

# EE313 – Digital Logic Design and Microprocessors Course Policy

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SPRING 2011

LCDR R.C. Schultz

**A. Course Goals:** “Students shall develop the ability to understand and design combinational and sequential logic circuits and construct, test, and debug these circuits using small and medium scale integrated circuits. Students shall demonstrate an understanding of basic computer architecture and how a computer executes simple programs as it pertains to digital systems. This understanding extends to studying how to design state machines such as those at the heart of a computer’s microprocessor. The course requires a final design project.”

**B. Course Objectives:** Students shall be able to:

1. Apply their knowledge of basic digital logic to perform combinational logic circuit analysis and design.
2. Convert between decimal, binary, Binary-Coded-Decimal (BCD), octal, and hexadecimal number systems and perform computations involving signed binary number systems.
3. Analyze and design sequential logic circuits using Asynchronous and Synchronous state-machine design techniques.
4. Incorporate logic devices such as adders, multiplexers, decoders, counters and state-machines in combinational and sequential circuit designs.
5. Demonstrate an understanding of Computer Architecture and basic program execution including components, signals, and operation.
6. Demonstrate the ability to design, construct, test, and debug basic digital systems in a laboratory environment.
7. Demonstrate the ability to properly analyze and report laboratory work.
8. Work in a team setting to accomplish laboratory work and a final design project.

**C. Contact Information:**

Office: Maury 215  
Phone: 410-293-6162  
Email: rschultz@usna.edu

**D. Grades:**

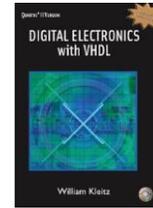
	6W	12W	Final	
6 Week Exam	70%	20%	20%	
12 Week Exam	0%	50%	20%	<i>I reserve the right to adjust your final grade up or down based upon my evaluation of your overall course preparation and participation.</i>
Final Exam	0%	0%	30%	
Final Project	0%	0%	10%	
Lab Notebook	5%	10%	10%	
Quizzes	25%	20%	10%	

**E. Calculators:** A calculator is not required for this class and will likely not be allowed on exams or quizzes.

**F. Homework:** Homework for each lecture is assigned in the syllabus and on the EE313 Web Page. The homework is not typically collected however, it is expected that you do it. If you seek EI I will likely ask to see your homework. The homework is designed to prepare you for Examinations and follow on assignments. Since it is not collected, you can determine when it is done. It is in your best interest to accomplish it on the date it is assigned since the classwork builds on previous assignments. Homework solutions will be posted prior to the regularly scheduled quizzes and exams to allow you to check your answers and seek EI if necessary.

**G. Reading Assignments:** Reading Assignments are listed in the syllabus, considered homework, and are expected to be done.

**H. Book:** The book required for this course is Digital Electronics with VHDL, Quartus II Version by William Kleitz



**H. Quizzes:** Quizzes will be given throughout the semester. The quizzes are designed to ensure you understand the material to date. Quiz questions will be selected from the homework questions so if you can do your homework problems, you can do the quizzes. Missed quizzes during a valid absence will be made up within two scheduled class periods upon returning to class. Makeup quizzes will be similar but not identical to the homework.

**I. Labs:** Weekly laboratory assignments designed to aid understanding will be assigned. A laboratory notebook shall be maintained in accordance with the guidance given on the EE313 website.

**J. Final Design Project:** Students will be divided into teams to complete a final design project. The final design project will be documented in the same manner as the regular labs. Upon completion, each team shall demonstrate successful operation of their project to the instructor.

**K. Peer Evaluation:** Each student shall submit a confidential peer evaluation for each member of their team.

**L. Missing Class:** If you miss a class, you must make up the work in a timely fashion.

**M. Excusals:** Exams missed due to emergencies may be made up. For non-emergencies, requests for missing instruction should be submitted no less than one week in advance, along with a plan to make up the missed material. Pay attention to the Commandant's List of Priorities. Elective surgery (PRK) is **NOT** an excuse to miss a scheduled exam.

**N. Extra Instruction:** EI is available via email or stopping by my office. Many questions can be answered via email which I check at various times of the day. If you want to make sure I am in my office at a given time, send me an email requesting EI.

**O. Class Leader Duties:** I will appoint a class leader and an assistant class leader. The Assistant Class Leader will carry out the duties of the Class Leader in their absence. The Class Leader will perform the following duties.

1. Bring the class to attention at the beginning of class.
2. Collect Lab Notebooks on the required days.
3. Ensure the class is cleaned up after each class
4. Call my office at 3-6162 in the unlikely event that I am more than 5 minutes late. If you can not reach me, call the ECE office at 3-6150 and lead the class in a study hall. Do not leave class early. The class should sit down, work on the next homework assignment and complete the Lab while the ECE office sends an instructor to fill in for me.

**P. Course Materials:** Bring your textbook, lab book, and notes to every class unless I say otherwise.

**Q. Leaving Early:** Don't expect to leave class early. If you finish the Labs early, I expect you to use the remaining time to work on your homework and reading assignments.

**R. Miscellaneous:** Check your email at least once a day. I will use email to communicate with the class. The EE313 website will have information to help you in your studies. Its address is

<http://www.usna.edu/EE/ee313/>