GOVT.POLYTECHNIC, NAYAGARH

LESSON PLAN

Discipline : Mechanical Engg.	**Semester: 5th Sem (2023-24)**	**Name of the Teaching Faculty:** **Satyabrata Sahoo, Lect. (ELECT)** **Himanshu Patra, PTGF (MECH)**
Subject: Mechatronics	No. Of Class/Week: 4P/week	Semester From Date:01/08/2023 to 30/11/2023 Total No of Weeks :15 Weeks
Week	**Class Day**	**TOPICS TO BE COVERED**
1st	1st	**INTRODUCTION TO MECHATRONICS:** Definition, Advantages & disadvantages of Mechatronics.
	2nd	Application of Mechatronics
	3rd	Scope of Mechatronics in Industrial Sector.
	4th	Components of a Mechatronics System
2nd	1st	Importance of mechatronics in automation
	2nd	**SENSORS AND TRANSDUCERS**: Definition and classification of transducer
	3rd	Classification of Transducer
	4th	Electromechanical Transducers
3rd	1st	Transducers Actuating Mechanisms
	2nd	Sensors and its classifications
	3rd	Displacement &Positions Sensors
	4th	Velocity and Motion sensors
4th	1st	Force and Pressure sensors
	2nd	Temperature sensors
	3rd	Light sensors
	4th	Review class and Discussion
5th	1st	Assignment Evaluation & Class Test
	2nd	**MECHANICAL ACTUATORS:**
	3rd	Machine, Kinematic Link, Kinematic Pair
	4th	Mechanism, Slider crank Mechanism
6th	1st	Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear
	2nd	Belt & Belt drive

	3rd	Bearings
	4th	**Electrical Actuator:** Switches and relays Robotic systems
7th	1st	Solenoids
	2nd	D.C Motors
	3rd	A.C Motors
	4th	Stepper Motors, Specification and control of stepper motors
8th	1st	Servo Motors D.C & A.C
	2nd	Review class and Discussion
	3rd	**PROGRAMMABLE LOGIC CONTROLLERS(PLC)**
	4th	Introduction, Definition and Advantages of PLC
9th	1st	Introduction, Definition and Advantages of PLC
	2nd	Architecture basic internal structures
	3rd	Input/output Processing and Programming
	4th	Mnemonics
10th	1st	Master and Jump Controllers
	2nd	Review class and Discussion
	3rd	**ELEMENTS OF CNC MACHINES**
	4th	Introduction to Numerical Control of machines and CAD/CAM
11th	1st	NC machines
	2nd	CNC machine
	3rd	CAD and CAM
	4th	Software and hardware for CAD/CAM, Functioning of CAD/CAM system
12th	1st	Features and characteristics of CAD/CAM system
	2nd	Application areas for CAD/CAM
	3rd	**Introduction to CNC Machines,** Elements of CNC machines
	4th	Machine Structure
13th	1st	Guideways/Slide ways and its types, Factors of design of guideways
	2nd	Spindle drives
	3rd	Feed drive
	4th	Spindle and Spindle Bearings
14th	1st	Review class and Discussion
	2nd	**ROBOTICS:** Definition, Function and laws of robotics
	3rd	Types of industrial robots

	4th	Robotic systems
15th	1st	Advantages and Disadvantages of robots
	2nd	Review class
	3rd	Assignment Evaluation
	4th	Revision