GOVERNMENT POLYTECHNIC JAJPUR
A/ P: Ragadi, Block: Korei, Dist.: Jajpur, Odisha- 755019
Website: https://www.gpjajpur.org E-mail: principalgpjajpur@yahoo.co.in

DEPARTMENT OF MECHANICAL ENGINEERING

LESSON PLAN (2024-25)

Discipline : Mechanical Engineering	**Semester: 5th Sem**	**Name of the Teaching Faculty: Suprava Behera**
Subject: Mechatronics	**No. Of Days/Week Class Allotted**	**Semester From Date: 01/07/2024 To Date: 08/11/2024** **No. Of Weeks : 15**
Week	**Class Day**	**Theory/Practical Topics**
1st	1st	**INTRODUCTION TO MECHATRONICS:** Definition, Advantages & disadvantages of Mechatronics.
	2nd	Application of Mechatronics, Scope of Mechatronics in Industrial Sector
	3rd	Components of a Mechatronics System and Importance of Mechatronics in automation.
	4th	Review class.
2nd	1st	Assignment Evaluation
	2nd	**SENSORS AND TRANSDUCERS:** Definition and classification of transducer
	3rd	Electromechanical Transducers
	4th	Transducers Actuating Mechanisms
3rd	1st	Sensors and its classifications.
	2nd	Displacement &Positions Sensors
	3rd	Velocity and Motion sensors
	4th	Force and Pressure sensors.
4th	1st	Temperature sensors and Light sensors
	2nd	Review class.
	3rd	Assignment Evaluation / Class Test
	4th	**MECHANICAL ACTUATORS:** Machine, Kinematic Link, Kinematic Pair
5th	1st	Mechanism, Slider crank Mechanism
	2nd	Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear
	3rd	Belt & Belt drive
	4th	Bearing and its classification.
6th	1st	**Electrical Actuator:** Switches and relays, Solenoids
	2nd	D.C Motors and A.C Motors
	3rd	Stepper Motors, Specification and control of stepper motors
	4th	Servo Motors D.C & A.C
7th	1st	Review class /Assignment Evaluation
	2nd	**PROGRAMMABLE LOGIC CONTROLLERS(PLC):** Introduction, Definition and Advantages of PLC
	3rd	Selection and uses of PLC
	4th	Architecture basic internal structures
	1st	PLC Programming Languages-LADDER LOGIC

8th	2nd	Structured TEXT and Function BLOCK
	3rd	Input/output Processing
	4th	Classification of Input/output Processing
9th	1st	Mnemonics definition, LOAD Instruction
	2nd	LOAD NOT Instruction
	3rd	AND and AND NOT Instruction
	4th	OR and OR NOT Instruction
10th	1st	OUTPUT and END Instruction
	2nd	Master and Jump Controllers
	3rd	Review class
	4th	Assignment Evaluation
11th	1st	**ELEMENTS OF CNC MACHINES:** Introduction to CNC Machines and CAD/CAM
	2nd	NC machines
	3rd	CNC machine
	4th	Software and hardware for CAD/CAM
12th	1st	Functioning of CAD/CAM system
	2nd	Features and characteristics of CAD/CAM system
	3rd	Application areas for CAD/CAM
	4th	Machine Structure
13th	1st	Introduction and Types of Guideways
	2nd	Factors of design of guideways
	3rd	Spindle drive
	4th	Feed drive
14th	1st	Spindle and Spindle Bearings
	2nd	Review class
	3rd	Assignment Evaluation
	4th	**ROBOTICS:** Definition, Function and laws of robotics
15th	1st	Types of industrial robots, Advantages, Disadvantages and Applications of robots
	2nd	Robotic systems
	3rd	Review class
	4th	Assignment Evaluation / Class Test

01.07.24

Signature of the faculty