

ECE 250 – ELECTRIC DIGITAL DESIGN

Type (check one): Required: X Elective:

2005-2006 Catalog Data: ECE 250. Digital Design. Binary number system and Boolean Algebra. Minimization of logic functions. Implementation of logic circuits. Design of combinational circuits. Sequential devices. Design of synchronous sequential circuits. Introduction to counters, registers, and Register Transfer Language. Design of advanced arithmetic circuits. Memory devices. Processor design and microprogramming. Written reports are required for each of three design projects. Prerequisite: ECE 112 or CS122 and 122L. Offered in the Fall semester. One semester; three credits.

Prerequisites: ECE 112

Co-Requisites: None

Textbook: Milos Ercegovac, Tomas Lang, and Jaime Moreno, *Introduction to Digital Systems*, John Wiley & Sons, New York, 1998.

Other Required Materials: None

Other References: None

Instructor: Dr. Juan Carlos Olabe-Basogain, Professor of Electrical Engineering.

Course Objectives: This course is designed to give students a solid basis in digital logic. The student acquires the ability to apply knowledge of mathematics and science to digital logic problems.

Prerequisites by Topics: Understanding of number systems and basic programming concepts.

Topics:

1. Number systems and Boolean Algebra.
2. Minimization of logic functions.
3. Integrated circuits.
4. Implementation of logic circuits.
5. Design of combinational circuits.
6. Sequential devices.
7. Design of synchronous sequential circuits.
8. Introduction to counters and registers.
9. Design of advanced arithmetic circuits.
10. Memory devices and processor design.

Class Schedule: Three 50-minute sessions per week

Prepared by: Dr. Juan Carlos Olabe **Date:** August 2005