

朝陽科技大學 099學年度第1學期教學大綱
Computer-Aided Design 電腦輔助電路設計

當期課號	2521	Course Number	2521
授課教師	張原豪	Instructor	CHANG,YUEN HAW
中文課名	電腦輔助電路設計	Course Name	Computer-Aided Design
開課單位	資訊工程系(四日)三A	Department	
修習別	選修	Required/Elective	Elective
學分數	3	Credits	3
課程目標	1.本課程在介紹使用電腦輔助工具來設計類比積體電路.本課程起於CMOS製程技術的了解,並介紹如何在Cadence環境下設計/模擬積體電路. 2.常見的CMOS電路方塊介紹:電流鏡,反向放大器,差動對,疊接放大器,單級/雙級式運算放大器,能階帶參考電路,振盪器,壓控振盪器,相鎖迴路. 3.內容:全客戶訂製晶片設計,CMOS製程及佈局,Cadence環境使用介紹,Composer電路編輯器使用,Hspice電路模擬器使用,Pre-Sim佈局前模擬設計,Virtuoso佈局編輯器使用, DRC佈局法則檢驗,Post-Sim佈局後模擬設計,專題實作研究.	Objectives	1. This course presents the CAD tool design of analog integrated circuits. The course begins with CMOS technology and principles, and introduces how to design/simulate IC circuit via Cadence tool. 2. Some CMOS blocks are introduced, including current mirrors, inverting amplifiers, differential pairs, cascode amplifiers, one-stage and two-stage OP amp, bandgap reference, oscillator, VCO, and PLL. 3. Content: Introduction to Full-Custom Design, CMOS Fabrication & Layout, Cadence Environment, Composer Editor, Hspice Simulator, Pre-Layout Simulation, Virtuoso Editor, Design Rule Check, Post-Layout Simulation, Case Study.
教材	1. Design and analog CMOS integrated circuits, Behzad Razavi (McGraw-Hill International). 2. VLS設計概論/實習,唐經洲,王立洋(高立圖書)	Teaching Materials	1. Design and analog CMOS integrated circuits, Behzad Razavi (McGraw-Hill International). 2. VLS設計概論/實習,唐經洲,王立洋(高立圖書)
成績評量方式	1. 期中末各20% 2. 期末報告20% 3. 作業:20% 4. 出席20%	Grading	1. Midterm: 20%, Final exam.: 20% 2. Final Report: 20% 3. Homework: 20% 4. Learning attitude: 20%
教師網頁	http://www.csie.cyut.edu.tw/~cyhfyc/cyhfyc.html		
教學內容	1. 本科目為IC設計基礎課程 2. Cadence CAD tools環境基本設定與操作 3. 類比IC電路設計之理論基礎 4. 實際下單訂製IC理論流程	Syllabus	1. Fundamentals of IC design 2. Operation of Cadence environment 3. Analog IC design theory 4. IC implementation

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