EE3230 VLSI Design **2023 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 considerations of a variety of CMOS digital circuits such as inverters, logic gates, flip-flops, and arithmetic circuits using different design styles (static and dynamic logic). Furthermore, system-level design and low-power techniques 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%

5. Class Webpage: NTHU e-learning system (http://eeclass.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

7. Instructor:

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生成式人工智慧倫理聲明：**禁止使用**

經仔細考量後，本課程授課教師認為不宜於此門課程當中使用生成式人工智慧於課堂學習當中。因本課程的內容於生成式 AI 中尚有諸多錯誤，且容易影響學生對基礎核心知識之判讀。

根據本校公布之佈的「大學教育場域 AI 協作、共學與素養培養指引」，本門課程採取禁止使用，以下為相關的監管機制

- 修讀本門課程之學生應注意本門課不得繳交使用生成式人工智慧所產出的作業、報告或個人心得。若經查核發現，教師、學校或相關單位有權重新針對作業或報告重新評分或不予計分。

修讀本課程之學生於選課時視為同意以上倫理聲明。