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: **01.08.2023** To Date: **30.11.2023** No. of Weeks: 15	
Week	Class Day	Theory Topics	
1ST	1ST	**INTRODUCTION TO MECHATRONICS** Definition of Mechatronics	
	2ND	Advantages & disadvantages of Mechatronics	
	3RD	Application of Mechatronics	
	4TH	Scope of Mechatronics in Industrial Sector	
2ND	1ST	Components of a Mechatronics System Importance of mechatronics in automation	
	2ND	**SENSORS AND TRANSDUCERS** Definition of Transducers.	
	3RD	Classification of Transducers	
	4TH	Classification of Transducers	
3RD	1ST	Electromechanical Transducers	
	2ND	Transducers Actuating Mechanisms	
	3RD	Transducers Actuating Mechanisms	
	4TH	Displacement &Positions Sensors	
4TH	1ST	Velocity, motion, force and pressure sensors	
	2ND	Velocity, motion, force and pressure sensors	
	3RD	Temperature and light sensors	
	4TH	**ACTUATORS-MECHANICAL, ELECTRICAL** Mechanical Actuators	
5TH	1ST	Machine, Kinematic Link, Kinematic Pair	
	2ND	Mechanism, Slider crank Mechanism	
	3RD	Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear	
	4TH	Belt & Belt drive Bearings	
6TH	1ST	Electrical Actuator	
	2ND	Switches and relay	
	3RD	Solenoid D.C Motors	
	4TH	A.C Motors Stepper Motors	
7TH	1ST	Specification and control of stepper motors Servo Motors D.C & A.C	
	2ND	**PROGRAMMABLE LOGIC CONTROLLERS(PLC)** Introduction	
	3RD	Advantages of PLC	
	4TH	Advantages of PLC	
8TH	1ST	Selection and uses of PLC	

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	2ND	Selection and uses of PLC
	3RD	Architecture basic internal structures
	4TH	Architecture basic internal structures
9TH	1ST	Architecture basic internal structures
	2ND	Input/output Processing and Programming
	3RD	Input/output Processing and Programming
	4TH	Input/output Processing and Programming
10TH	1ST	Mnemonics
	2ND	Mnemonics
	3RD	Master and Jump Controllers
	4TH	Master and Jump Controllers
11TH	1ST	**ELEMENTS OF CNC MACHINES** Introduction to Numerical Control of machines and CAD/CAM
	2ND	NC machines CNC machines
	3RD	CAD/CAM CAD CAM
	4TH	Software and hardware for CAD/CAM
12TH	1ST	Functioning of CAD/CAM system Features and characteristics of CAD/CAM system
	2ND	Application areas for CAD/CAM
	3RD	elements of CNC machines Introduction
	4TH	Machine Structure
13TH	1ST	Guideways/Slide ways
	2ND	Introduction and Types of Guideways
	3RD	Factors of design of guideways
	4TH	Drives
14TH	1ST	Spindle drives
	2ND	Feed drive
	3RD	Spindle and Spindle Bearings
	4TH	**ROBOTICS** Definition, Function and laws of robotics6.2Types of industrial robots
15TH	1ST	Definition, Function and laws of robotics6.2Types of industrial robots

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	2ND	Robotic systems
	3RD	Robotic systems
	4TH	Advantages and Disadvantages of robots

Learning Resouces:

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 MIKELLGROVER

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