ECE216:DIGITAL ELECTRONICS LABORATORY

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

Course Outcomes: Through this course students should be able to

- Describe the design and functionality of digital circuits.
- Analyze the digital circuits and compare its theoretical performace to actual performance.
- Analyze functionality of the digital trainer kit to verify basic logic truth table.

List of Practicals / Experiments:

Analysis and Synthesis of Boolean Expressions using Basic Logic Gates

- Understanding the combinational logic byimplementing the boolean function usingAND, OR and NOT gate.

Analysis and Synthesis of Arithmetic Expressions using Adders/Subtractors

- To design and analyze the circuit for Full adder and Full subtractor using Logic Gates.

Design and implementation of combinational and sequential circuit using Software

- To implement and simulate combinational and sequential circuit using DSCH/Proteus.

Analysis and Synthesis of Logic Functions using Multiplexers and decoders

- Understanding the combinational logic byimplementing the boolean function usingmultiplexer
- Understanding the combinational logic byimplementing the boolean function usingDecoder

Analysis and Synthesis of Sequential Circuits using Flip-Flops

- Understanding the sequentianal logic byimplementing the flip flop with the helpof logic gates
- Understanding the sequentianal logic byimplementing the counter with flip flop.

Digital Electronics

- To visualize the output in decimal on seven segment display for BCD inputs
- To visualize the output of decade counter on seven segment display

Design and Implementation of application based projects.

- To Design a Line Following Robot using basic Logic gates.

References:

1. DIGITAL ELECTRONICS PRINCIPLES AND INTEGRATED CIRCUITS by ANIL K MAINI, WILEY

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

3. DIGITAL FUNDAMENTALS by THOMAS L. FLOYD , R. P JAIN, PEARSON

4. DIGITAL INTEGRATED ELECTRONICS by H. TAUB AND D. SCHILLING, MCGRAW HILL EDUCATION