Course Outline for ENGR 357: Basic Digital Lab

Required
Electrical Engineering

Bulletin Description
ENGR 357: Basic Digital Lab (1 unit)
Prerequisite: ENGR 356 (may be taken concurrently).
Circuit construction and troubleshooting techniques. EDA tools and simulation.
Combinational and sequential circuits. Semiconductor memory. Extra fee required.

Textbooks

References
Schematic Design Entry and Functional Simulation (28-page booklet available from the Stockroom, SCI-140)

Coordinator
Sung C. Hu, Professor of Engineering

Prerequisites (Co-requisites) by Topic
1. Basic electricity
2. Computer programming
3. Combinational logic circuits
4. Sequential logic circuits

Course Objectives ¹
1. To strengthen fundamentals of digital systems analysis and design learned in ENGR 356. [A.1, B.1]
2. To gain hands-on experience in working with digital integrated circuits and EDA tools. [B.2, B.3]

¹ Numbers in brackets refer to the educational objectives and outcomes of the School of Engineering.
Topics
1. Design, construction, verification, and troubleshooting of digital circuits.
2. Schematic entry and computer-based simulation.

Professional Component
Engineering Science 0%
Engineering Design 100%

Evaluation
1. Laboratory reports 70%
2. Lab Hands on final exam 30%

Performance Criteria

Objective 1
1.1 The student will demonstrate an ability to analyze simple combinational and sequential circuits. [1]
1.2 The student will demonstrate an ability to design simple combinational and sequential circuits. [1, 2]

Objective 2
2.1 The student will demonstrate a skill of implementing digital circuit using SSI and MSI ICs. [1, 2]
2.2 The student will demonstrate a skill in troubleshooting a digital circuit. [1, 2]
2.3 The student will demonstrate a skill in schematic capture and simulation. [1, 2]

Fall Semester, 2007
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Class/Laboratory Schedule (for Schedule, see the last page of this Syllabus)
One 3-hour lab session/week

Prepared by
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Numbers in brackets refer to the evaluation methods used to assess student performance.