Digital Logic Design Course

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Objective

This set of 12 experiments are part of a complete Digital Logic Design course. Students will gain basic knowledge and skills in the analysis and design of logic circuits, while becoming familiar with using state-of-the-art test and measurement instruments.

After completing this course, the student will:

    a. Become familiar with the Lab Environment and basic test & measurement instrumentation
    b. Develop skills in analyzing and testing the behavior of sequential and combinational logic circuits
    c. Gain experience in creating logic circuit representation of logic functions
    d. Get hands-on experience with various SSI and MSI circuits

Equipment

- Agilent 33120A Function Generator
- Agilent 54645D Mixed-Signal Oscilloscope
- Agilent E3631A DC power supply
- Proto board
- A PC
- Various SSI and MSI IC's (see Labs)

Experiments

- Syllabus: Digital Logic Design
- EECS 1100 Laboratory Report Guidelines
- Lab 1: Intro to Lab Equipment and Procedures
- Lab 2: Number Representation
- Lab 3: Implementation of SOP and POS Form Logic Functions
- Lab 4: Implementation of Parity Logic
- Lab 5: Code Conversion: BCD to Gray Code
- Lab 6: NAND/NOR Implementation of Logic Functions
- Lab 7: Multiplexer/Decoder Implementation of Logic Functions
- Lab 8: Properties of Latches/Flip-Flops
- Lab 9: Properties of Flip-Flops
- Lab 10: Shift Register
- Lab 11: Design of Synchronous Counters
- Lab 12: FPGA Implementation of Sequential Logic