

LESSONPLAN

DEPARTMENT OF MECHANICAL ENGINEERING

Sai Institute of Technological Science, Choudwar, Cuttack

SUBJECT: Mechatronics

Periods: 4 per week

SEMESTER: 5th

NAME OF FACULTY: S.SUBUDHIRAY LECT (MT)

No. of weeks: 15

FROM : 01/08/2023-23/11/2023

Week	ClassDay	Theory/PracticalTopics
1st	1 st	Introduction to mechatronics
	2 nd	Discussion about Definition of Mechatronics and its Advantages & disadvantages
	3 rd	Scope of Mechatronics in Industrial Sector
	4 th	Discussion about Application of Mechatronics
2 nd	1 st	Discussion about Components of a Mechatronics System
	2 nd	Importance of mechatronics in automation
	3 rd	Definition of Transducers
	4 th	Classification of Transducers
3 rd	1 st	Electromechanical Transducers
	2 nd	Transducers Actuating Mechanisms
	3 rd	Displacement & Position Sensors
	4 th	Velocity, motion, force and pressure sensors
4 th	1 st	Temperature and light sensors
	2 nd	Mechanical Actuators
	3 rd	Machine, Kinematic Link
	4 th	Kinematic Pair, Assignment given to the students
5 th	1 st	Mechanism, Slider crank Mechanism
	2 nd	Gear Drive, Spur gear, Bevel gear
	3 rd	Helical gear, worm gear
	4 th	Belt & Belt drive, Submission of Assignments.
6 th	1 st	Open belt drive, prove the length of open belt drive
	2 nd	Close belt drive, Derive the length of Cross belt drive
	3 rd	Bearings, Various types of bearings and its uses
	4 th	Electrical Actuator, Switches and relay and its uses
7 th	1 st	Question Answers discussion with students.
	2 nd	Solenoid, Discussion about different types of switches.
	3 rd	D.C Motors and where D.C motors are used
	4 th	A.C Motors and its uses
8 th	1 st	Stepper Motors, examples of stepper motor
	2 nd	Specification and control of stepper motors
	3 rd	A.C servomotors, D.C servomotors
	4 th	Doubt clearing class.
9 th	1 st	Introduction to programmable logic controller
	2 nd	Advantages of PLC
	3 rd	Selection and uses of PLC
	4 th	Architecture basic internal structures
10 th	1 st	Input/output Processing and Programming
	2 nd	Mnemonics, Master and Jump Controllers
	3 rd	Revision previous year Questions.

11 th	1 st	Introduction to Numerical Control of machines and CAD/CAM
	2 nd	NC machines
	3 rd	Block diagram of N.C machines,
	4 th	Elements of N.C machines
12 th	1 st	CAD/CAM
	2 nd	Software and hardware for CAD/CAM
	3 rd	Functioning of CAD/CAM system
	4 th	Features and characteristics of CAD/CAM system
13 th	1 st	Application areas for CAD/CAM
	2 nd	CNC machines, elements of CNC machines
	3 rd	Machine Structure Guide ways/Slide ways, Practicing simple Programming of Lathe.
	4 th	Introduction and Types of Guideways
14 th	1 st	Factors of design of guideways Drives
	2 nd	Spindle drives, Feed drive, discussion about programming
	3 rd	Spindle and Spindle Bearings
	4 th	Definition of Robotics
15 th	1 st	Function and Laws of Robotics
	2 nd	Types of industrial robots and its Advantages and Disadvantages
	3 rd	What is Robotic systems and its application in Industry.
	4 th	Doubt clearing and revision.