GANAPATI INSTITUTE OF ENGINERING & TECHNOLOGY(Polytechnic),JAGATPUR,CUTTACK

DEPARTMENT OF MECHANICAL ENGINEERING.

LESSON PLAN-2025 WINTER

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: **14.07.2025** To Date: **15.11.2025** 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
	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
	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	Guide ways/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 robotics Types of industrial robots
15th	1st	Definition, Function and laws of robotics Types of industrial robots
	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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11/07/2025