LE242: Digital Circuit Design
Thammasat University

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Prerequisite: None

Course description:

      This course introduces the design and implementation of digital circuits. Topics include number representations, codes, Boolean algebra, logic gates, combinational and sequential circuits and design (both synchronous and asynchronous). The real implementations begin with basic gates and progress to Programmable Logic Devices (PLD).

Course topics

Topic 1	Number systems
Topic 2	Boolean algebra
Topic 3	Karnaugh map
Topic 4	Design problem
Topic 5	Combinational logic circuits
Topic 6	PLD
Topic 7	Latches and flip-flops
Topic 8	Synchronous sequential circuits
Topic 9	Registers and counters
Topic 10	Asynchronous sequential circuits
Topic 11	Hazards

Textbooks:

1. Stephen Brown and Zvonko Vranesic, *Fundamentals of Digital Logics with Verilog Design*, 3rd Ed., McGraw-Hill, 2013.
2. Stephen Brown and Zvonko Vranesic, *Fundamentals of Digital Logics with VHDL Design*, 3rd Ed., McGraw-Hill, 2008 (optional).
3. M. Morris Mano and Michael D. Ciletti, *Digital Design*, 4th Ed., Prentice Hall, 2007 (optional).

Grading:

Class participation	=	5%
In-class exercises	=	20%
Midterm exam	=	35%
Final exam	=	40%

In-class Exercise Policy: Discussion of material covered in class is strongly encouraged, but the exercises you submit must be your own work. Copying and using another person's work is not allowed.

Problem sets: You are encouraged to do problem sets to reinforce what you learn in lecture, but they will not be graded.