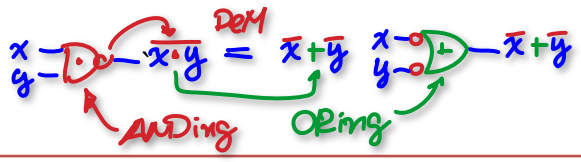
ECE 2500 Digital Logic

Syllabus for Fall 2025



Instructor: Dr. Dean Johnson
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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: WMICHECE2500JohnsonFall2025
   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,* 3th 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 for the f2f lab 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 www.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 course materials 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 October 7th** and **Tuesday November 25th** with the **FINAL EXAM** being **Thursday, December 11th, at 10:15 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.)

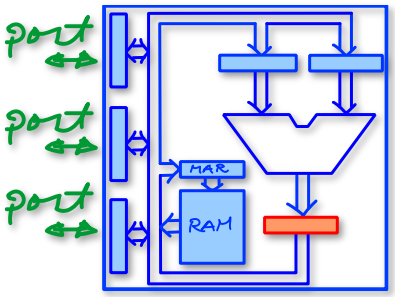
Lab work: A number of zyLab exercises, and two lab assessment exercises (12 total lab meetings). Lab groups are formed from two students, who can freely share lab information between themselves. If you don't show up for a zyLab meeting, you forfeit the points associated with the lab that week. (Exceptions 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.

Homework: 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 a Challenge activity points are worth 4x the points of a Participation activity. zyBook scores are added to Elearning after eac exam to compute grades.

Grading: View on Elearning. 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, Fall 2025

(Revised: 8/26)

Week	Lecture & zyBook Topic	zyLab Meetings[1]
September		
28	Introduction	***NO LABS***
2 4	The Digital World	1 Forms of Digital Data
9 11	Boolean Algebra Concepts*	2 Processing Negative Numbers, Simple Adders
16 18	Logic Gate Circuitry	3 Carry Lookahead Adder, Simple ALU with CLA
23 25	minterms and K-maps*	4 CMOS and Gates, ROM Circuits
October		
30 2	Maxterms & more K-maps	5 7-Segment Displays/Exam Review
7 9	**Exam I (October 7)**[2]	6 Designing Logic with…
14 16	Important CLCs/MT Break	***NO LABS***
21 23	ROM, PLDs	**7 Lab Assessment #1**[3]
28 30	RAM and Smartphones*	8 RAM and Smartphones
November		
4 6	Flip/Flops & SLCs	9 Flip-Flops, Registers & Counters
11 13	State Machines*	10 Simple State Machines
18 20	More SMs*	11 Code Sequence Detectors
25 27	**Exam II (Nov 25)**[2] /TG-Break	***NO LABS***
December		
2 4	Finish and Review	**12 Lab Assessment #2**[3]

Final Exam is Thursday, December 11th, 10:15 am in the same room

Notes:

1. Lab exercises available weekly on-line in the ECE 2500 zyBook. (Look at end of each section)
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.