EE3230 VLSI Design **2019 Fall Semester**

1. Course Description:

This course provides the fundamental knowledge of designing VLSI. It begins with a review of transistor theory and CMOS process technology. It then discusses the design, layout, simulation, and test considerations of a variety of CMOS logic circuits such as inverters, logic gates, flip-flops, and arithmetic circuits using different design styles (static logic, steering logic, or dynamic logic). Furthermore, system-level design, low-power techniques, semiconductor memories, and I/O plan will also be discussed in details.

2. Text book:

CMOS VLSI Design, a circuits and system perspective, Heil Weste and David Harris, published by Pearson, 4th edition, March 2010.

3. Teaching Method:

Lectures offered in Mandarin

4. Evaluation:

Homework:	30%
Final project:	20%
Midterm:	25%
Final:	25%

* Calculators are allowed in all examinations

5. Class Webpage: NTHU e-learning system (http://lms.nthu.edu.tw)

6. Syllabus:

* Introduction	Chapter 1
* MOS Transistor Theory	Chapter 2
* CMOS Process Technology	Chapter 3
* Delay and Transient Response	Chapter 4
* Power and Interconnect	Chapter 5 and 6
* Design Margin and Reliability	Chapter 7
* Combinational Circuit Design	Chapter 9
* Sequential Circuit Design	Chapter 10
* Datapath Subsystems	Chapter 11
* Array Subsystems	Chapter 12
* Special-purpose Subsystems	Chapter 13

7. Instructor:

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