EET 2100
Principles of Digital Design

Course Description:
Applied Boolean Algebra and number systems. Logic families, K-mapping, combinational logic, multiplexers and demultiplexers, readouts and displays, flip flops.

Credit Hours:
Credits 3 (Lct:3).

Prerequisites – Co requisites:
None

Text(s) Required:

Computer Program(s):
None

Course Contents:
1. Introduction to digital systems
2. Number systems
3. Digital arithmetic, unsigned and signed numbers, one's and two's complement
4. Logic circuits
5. Boolean algebra
6. Logic minimization, Karnaugh maps
7. Combinational logic design principles
4. Design with decoders, multiplexers, demultiplexers
7. Flip-flops

Laboratory:
Build 2 bit adder/subtractor from TTL chips.
**Course Learning Objectives:**  
Upon successful completion of this class the student will be able to:

1) Demonstrate that they can convert numbers between decimal, binary, hexadecimal, binary coded decimal, octal, and other codes (SO – b, E1)  
2) Demonstrate that they can solve problems using unsigned and signed numbers (SO – a, b, E1)  
3) Demonstrate that they can minimize combinational logic circuits using both Boolean algebra and Kmap methods (SO – b, E1)  
4) Demonstrate that they can design combinational logic circuits using gates, decoders, multiplexers, and demultiplexers (SO – d, f)  
5) Demonstrate that they can work with latches and flip-flops (SO – a, b, d, E1)

**Contributions to EET Program Outcomes:**

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University / Department Policies:
Academic Misconduct
http://www.et.eng.wayne.edu/et/academicmisconduct/academicmisconduct.html
Withdrawal from Engineering Tech class
http://www.et.eng.wayne.edu/et/withdrawal/withdrawal.html
Deferred Grades
http://www.et.eng.wayne.edu/et/deferredgrade/deferredgrade.html

Code of Ethics for Engineers:
http://cems.alfred.edu/courses/ces120/ethics/abet.html
http://cems.alfred.edu/courses/ces120/ethics/ieee.html
http://onlineethics.org/codes/
http://www.iit.edu/departments/csep/codes/coe/abet-a.html

Prepared by:
Name and (optional) date of last revision