INTRODUCTION TO MECHATRONICS LAB (ME-314 L) Pre-requisite: None Credit Hours: 01 Contact Hours: 48

RECOMMENDED BOOK(S)

Mechatronics: Electronic control systems in mechanical and electrical engineering (5th Edition) [*W. Bolton*]

REFERENCE BOOK(S)

Mechatronics: An Introduction [Robert H. Bishop]

COURSE OBJECTIVES

The objective of this course is to verify the working of different types of electronic devices including PLC, Arduino, Gates combinations, Strain gauges, Flexible Manufacturing System, Transistors and Rotational speed and position measure devices. How to use electronic and mechanical devices at same place to control mechanical system automatically.

S. No.	CLO/PLOS MAPPING	DOMAIN	PLO
1	Perform sensing techniques of basic mechanical quantities.	P5	01
2	Operate mechanical devices using Adriano and PLC Microcontroller.	Р3	02
3	Present a complete automated system by using different sensors and Microcontroller /PLC.	A2	09

COURSE CONTENTS

Half adder circuit:

To Design Half Adder Circuit Using XOR AND GATE according to truth table.

Design Half Subtractor:

To Design Half Subtractor Circuit Using XOR, AND &NOT GATE according to truth table.

Design Full Adder circuit:

To Design Full Adder circuit using OR, AND& OR gate according to truth table.

Design Full subtractor:

TO Design Full subtractor circuit using XOR, AND, NOT& OR Gate according to truth table.

Flexible Manufacturing System:

Demonstration of Flexible Manufacturing System.

Slotted opto Transducer:

Characteristics of slotted opto Transducer.

Reflective opto Transducer:

Characteristics of Reflective opto Transducer.

Control of DC Motor through Transistor:

To check the operation of DC Motor Control through Trainer using Transistor.

Strain Gauge & Calibration of strain:

Characteristics of Strain Gauge & Calibration of strain using different weights.

PLC:

Demonstration of PLC.

Demonstration of Arduino:

Control of LED by using Arduino.

Control of stepper motor by using Arduino.