

**GOVERNMENT POLYTECHNIC JAJPUR**

A/ P: Ragadi, Block: Korei, Dist.: Jajpur, Odisha- 755019

Website: <https://www.gpjajpur.org> E-mail: [principalgpjajpur@yahoo.co.in](mailto:principalgpjajpur@yahoo.co.in) Contact: 9437155107**LESSON PLAN**

<b>Discipline : Mechanical Engineering</b>	<b>Semester: 5<sup>th</sup> Sem</b>	<b>Name of the Teaching Faculty: Rutuparna Swain</b>
Subject: Mechatronics	No. Of Days/Week Class Allotted	Semester From Date: 01/08/2023 To Date: 31/11/2023 No. Of Weeks : 15
<b>Week</b>	<b>Class Day</b>	<b>Theory/Practical Topics</b>
1st	1st	<b>INTRODUCTION TO MECHATRONICS:</b> 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	Assignment Evaluation & Class Test
	2nd	<b>SENSORS AND TRANSDUCERS:</b> 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	Electromechanical Transducers
4th	1st	Transducers Actuating Mechanisms
	2nd	Sensors and its classifications
	3rd	Displacement & Positions Sensors
	4th	Velocity and Motion sensors
5th	1st	Force and Pressure sensors.
	2nd	Temperature sensors
	3rd	Light sensors
	4th	Review class and Discussion
6th	1st	Assignment Evaluation & Class Test
	2nd	<b>ROBOTICS:</b> Definition, Function and laws of robotics

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	3rd	Types of industrial robots, Advantages, Disadvantages and Applications of robots
	4th	Robotic systems
7th	1st	Review class and Discussion
	2nd	Assignment Evaluation & Class Test
	3rd	<b>ELEMENTS OF CNC MACHINES:</b> Introduction to Numerical Control of machines
	4th	NC machines
8th	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
9th	1st	Review class and Discussion
	2nd	<b>Introduction to CNC Machines,</b> Elements of CNC machines
	3rd	Machine Structure
	4th	Guide ways/Slide ways and its types
10th	1st	Drives and types, Spindle drives
	2nd	Feed drive
	3rd	Spindle and Spindle Bearings
	4th	Review class and Discussion
11th	1st	Assignment Evaluation & Class Test
	2nd	<b>PROGRAMMABLE LOGIC CONTROLLERS(PLC):</b>
	3rd	Introduction, Definition and Advantages of PLC, Selection and uses of PLC
	4th	Architecture basic internal structures
12th	1st	Input/output Processing and Programming
	2nd	Mnemonics, Master and Jump Controllers
	3rd	Review class and Discussion
	4th	Assignment Evaluation & Class Test
13th	1st	<b>MECHANICAL ACTUATORS:</b>
	2nd	Machine, Kinematic Link, Kinematic Pair
	3rd	Mechanism, Slider crank Mechanism
	4th	Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear
14th	1st	Belt & Belt drive
	2nd	<b>Electrical Actuator:</b> Switches and relays, Solenoids
	3rd	D.C Motors

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	4th	A.C Motors
15th	1st	Stepper Motors, Specification and control of stepper motors
	2nd	Servo Motors D.C & A.C
	3rd	Review class
	4th	Assignment Evaluation & Class Test

Signature of the faculty