ECE279:BASIC ELECTRICAL AND ELECTRONICS ENGINEERING LABORATORY

L:0 T:0 P:2 Credits:1

Course Outcomes: Through this course students should be able to

CO1 :: determine various measuring instruments and their application for measuring the electrical quantities using laws.

CO2 :: calculate various measuring instruments and their application for measuring the electrical quantities using theorems

CO3 :: interpret about semiconductors devices and their characteristics

CO4 :: understand the functionality of the digital trainer kit to verify basic logic gates and combinational circuits

CO5 :: demonstrate the functionality of Sequential circuits under real and simulated environments.

CO6 :: integrate the sensors and boards to enhance the knowledge

List of Practicals / Experiments:

Kirchhoff voltage law and Kirchhoff current law

- Verification of Kirchhoff voltage law and Kirchhoff current law using hardware.

Thevenin's and Norton's theorems

- Verification of Thevenin's and Norton's theorems in DC circuits using hardware.

Semiconductor devices

- Interpretation of V-I characteristics of PN diode

Analysis and Synthesis of Boolean Expressions using Basic Logic Gates

- Understanding the combinational logic by implementing the Boolean function of adders and subtractors using basic logic gates

Arduino board and its peripherals

- virtual integration of LDR and IR sensor using Arduino

Analysis and Synthesis of Logic Functions using Combinational Circuits

- understading the combinational logic by implementing the Boolean function using multiplexers and decoders

Analysis and Synthesis of Sequential Circuits using Flip-Flops

- Understanding the sequential logic by implementing the counter with flip flop.

Analysis of Functions of BCD-TO-7-segment Decoder / Driver and Operation of 7-segment LED Display

- To visualize the output of decade counter on seven segment display

References:

1. DIGITAL DESIGN PRINCIPLES AND PRACTICES PEARSON by JOHN F. WAKERLY, PEARSON

2. DIGITAL INTEGRATED ELECTRONICS by H. TAUB AND D. SCHILLING, MC GRAW HILL

3. INTERNET OF THINGS by RAJ KAMAL, MCGRAW HILL EDUCATION

4. FUNDAMENTALS OF ELECTRICAL ENGINEERING AND ELECTRONICS by B.L.THERAJA, S Chand Publishing

5. BASIC ELECTRICAL AND ELECTRONICS ENGINEERING | SECOND EDITION by D P KOTHARI (AUTHOR), I J NAGRATH (AUTHOR), MCGRAW HILL EDUCATION