EEL3712 - Logic Design I
Three Credits, One hour fifteen minutes, Engineering Topic

Instructor: Dr. Frank Urban.


Specific Course Information: Boolean Algebra. Binary number systems.
Combinational logic design using SSI, MSI and LSI. Sequential logic design.

Specific Goals for the Course:

a. Specific outcomes of instruction
Upon successful completion of this course, the student will:
1. Learn binary number system and arithmetic
2. Learn how to represent and manipulate logic functions using Boolean Algebra
3. Learn how to represent and simplify logic functions in different ways
4. Learn how to analyze and design combinational logic circuits
5. Learn how to analyze and design synchronous sequential circuits

b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.
In this course the student will have to show
(a) an ability to apply knowledge of mathematics, science, and engineering (X)
(b) an ability to design and conduct experiments (simulations), as well as to analyze, interpret data (N/A)
(c) an ability to design a system, component, or process to meet desired needs (N/A)
(d) an ability to function in multi-disciplinary teams (N/A)
(e) an ability to identify, formulate, and solve engineering problems (homework) (X)
(f) an understanding of professional and ethical responsibility (N/A)
(g) an ability to communicate effectively (through project reports) (N/A)
(h) the broad education necessary to understand the impact of engineering solutions in a global and societal context (N/A)
(i) a recognition of the need, and an ability to engage in life-long learning (N/A)
(j) a knowledge of contemporary issues (N/A)
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice (N/A)
(l) a knowledge of probability and statistics (N/A)

Brief list of the topics to be covered
1. Binary, octal, and hexadecimal numbers
2. Codes, BCD, ASCII, etc.
3. Binary logic and gates
4. Boolean Algebra
5. Standard forms
6. Logic implementations
7. Combinational logic
8. Synchronous sequential logic

**GRADING:**

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<th>Course Requirements</th>
<th>Weight</th>
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**Conversion of Numerical Grade to Letter Grade**

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