EEN 316 Structured Digital Design

1 credits

Required for EE and CE

Contact hours: One 50-minute lecture per week and one 60-minute lab session per week

Course Instructor or Coordinator: Dr. Mansur Kabuka


Other supplementary material:
VHDL Cookbook (http://www.ecsi.org/EARNEST/digests/VHDL_cookbook/default.htm)

2013-2014 University of Miami Academic Bulletin Description: VHDL ((VHSIC (very high speed integrated circuits) hardware description language)) introduction and syntax. Functional and behavioral models of VHDL for design, testing and simulation of digital circuits and programmable logic devices. Design and implementation of combinational and sequential digital systems using VHDL.

Prerequisites or co-requisites: EEN 315

Specific outcomes of instruction: The student will be able to:
1. Familiar with VHDL programming concepts, design models and proper syntax
2. Design, code, and simulate combinational and sequential digital circuits using VHDL design, compilation and simulation software tools
3. Learn VHDL constructs, usability and real life applications as well as proper debugging techniques and good coding style
4. Acquire oral and written communication skills by writing technical reports and presentations

Topics
1. General properties of Hardware Description Languages
2. Using Design Architect, ModelSim, and Quartus
3. VHDL Fundamentals
4. Project 1: Design and implementation of a Combinational circuit
5. Writing VHDL Functions and packages
6. VHDL Code samples walkthrough
7. Delays and attributes
8. Project 2: Design, implementation, and synthesis of an RLE codec using a ZBT SRAM