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 :: Use basic electrical & electronics measuring instruments and component specific ratings.

CO2 :: Use basic electrical laws and theorems to analyse DC circuits.

CO3 :: Develop virtual applications with a sensor module by programming microcontroller board.

CO4 :: Make use of various digital & analogue ICs and conduct their functionality test.

CO5 :: Assemble various electrical & electronics components and create circuit connections.

CO6 :: Design and analyse combinational and sequential circuits.

List of Practicals / Experiments:

Kirchhoff voltage law and Kirchhoff current law

- Implement Kirchhoff voltage and current laws.

Thevenin's Theorem

- Apply Thevenin's theorem on DC circuits.

Semiconductor devices

- Analyse V-I characteristics of PN Junction diode.

Logic Gates and Universal Gates

- Understanding the truth table of Logic Gates and implement these gates using Universal gates.

Analysis and Synthesis of Logic Functions using Multiplexer.

- Understanding the combinational logic by implementing the boolean function using multiplexer

Arduino board and its peripherals

- Virtual integration of IR sensor using Arduino

Analysis and Synthesis of Flip-Flops

- Analyze JK Flip-Flop and implement T-Flip Flop using NAND based circuit of JK Flip Flop.

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

- Implement Decade counter using IC-7490 and seven segment display.

References:

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

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

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

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

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

6. DIGITAL ELECTRONICS, PRINCIPLES, DEVICES AND APPLICATIONS by ANIL K. MAINI, JOHN WILEY & SONS