



ITEC 245 Digital Electronics
Syllabus – Spring 2008
Department of Industrial and Engineering Technology
College of Science and Technology
Morehead State University



Class Schedule: Lecture M.:12:40pm ~2:50pm (LC 315)
Lab: W.: 12:40pm ~ 2:50pm (LC 311)

Instructor: Xiaolong Li
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Phone: (606) 783-2414
Office: Room 309 Llyod Cassity Building
Office hour: Monday – Wednesday 3:00pm – 5:00pm; or by appointment

Text book:

Thomas L. Floyd, Digital Fundamentals, Prentice-Hall, Ninth Edition. ISBN 0-13-194609-9

Prerequisite

ITEC 241 or consent of instructor

Course Description

Fundamental and logical operation of digital circuits, including simple logic gates, combinational logic, flip-flop, counters, registers, and other sequential logic. This course also studies Boolean algebra to the extent needed to analyze and simplify logic gates.

Course Objectives

Upon completion of this course, the student will be able to:

- Work with a variety of number systems and numeric representations, including signed and unsigned binary, hexadecimal, 2's complement.
- Apply fundamental analysis skills to correctly describe the behavior of a given digital logic circuit.
- Translate system requirements into a practiced digital design.
- Demonstrate hands-on testbench skills and the ability to communicate appropriately via a lab notebook while functioning as part of an engineering lab team.

Course Schedule (subject to change)

Week	Date	Topic	Module
1	1/14	Syllabus and introduction	Ch 1
	1/16	Lab 1: Introduction of Multisim	
2	1/21	Holiday	
	1/23	Number systems	Ch 2

3	1/28	Basic logic gates	Ch 3
	1/30	Lab 2:	
4	2/4	Boolean algebra and K map	Ch 4
	2/6	Lab 3:	
5	2/11	Further Boolean algebra. SOP and POS. EXAM I	Ch 4
	2/13	Lab 4:	
6	2/18	Combinational logic analysis. NAND and NOR gates	Ch 5
	2/20	Lab 5:	
7	2/25	Functions of combinational logic	Ch 6
	2/27	Lab 6:	
8	3/3	Further standard combinational logic. EXAM II	Ch 6
	3/5	Lab 7:	
9	3/10	Sequential logic. Latches, Flip-Flop, and timer	Ch 7
	3/12	Lab 8:	
10	3/17-21	Spring Break	
11	3/24	Simple application of sequential logic	Ch 7
	3/26	Lab 9:	
12	3/31	Use of Flip-Flop in counter design	Ch 8
	4/2	Lab 10:	
13	4/7	Cascaded counters. Counter decoding	Ch 8
	4/9	Lab 11:	
14	4/14	Shift Registers: serial in/serial or parallel out	Ch 9
	4/16	Lab 12: EXAM III	
15	4/21	Shift register counter and other applications	Ch 9
	4/23	Lab 13:	

16	4/28	Program logic and software	Ch 11
	4/30	Lab 14:	
17	5/5-9	Final Exam	

Evaluation Method

Homework Assignments	10%
In-class Assignments	5%
Laboratory Assignments	15%
Portfolio	5%
Exam I	15%
Exam II	15%
Exam III	15%
Final Exam	20%

Homework and Laboratory assignments are very important for this course. We will handout homework and laboratory assignment for every weekly topics. Laboratory assignment grade is based on written laboratory report that you must submit a week after the lab was assigned. The written lab report must be typed and consists of five components and they are the lab topics, lab description, lab procedure, lab findings and conclusion. The later laboratory session will be more involved, and will count a little more heavily in the final grade.

There will be three exams during the semester. Exams can only be made up if you have a valid medical excuse or if prior arrangements have been made with the instructor.

In-class work in team will be used to assess students' grasp of current material presented in class. I will collect and grade these in-class assignments; this should provide quicker feedback on your understanding of the material.

Course Grading

A	> 90%
B	80% - 89%
C	70% - 79%
D	60% - 69%
F	< 59%

Academic Honesty:

While team/group work and group learning is highly recommended. No form of plagiarism will be tolerated. Please read The Eagle: Student Handbook.

The policy is located at:

<http://www.morehead-st.edu/units/studentlife/handbook/academicdishonesty.html>.

Portfolio:

At the end of the semester, students will have carefully prepared a course portfolio containing all course materials in an organized and professional format.

Students with Disabilities:

Incompliance with the Americans with Disabilities Act (ADA), all qualified students enrolled in this course are entitled to reasonable accommodations. It is student's responsibility to inform the instructor of any special needs before the end of the second week of classes.

Advisement for students with physical or learning disabilities is provided through the Center for Academic Services in 214 Allie Young Hall. Phone (606) 783-5188
Accommodations for Students with Disability

Homework and Lab Report Policy:

- Homework is suggested to be typed. Lab report must be typed.
- Homework submitted after it is due but within 12 hours will be accepted and *all* problems will be graded with a 20% penalty. Homework submitted between 12 and 24 hours late will be accepted and all problems graded with a 50% penalty. Homework over 24 hours late will not be accepted or graded.
- Later lab reports will be marked down a letter grade and will result in 50% penalty.
- Collaboration in the form of discussion of formulation of solutions or results is encouraged; however, each individual must work independently to create the final homework solution.

Attendance Policy:

Perfect and punctual attendance is expected. A roll is taken at the beginning of each class. Consistent tardiness is unacceptable; three occurrences of a student arriving late for class equals to one absence. The following attendance bonus/penalty plan will apply to all students:

- NO absence – 5 percentage bonus added to final score.
- One unexcused absence – 3 percentage bonus added to final score.
- Two unexcused absences – final score is unchanged.
- Three unexcused absences – 1 percentage subtracted from final score.
- For each subsequent unexcused absence greater than three, an additional 1 percentage will be subtracted from the student's final score.

In order for an absence to count as an excused absence, appropriate documentation must be provided. This means that a phone-call or email before the class does not by itself make an absence excused.

In-Class Conduct:

According to the MSU Student Handbook, "*No student either singly or in concert with others shall abridge the personal rights of another student by willfully disrupting or preventing the peaceful and orderly conduct of classes...*" Further, students are expected to respect one another, especially when in class. Disruptive or distracting behavior of any type is not allowed in class. This includes talking (excluding class discussion, of course), reading newspapers, snoring, etc. Students that disrupt the class may be asked to leave. Regarding late arrivals to class, consistent late arrivals are considered a serious disruption to the class. The instructor will maintain a written record of late arriving students. After a student accumulates three late arrivals, the instructor will ask the student to leave the classroom for all other class sessions in which the student arrives late.

Cell Phones and Laptops:

The use of cellular phones and pagers is common. However, the operation of a cell phone and pagers during a university class is likely to disrupt the class. Therefore, all cell phones and pagers must either be turned off or set to a silent mode of operation (e.g., vibrating rather than beeping) during class and laboratory. If you must answer a call, please quietly leave the classroom. Student whose phones disrupt the course will be asked to verbally apologize to the entire class and will be required to leave the class for the remainder of that session. The class instructor may approve an exception for special circumstances, based on a student request prior to class session. Laptops are not allowed in class. All slides will be posted in Blackboard. You don't need to use laptop for notes.

Success Tips

In addition to good attendance and completion of all assignments, planning and self-management skills, good study habits, good time management and a good attitude will greatly increase the likelihood of success in this course. Students needing assistance with any of these success tips need only ask. Morehead State University, along with your instructor, is committed to doing whatever is necessary to help you achieve your academic, and ultimately your career goals.