

Discipline : MECHANICAL ENGG.	Semester : 5th	Name of the Teaching Faculty: Shubhajit Biswal
Subject: MECHATRONICS (TH-4)	No. of days/per week class allotted: 04	Semester From date: 01.07.2024 To Date: 08.11.2024 No. of Weeks: 15
Week	Class Day	Theory Topics
1st	1 st	INTRODUCTION TO MECHATRONICS Definition of Mechatronics
	2 nd	Advantages & disadvantages of Mechatronics
	3 rd	Application of Mechatronics
	4 th	Scope of Mechatronics in Industrial Sector
2nd	1 st	Components of a Mechatronics System Importance of mechatronics in automation
	2 nd	SENSORS AND TRANSDUCERS Definition of Transducers.
	3 rd	Classification of Transducers
	4 th	Classification of Transducers
3rd	1 st	Electromechanical Transducers
	2 nd	Transducers Actuating Mechanisms
	3 rd	Transducers Actuating Mechanisms
	4 th	Displacement & Positions Sensors
4th	1 st	Velocity, motion, force and pressure sensors
	2 nd	Velocity, motion, force and pressure sensors
	3 rd	Temperature and light sensors
	4 th	ACTUATORS-MECHANICAL, ELECTRICAL Mechanical Actuators
5th	1 st	Machine, Kinematic Link, Kinematic Pair
	2 nd	Mechanism, Slider crank Mechanism
	3 rd	Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear
	4 th	Belt & Belt drive Bearings
6th	1 st	Electrical Actuator
	2 nd	Switches and relay
	3 rd	Solenoid D.C Motors
	4 th	A.C. Motors Stepper Motors
7th	1 st	Specification and control of stepper motors Servo Motors D.C & A.C
	2 nd	PROGRAMMABLE LOGIC CONTROLLERS(PLC) Introduction
	3 rd	Advantages of PLC
	4 th	Advantages of PLC
8th	1 st	Selection and uses of PLC
	2 nd	Selection and uses of PLC
	3 rd	Architecture basic internal structures
	4 th	Architecture basic internal structures
9th	1 st	Architecture basic internal structures

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	2 nd	Input/output Processing and Programming
	3 rd	Input/output Processing and Programming
	4 th	Input/output Processing and Programming
10 th	1 st	Mnemonics
	2 nd	Mnemonics
	3 rd	Master and Jump Controllers
	4 th	Master and Jump Controllers
11 th	1 st	ELEMENTS OF CNC MACHINES Introduction to Numerical Control of machines and CAD/CAM
	2 nd	NC machines CNC machines
	3 rd	CAD/CAM
	4 th	Software and hardware for CAD/CAM
12 th	1 st	Functioning of CAD/CAM system Features and characteristics of CAD/CAM system
	2 nd	Application areas for CAD/CAM
	3 rd	Elements of CNC machines Introduction
	4 th	Machine Structure
13 th	1 st	Guide ways/Slide ways
	2 nd	Introduction and Types of Guideways
	3 rd	Factors of design of guideways
	4 th	Drives
14 th	1 st	Spindle drives
	2 nd	Feed drive
	3 rd	Spindle and Spindle Bearings
	4 th	ROBOTICS Definition, Function and laws of robotics Types of industrial robots
15 th	1 st	Definition, Function and laws of robotics Types of industrial robots
	2 nd	Robotic systems
	3 rd	Robotic systems
	4 th	Advantages and Disadvantages of robots

Learning Resources:

01. Mechatronics by W. Bolton, Pearson Education India
02. Text book of Mechatronics by R.K Rajput, S.Chand
03. CAD/CAM/CIM by R.RADHAKRISHNA,S,SUBRAMANIAN, NEW AGE INTERNATIONALPVT.LTD
04. CAD/CAM by MIKELGROVER



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