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: None  

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

Text(s): Thomas L. Floyd, Digital Fundamentals, 10th ed. Prentice Hall, 2009  

Additional Material: None  

Course Coordinator: Mukul V. Shirvaikar, Professor  

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

Course Objectives:  
  1. formulate and solve problems involving Boolean Algebra [1,3]  
  2. solve problems involving digital codes, operations and number systems [1,3]  
  3. apply Karnaugh Maps to digital logic systems [1,3,5]  
  4. design digital systems using simple logic elements [1,3,5]  
  5. demonstrate knowledge of sequential logic circuits elements like flip-flops, and  
     latches and their applications [1,3,5]  
  6. demonstrate knowledge of advanced circuits like counters and registers [1,3,5]  
  7. write laboratory reports with experimental results demonstrating visual and  
     written communication skills [5]  

*Numbers in brackets refer to method(s) used to evaluate the course objective.*
Relationship to Program Outcomes (only items in dark print apply): 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.

Numbers 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 grade 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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       28 June 2002
       8 January 2004
       6 January 2005
       9 January 2006
       21 December 2006
       13 January 2008
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