Academic Lesson Plan for Mechatronics (Winter-2024)

Discipline: Mechanical Engineering	Semester: 5th	Name of Faculty: Chandrasekhar Dash	
Subject: Mechatronics	No. of days/per week Class Allotted: 4	Semester from: 01/07/2024 - 08/11/2024	
		No. of weeks:15	
Week	**Class Day**	**Theory Topics**	
1st	1st	**UNIT-1** Definition of Mechatronics	
	2nd	Advantages & disadvantages of Mechatronics, Application of Mechatronics	
	3rd	Scope of Mechatronics in Industrial Sector	
	4th	Components of a Mechatronics System	
2nd	1st	Importance of mechatronics in automation	
	2nd	**UNIT-2** Defination of Transducers	
	3rd	Classification of Transducers	
	4th	Electromechanical Transducers	
3rd	1st	Transducers Actuating Mechanisms	
	2nd	Displacement &Positions Sensors	
	3rd	Velocity, motion Sensors	
	4th	force and pressure sensors	
4th	1st	Temperature sensors	
	2nd	Light sensors.	
	3rd	Temperature and light sensors.	
	4th	**UNIT-3** Mechanical Actuators, Machine, Kinematic Link, Kinematic Pair	
	1st	Mechanism, Slider crank Mechanism	

5th	2nd	Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear
	3rd	Belt & Belt drive , Bearing
	4th	Electrical Actuator, Switches and relay
6th	1st	Solenoid
	2nd	D.C Motors, A.C motors
	3rd	Stepper Motors
	4th	Specification and control of stepper motors
7th	1st	Servo Motors D.C & A.C
	2nd	**UNIT-4** PROGRAMMABLE LOGIC CONTROLLERS(PLC)
	3rd	Introduction
	4th	Advantages of PLC
8th	1st	Selection and uses of PLC
	2nd	Selection and uses of PLC
	3rd	Architecture basic internal structures
	4th	Architecture basic internal structures
9th	1st	Input/output Processing and Programming
	2nd	Input/output Processing and Programming
	3rd	Input/output Processing and Programming
	4th	Mnemonics
10th	1st	Mnemonics
	2nd	Master and Jump Controllers

10th	3rd	Master and Jump Controllers
	4th	Master and Jump Controllers
11th	1st	**UNIT-5** Introduction to Numerical Control of machines and CAD/CAM
	2nd	NC machines, CNC machines
	3rd	Software and hardware for CAD/CAM
	4th	Functioning of CAD/CAM system
12th	1st	Application areas for CAD/CAM
	2nd	Features and characteristics of CAD/CAM system,
	3rd	Elements of CNC machines
	4th	Machine Structure
13th	1st	Introduction and Types of Guideways
	2nd	2 Factors of design of guideway
	3rd	Drives
	4th	Spindle drives
14th	1st	Feed drive
	2nd	Spindle and Spindle Bearings
	3rd	Spindle and Spindle Bearings
	4th	**UNIT-6** Definition, Function and laws of robotics
15th	1st	Types of industrial robots
	2nd	Robotic systems
	3rd	Robotic systems

	4th	Advantages and Disadvantages of robots

Chandrasekhar Dash