

The University of Texas at Tyler
Department of Electrical Engineering

EENG 3302: Digital Systems (required)

Syllabus

Catalog Description:

EENG 3302: Digital Systems
Boolean algebra, logic gates; number systems and codes; combinational logic; sequential logic; design of logic circuits; analog-digital interface; memory devices.
Two hours of lecture and one three-hour lab per week.

Prerequisites: CHEM 1411

Credits: 3 (2 hours lecture, 1 hours laboratory per week)

Text(s): Thomas L. Floyd, **Digital Fundamentals, 9th ed.** Prentice Hall, 2006
ISBN: 0-13-194609-9

Additional Material: None

Course Coordinator: Mukul V. Shirvaikar, Associate Professor

Topics Covered: (paragraph of topics separated by semicolons)

Introductory Digital Concepts; Number Systems, Operations, and Codes; Logic Gates; Boolean Algebra and Logic Simplification; Karnaugh Maps; Combinational Logic; Functions of Combinational Logic; Flip-Flops and Related Devices; Counters; Shift Registers; Sequential Logic; Memory and Storage; Introduction to Microprocessors; Integrated Circuit Technologies.

Evaluation Methods: (only items in dark print apply):

1. Examinations / Quizzes
2. Homework
3. Report
4. Computer Programming
5. Project
6. Presentation
7. Course Participation
8. Peer Review

Course Objectives¹: By the end of this course students will be able to:

1. formulate and solve problems involving Boolean Algebra [1,3]
2. design digital systems using simple logic elements [1,3,5,7]
3. apply Karnaugh Maps to digital logic systems [1,3,5]
4. understand digital codes and number systems [1,3,7]
5. understand sequential logic circuits – flip-flops, latches, counters and their applications [1,3,5]

¹Numbers in brackets refer to method(s) used to evaluate the course objective.

Relationship to Program Outcomes (only items in dark print apply)²: This course supports the following Electrical Engineering Program Outcomes, which state that our students will:

1. have the ability to apply knowledge of the fundamentals of mathematics, science, and engineering; [1-5]
2. have the ability to use modern engineering tools and techniques in the practice of electrical engineering; [1-5]
3. have the ability to analyze electrical circuits, devices, and systems; [1-5]
4. have the ability to design electrical circuits, devices, and systems to meet application requirements; [1-5]
5. have the ability to design and conduct experiments, and analyze and interpret experimental results; [1-5]
6. have the ability to identify, formulate, and solve problems in the practice of electrical engineering using appropriate theoretical and experimental methods; [1-3]
7. have effective written, visual, and oral communication skills;
8. possess an educational background to understand the global context in which engineering is practiced, including:
 - a. knowledge of contemporary issues related to science and engineering;
 - b. the impact of engineering on society;
 - c. the role of ethics in the practice of engineering;
9. have the ability to contribute effectively as members of multi-disciplinary engineering teams;
10. have a recognition of the need for and ability to pursue continued learning throughout their professional careers.

²Numbers in brackets refer to course objective(s) that address the Program Outcome.

Contribution to Meeting Professional Component: (in semester hours)

Mathematics and Basic Sciences:		hours
Engineering Sciences and Design:	3	hours
General Education Component:		hours

Grade Replacement:

If you are repeating this course for a grade replacement, you must file an intent to receive grade forgiveness with the registrar by the 12th day of class. Failure to file an intent to use grade forgiveness will result in both the original and repeated grade being used to calculate your overall grape point average. A student will receive grade forgiveness (grade replacement) for only three (undergraduate student) or two (graduate student) course repeats during his/her career at UT Tyler. (2006-08 Catalog, p. 35)

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