

Course Website: <http://ece.gmu.edu/~clorie/Spring10/ECE-301/>

Course Objectives

The primary objective of this course is to provide the student with the fundamental concepts and skills necessary to analyze and design combinational and sequential logic circuits. The material covered in the lecture is reinforced through practical experience in the associated lab.

Topics to be covered in this course:

1. Number Systems
2. Binary Arithmetic and Binary Codes
3. Boolean Algebra
4. Basic Logic Gates
5. Boolean Expressions
6. Karnaugh Maps
7. Minimization of Boolean Expressions
8. Analysis and Design of Combinational Logic Circuits
9. Single-bit and Multi-bit Adder Circuits
10. Multiplexers and Demultiplexers
11. Decoders and Encoders
12. Tri-state devices
13. Latches and Flip-Flops
14. Registers and Counters
15. Analysis and Design of Sequential Logic Circuits
16. Memory cells and Memory design

A more detailed schedule of the topics covered in lecture are provided in a separate document.

Attendance

Attendance in lecture is highly recommended. The material covered in the lectures will supplement that which is covered in the textbook, provide additional examples to aid in the learning and understanding of the material, and offer you the opportunity to ask questions to clarify the material. Thus, it will benefit you to attend lecture. Should you choose not to attend lecture, you will be responsible for all of the material covered – which you can learn about from one of your classmates. Should class attendance fall below an acceptable level, I reserve the right to conduct “pop quizzes”. You are adults, and as such are expected to make good decisions, ones that will give you the best chance at success.

Attendance in LAB is mandatory!

Homework

Homework will be assigned on a weekly basis, covering the material of the previous week. It is due at the **beginning** of class on Thursday. Homework submitted at the **end** of class will be assessed a **10% penalty**. **No late submissions** will be accepted. If you have a problem with the submission deadline you must speak to me in advance to make alternate arrangements.

Homework is essential to learning the material. You should make an honest and conscientious effort on all of the homework assignments.

Each homework problem will be graded according to the following scale:

- 0 No significant effort was made to solve the problem.
- 5 A significant effort was made to solve the problem, but with an erroneous result.
- 10 A significant effort was made to solve the problem, and the correct result was obtained.

Exams

There will be two exams during the course of the semester, as well as a Final exam at the end of the semester. All exams are **closed book**. You will, however, be allowed to use one side of an 8.5" x 11" sheet of paper on which to write your own notes. This "cheat sheet" may **not** include previously solved problems, and must be submitted to me at the conclusion of the exam.

There will be NO make-up exams. (See Dr. Lorie for an exception).

Students arriving more than 15 minutes late for an exam may not be admitted, resulting in a zero grade.

- Exam #1: Thursday, March 4, 2010
- Exam #2: Thursday, April 15, 2010
- Final Exam: Tuesday, May 11, 2010 (4:30 – 6:30 pm)

Labs

All lab experiments must be completed satisfactorily in order to receive a passing grade for the course.

Lab Sec. #201	T	3:00 – 4:50 pm	New Engr., 3203	Amir R. Kashanipour
Lab Sec. #202	R	3:00 – 4:50 pm	New Engr., 3203	Aveek Gangopadhyay
Lab Sec. #203	T	7:20 – 9:00 pm	New Engr., 3203	Amir R. Kashanipour

Grading

Your final grade will be the weighted average of the homework, quizzes, two semester exams, and the final exam, as calculate from the formula below:

Homework	15%
Exam #1	20%
Exam #2	20%
Final Exam	30%
Lab	15%

Course Syllabus

Letter grades will be assigned according to the following scale:

98 – 100	A+
93 – 97	A
90 – 92	A-
87 – 89	B+
83 – 86	B
80 – 82	B-
77 – 79	C+
73 – 76	C
70 – 72	C-
60 – 69	D
< 60	F

Please note that the final grades will be scaled such that the class average is a 78 (C+) prior to assigning letter grades.

Honor Code

All rules of the GMU Honor Code system will be enforced in both the lecture and the lab. You must review the rules of the GMU Honor Code and be familiar with them.

You are encouraged to discuss homework problems with other students and/or obtain the assistance of the lecture or recitation instructor. Nevertheless, please write down your own solutions which represent your understanding of the material. Duplicating another student's homework solutions, hardware/software designs, diagrams, source code, prelab assignment and exam notes is considered cheating. If you use material from other sources such as but not limited to the web, books, journals, data sheets, etc. you must reference the source.

Honor code violations will be pursued and prosecuted to the fullest extent.

Classroom Etiquette

Cellphones are to be turned off during class; minimally they must be silenced. Emergency calls may be taken, but must be taken outside of the classroom.

Texting, using your laptop for something other than lecture-related work, etc. is considered a distraction to me and to the other students trying to learn in the class, and will not be tolerated.

Students with Disabilities

If special assistance is required or special accommodations need to be made, please contact me as soon as possible so that the proper arrangements can be made.