PSIET,KARANDA,DHENKANAL

LESSON PLAN

Session (2022-2023)

Discipline: Mechanical Engineering	**Semester:** 5th, Winter/2022	**Name of the Teaching Faculty:** Madhumita Behera, Lecturer
Subject: Mechatronics, Theory-04	**No. of Days/Week:** 04	**Start Date: 15/09/2022** **End Date: 21/01/2023**

Week	Class Day	Theory/Practical Topics
1st	1st	**INTRODUCTION TO MECHATRONICS:** Definition, Advantages & disadvantages of Mechatronics.
	2nd	Application of Mechatronics, Importance of mechatronics in automation.
	3rd	Components of a Mechatronics System
	4th	*Review class and Discussion*
2nd	1st	**ROBOTICS:** Definition, Function and laws of robotics
	2nd	Types of industrial robots, Advantages, Disadvantages and Applications of robots
	3rd	Robotic systems
	4th	*Review class and Discussion*
3rd	1st	*Assignment Evaluation & Class Test*
	2nd	SENSORS AND TRANSDUCERS:
	3rd	Definition and classification of transducer
	4th	Classification of Transducer
4th	1st	Electromechanical Transducers
	2nd	Transducers Actuating Mechanisms
	3rd	Sensors and its classifications
	4th	Displacement &Positions Sensors
5th	1st	Velocity and Motion sensors
	2nd	Force and Pressure sensors.
	3rd	Temperature sensors
	4th	Light sensors

6th	1st	*Review class and Discussion*
	2nd	*Assignment Evaluation & Quiz Test*
	3rd	**ELEMENTS OF CNC MACHINES:** Introduction to Numerical Control of machines
	4th	NC machines
7th	1st	CNC machine
	2nd	CAD and CAM
	3rd	Software and hardware for CAD/CAM, Functioning of CAD/CAM system
	4th	Features and characteristics of CAD/CAM system, Application areas for CAD/CAM
8th	1st	*Review class and Discussion*
	2nd	**Introduction to CNC Machines,** Elements of CNC machines
	3rd	Machine Structure
	4th	Guideways/Slide ways and its types
9th	1st	Drives and types, Spindle drives
	2nd	Feed drive
	3rd	Spindle and Spindle Bearings
	4th	*Review class and Discussion*
10th	1st	*Class Test*
	2nd	**PROGRAMMABLE LOGIC CONTROLLERS(PLC):**
	3rd	Introduction, Definition and Advantages of PLC, Selection and uses of PLC
	4th	Architecture basic internal structures
11th	1st	Input/output Processing and Programming
	2nd	Mnemonics, Master and Jump Controllers
	3rd	*Review class and Discussion*
	4th	*Assignment Evaluation & Class Test*
12th	1st	**MECHANICAL ACTUATORS:**
	2nd	Machine, Kinematic Link, Kinematic Pair
	3rd	Mechanism, Slider crank Mechanism
	4th	Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear
13th	1st	Belt & Belt drive
	2nd	**Electrical Actuator:** Switches and relays, Solenoids
	3rd	D.C Motors
	4th	A.C Motors
14th	1st	Stepper Motors, Specification and control of stepper motors
	2nd	Servo Motors D.C & A.C

	3rd	*Review class*
	4th	*Assignment Evaluation & Quiz Test*
15th	1st	*Class Test*
	2nd	*Revision*
	3rd	*Revision*
	4th	*Discussion of Previous Year Questions*

Madhumita Rehera.

Signature of the faculty

15/5/22

Signature of the Principal