ECE 2500 Digital Logic
Syllabus for Spring 2026

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Course Objectives:

The purpose of this course is to learn and develop techniques for designing digital logic circuits used in computers and mobile devices, such as laptops, smartphones and tablets. Specifically, we will study the technologies and design methods used in the development of microprocessors, memories, USB drives, CD/DVD drives and LCD displays. We will also be using computer-assisted VHDL design tools commonly used in the logic design industry.
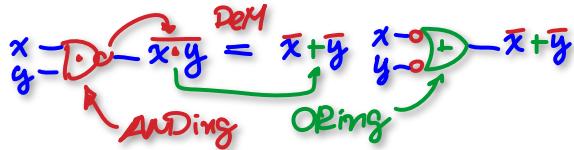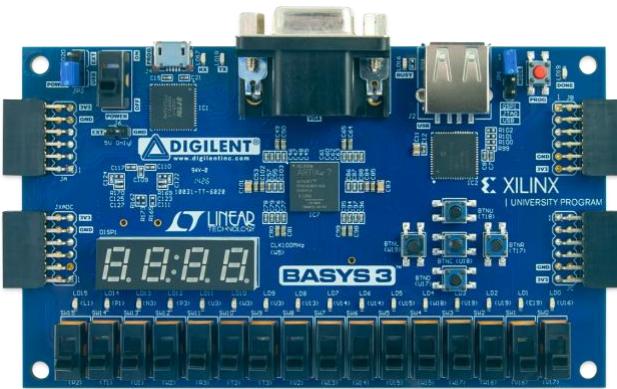
Materials Used in the Class:

1. **zyBook Registration**: Go to zybooks.com and create an account and enter the code: WMICHECE2500JohnsonSpring2026. The ECE 2500 zyBook is an "interactive textbook" covering the subject of Digital Logic. It has a set of activities (Participation Activities and Challenge Activities) which count towards the homework credit in the course. The Digital Logic zyBook is required in this course.
2. **Optional Textbook:** *Introduction to Logic Design,* 3rd Ed., by Alan Marcovitz, McGraw-Hill, 2010 Traditional paper textbook used in past years.
3. **zyLabs:** Sections at the end of each chapter in the zyBook labeled zyLabs contain the laboratory exercises to be done in the lab (f2f) under the supervision of your laboratory instructor. Some portions of it may be assigned as take home assignments.
4. **Lecture notes**: found on course website webwriters.com/ece2500

    Note: the lecture notes are in Acrobat pdf format. They are copyrighted materials from the professor of this course.
5. **iClicker**: App subscription (~$16/sem) on iPhone/Android/laptop is required. Note: The physical remote can't be used in this course.
6. **Elearning**: At GoWMU login. Can view your exam scores and other course grades here.

Course Procedures and Policies:

Exams and Quizzes: There will be two hourly exams, plus a two-hour final exam. The date of these exams are: **Tuesday February 10th** and **Tuesday April 14th** with the **FINAL EXAM** being **Monday, April 27th, at 8 am in the morning**. Exams are closed book/notes/calculator and consist entirely of multiple-choice questions, and are computer graded. The exam questions are similar in subject to that found on the weekly web quizzes. The final is comprehensive over all course material; including the first two exams and all web quizzes. Students are *required* to attend all exams as scheduled; failure to do so will in a zero score for any examination not attended (if an emergency arises, you must contact the instructor *before* any exam.)

zyLab work: A number of zyLab exercises, and two lab assessment exercises. (13 total lab meetings) Groups are formed as teams of two students, who can freely share lab information between themselves. If you don't show up for a zyLab meeting, you forfeit the points associated with the lab that week. (Exceptions to this may exist for certain situations and will be made only for those individuals who make arrangements with their lab instructor *before* the lab, giving an adequate reason why they cannot attend the meeting.) Contact your lab instructor at his/her office hours for help with the zyLabs. Note: you must also achieve a passing grade in the lab in order to pass the entire course.

WMU Honesty Policy: Attempting to obtain credit for work (lab, hw, exams) done by somebody else is illegal and punishable in this class. You are responsible for making yourself aware of and understanding the policies and procedures in the Undergraduate Catalog that pertain to Academic Honesty. http://catalog.wmich.edu/content.php?catoid=24&navoid=974 These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse.

zyBook HW: Interactive (and lab) activities are performed from the Digital Logic zyBook. Participation activity points are earned just by checking boxes on the reading materials, while Challenge activity points are worth 4x the points of a Participation activity. zyBook scores are added to Elearning after each exam compute grades.

Grading: View on <u>Elearning</u>. Grades are determined on the basis of the following guaranteed grade scal

Exam I	20%	93 - 100	A
Exam II	20%	87 - 92	BA
zyHomework	10%	80 - 86	B
zyLab Work	25%	74 - 79	CB
Final Exam	25%	68 - 73	C
	100%	63 - 67	DC
iClicker	~3% (bonus)	58 - 62	D
		0 - 57	E
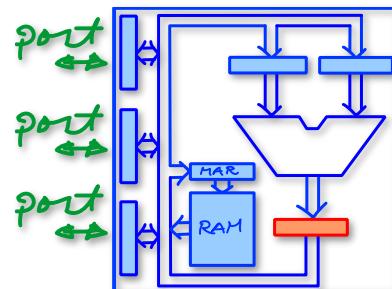
GENERAL COURSE SCHEDULE FOR ECE 2500, Spring 2026
(Revised:)

Week	Lecture & zyBook Topic	zyLab Meetings[1]
January		
13 15	The Digital World	**NO LABS**
20 22	More DW, Boolean Algebra	1 Forms of Digital Data, Proc Negative Numbers
27 29	Logic Gate Circuitry	2 Simple Adders, CL Adders, A Simple ALU&CLA
February		
3 5	minterms and K-maps	3 CMOS Circuits, NAND & NOR Logic
10 12	Maxterms & more K-maps	4 Exam Review/ 7-Segment Displays
17 19	**Exam I (Feb 17)**	5 Designing Logic with Gates… & ROM
24 26	Important CLCs, ROM	**6 Lab Assessment #1**[3]
March		
3 5	PLDs, RAM	7 ROM and RAM
10 12	Spring Break	**NO LABS**
17 19	Smartphones, Latches	8 Smartphones and Android Programming
24 26	Flip-Flops and State Machines	9 Latches and Flip Flops
April		
31 2	More SM	10 Configuring Registers and ALUs for a CPU
7 9	Important SLCs	11 Simple State Machines, A Switch Debouncer
14 16	**Exam II (April 14)**	12 Code Sequence Detectors
21 23	Finish & Review	**13 Lab Assessment #2**[3]

Final Exam is <u>Monday, April 27th</u> @ 8:00 am

Notes:
1. Lab exercises available weekly on-line in the ECE 2500 zyBook.
2. If WMU should officially close due to bad weather (or any other problem) on a date of an exam, the exam shall take place at the *next* lecture time.
3. A *lab assessment* is a one-hour open book/notes lab exam taken on an individual basis. The assessment involves written calculations as well as hands-on lab work. If you are working in a group of two, one of you will arrive at the beginning of the lab period to take your assessment; the partner will then arrive one hour afterwards to take his/hers. The assessments are worth four times the points of a regular lab.

* Much more detail is provided in the lecture notes than in text; don't miss these lectures.