ECE 2372 - Modern Digital System Design

Credit / Contact hours: 3 / 3

Course coordinator: Ayrton Bernussi


Catalog description: An introduction to combinational and sequential digital systems.

Pre-requisite(s) or co-requisites: MATH 1351 (may be taken concurrently)

Designation: Required

Course learning outcomes: Upon completion of this course, students should be able to do the following:
   1. Analyze and design combinational digital logic circuits.
   2. Analyze and design sequential digital logic circuits.
   3. Use logic simulation tools.
   4. Use a hardware description language.

Student outcomes addressed: a, c, e, and k.

Topics covered
Number systems – 3 hours
Boolean algebra, Karnaugh maps, simplifications – 4 hours
Logic circuits, gates, basic logic implementation – 4 hours
Combinational logic design and implementation, hardware description languages – 4 hours
Basic cell, flip-flop design, timing consideration – 4 hours
Sequential circuit analysis and design (state assignment, next state and output decoders), counter design – 5 hours
Hardware description language for sequential design – 5 hours
Registers and counters – 3 hours
Memory and Programmable devices – 6 hours
Tests and reviews – 4 hours