Digital Design: ELEG 2904

Fall 2011 Class Hours: T R 9:30 – 10:50 am Room: 273 Bell

Instructor: Dr. Scott C. Smith

Office: 3170 Bell
Office Hours: T R 11:00 am – 1:00 pm, or by appointment
E-mail: smithsco@uark.edu
Phone: (479) 575-2969
Website: http://comp.uark.edu/~smithsco

Text: S. Brown and Z. Vranesic, 3rd edition of Fundamentals of Digital Logic with VHDL Design, McGraw-Hill, 2009.

Learning Objectives: To introduce students to modern logic concepts, problem solving and design principles, and vocabulary and philosophy of the digital world.

Course Outcomes: Upon successful completion of this course, students will understand logic gates, Boolean algebra, combinational logic circuits, and related devices, and will be able to analyze and design arbitrary combinational digital systems and basic sequential circuits. Specifically, students will be able to demonstrate understanding of the following concepts:

- Number Systems and Digital Arithmetic
- Logic Gates and Boolean Algebra
- Combinational Logic Design
- VHDL
- CMOS Logic Design
- Flip-Flops
- Counters and Registers
- Mealy and Moore Machine Design and Optimization

Schedule:

Introduction	Chapter 1
Number Systems and Computer Arithmetic	Chapter 5
Boolean Algebra	Chapter 2
Exam 1†	
Combinational Logic Design	Chapters 3 and 4
CMOS Logic Design	Chapter 3
Digital Hardware	Chapters 5 and 6
Introduction to VHDL	Chapters 2 and 6
Exam 2†	
Memory Elements	Chapter 7
Registers and Counters	Chapter 7
Mealy and Moore Machine Design and Optimization	Chapter 8
Exam 3†	
Optional Comprehensive Final Exam† (Thursday, December 15, 8:00 am – 10:00 am, 273 Bell)	

† Prior notification is required if unable to attend an examination period

Homework: Homework assignments are due AT THE BEGINNING OF CLASS on the specified date. No late homework will be accepted. Homework will consist of problems from the text and/or handouts, which in total will account for 1/5 or 1/6 of your final grade (depending on whether or not you take the optional final).

Grading:

Exam 1	100 points
Exam 2	100 points
Exam 3	100 points
Homework	100 points
Lab	100 points
Optional Final	100 points
Total	500 or 600 points

A	[100% - 90%]
B	(90% - 80%]
C	(80% - 70%]
D	(70% - 60%]
F	(60% - 0%]

- Final grades may be curved depending on class average

Re-grading: You will have 1 week from the date a graded exam or assignment is returned in class to ask questions concerning the grading of a particular problem. After this time, no grade changes on an exam or assignment will be made.

Cheating: You are encouraged to work with other students on homework and lab assignments, but should not directly copy another student's work; each student must turn in his/her own assignment. You must do your own work on examinations; no giving or receiving assistance from other students or looking at another student's paper. You may not modify your answer in any way on a returned graded assignment and then ask for that problem to be re-graded. The above are only examples of cheating, and are not meant to be all inclusive; if you have a question on whether or not an action would be considered cheating, it's better to error on the side of caution and ask the instructor for prior permission. Cheating in any form will not be permitted; students are subject to the University's 'Academic Integrity Policy, http://provost.uark.edu/245.php, and its corresponding sanctions, http://provost.uark.edu/246.php.