	6.2Types of industrial robots

15th	1st	6.2Types of industrial robots
	2nd	6.3 Robotic systems
	3rd	6.3 Robotic systems
	4th	6.4 Advantages and Disadvantages of robots
	5th	6.4 Advantages and Disadvantages of robots