

Prerequisites	EE 2301 or consent of the instructor
Required Texts	<i>Logic and Computer Design Fundamentals</i> , Morris Mano & Kime, 4 th ed.
Instructors	Lance Crimm and Dr. Kevin McFall in offices of Q-347* & Q-320 Office Phone: 678-915-7249 & 3004 (voicemail available) Home Phone: 770-973-9198 (Please no calls after midnight!) Email: lcrimm@kennesaw.edu (generally available 24/7!) kmcfall@kennesaw.edu Office Hours: as posted on door (or by appointment or call or email) Website: http://educate.spsu.edu/lcrimm (with link to D2L)

Course Objective The purpose of this course is for each student to learn **and** immediately apply the basic fundamentals of digital logic and embedded design. The concepts gained in this course enable students to build an essential foundation of ascertaining how to build useful electronic devices that pertain to all areas of life. Future classes will continue to use the knowledge gained in this class. (i.e. it's **VERY** important...) Although it's a lot of work, we believe that you will leave this class amazed at what you will then be able to design. The possibilities are limitless!

Course Evaluation	Grade Composition	Grade Scale
Homework Assignments	10%	90 - 100 = A
Average of Quizzes and Pop Quizzes	15%	80 - 89 = B
Midterm	20% (or 15%)	70 - 79 = C
Laboratory Average	25%	60 - 69 = D
Final Project	10%	0 - 59 = F
Final exam	20% (or 25%)	

Further Details on the above Evaluation Procedures

Homework	Homework problems will be assigned and collected for "effort grading." This means that the primary emphasis of the homework is to learn the methods and how to's of problem solving, rather than being absolutely correct. In other words, more emphasis is placed on how the problem is solved as opposed to simply arriving at a correct and precise answer, although that is very important as well. (10% penalty per day late)
Attendance	Attending class is highly suggested. I will note who is absent each day. No makeup quizzes or tests will be given unless previous arrangements are made with your instructor. Otherwise, a grade of zero will be recorded for any missed grades. In the case of extreme emergencies, contact me as soon as possible. (call and/or email and/or leave a message) Further, you are responsible for any missed notes, handouts, assignments, announcements, etc. Your attendance determines final borderline grades!
Quizzes	There will occasionally be announced one problem quizzes during about 5 to 10 minutes of any given time in a class, as well as an occasional pop quiz. These are for your benefit in learning the material. See above in Attendance regarding make-ups.
Midterm	Adequate time of at least a week notice will be given for the date of the midterm test.
Laboratory	SPCE&ET requires a passing lab grade in order to pass the class. Further details regarding lab grading and the final project will be discussed during laboratory.

Students with disabilities who believe that they may need accommodations in this class are encouraged to contact the counselor working with disabilities at 678-915-7244 as soon as possible to better ensure that such accommodations are implemented in a timely fashion.

SPSU has an Honor Code and a procedure for handling cases when academic misconduct is alleged. All students should be aware of them. Information about the Honor Code and the misconduct procedure may be found at <http://www.spsu.edu/honorcode/>.

After successfully completing this course, students will be able to demonstrate and do the following:

1. Understand the use and application of binary, octal, and hexadecimal number systems by expressing them in signed, unsigned, and fixed-point representations.
2. Demonstrate the ability to describe, manipulate, and reduce a Boolean expression utilizing Boolean algebra representations and techniques.
3. Demonstrate a thorough understanding of digital logic gates and their use in implementing Boolean logic functions by designing and constructing digital circuits.
4. Demonstrate an understanding of how both combinational and sequential digital logic functions behave, such as counters, multiplexers, decoders, encoders, registers, and flip-flops.
5. Demonstrate the ability to create and implement combinational and sequential designs with programmable logic devices using a hardware description language such as VHDL.
6. Utilizing state machines, design a complex digital system from a given set of specifications.
7. Understand how theoretical digital logic does not always translate seamlessly to real world applications as well as how to avoid such issues through proper digital design techniques.
8. Demonstrate an understanding of the fundamentals and interfacing of digital memory and distinguishing different types of ROM and RAM.
9. Learn appropriate design techniques to best prototype digital circuits such as noise reduction, power and clock distribution, timing issues, board layout, and interconnection strategies.
10. Successfully design and construct a digital project encompassing all aspects of this course.

Additional details

State of the art digital tools will be employed during laboratory to further enhance learning the applied nature of digital logic design. In addition, students will be permitted to use their own power supplies, calculators, computers, multi-meters, logic probes, etc. to design digital circuits outside of the laboratory. A digital parts kit will be provided to each student from lab fees collected.

In an effort to encourage scholarship over worrying about a letter grade, and to ensure the primary motivation for quality work is a desire to learn and improve, any student can earn an "A" in this course if he/she adheres to the below:

- Is not late for **any** assignment
- Does not miss **or** show up late for more than **three** class sessions during the semester
- Comes to class prepared with an organized and complete notebook and ready, eager, and willing to learn
- Does **NOT** score lower than 80% on any quiz assignment or other evaluation procedure such as tests.
- Does **NOT** demonstrate an obvious lack of effort, participation in class, pride of work, poor notebook, etc.