



課 綱 Course Outline

資訊工程學系國際組

中文課程名稱 Course Name in Chinese	超大型積體電路設計				
英文課程名稱 Course Name in English	Very large integrated circuit design				
科目代碼 Course Code	CSIEM0480	班 別 Degree	碩士班 Master' s		
修別 Type	選修 Elective	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite					
課程目標 Course Objectives					
介紹超大型積體電路的基本原理與設計技巧，使學生熟悉如何設計晶片上所使用到的元件，以及如何用這些元件構築功能單元、次系統與完整的系統。					
This course presents the basic theory and design techniques of very large scale integrated circuits. It aims at making the students understand how to design the basic components on chips, and how to design functional units, subsystems, and systems of chips.					
系教育目標 Dept.' s Education Objectives					
1	探究學科知識，善用專業技能 Explore academic knowledge, utilize professional skills.				
2	訓練評析思考，創新解決問題 Exercise analytical thinking, enhance creative problem solving skills.				
3	學習團隊分工，強化溝通表達 Participate in teamwork, strengthen communication skills.				
系專業能力 Basic Learning Outcomes				課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.' s Education Objectives	
A	統合資工知識技術之能力 Ability to integrate knowledge and technologies of computer science and information engineering.			○	
B	設計技術理論驗證實驗之能力 Ability to design and conduct science experiments and to validate hypotheses.			●	

C	資訊軟硬體設計開發之能力 Ability to design and develop computer software and hardware.	●
D	團隊專案開發之能力 Ability to design and develop team projects.	○
E	批判性思考與創新研發之能力 Ability of analytical thinking, creative research planning, and innovative development.	●

圖示說明 Illustration : ● 高度相關 Highly correlated ○ 中度相關 Moderately correlated

課程大綱
Course Outline

1. Introduction
2. Circuit and Layout
3. High-Level Description Language
4. Circuit Families
5. Combinational Circuit Design
6. Sequential Circuit Design
7. SRAM
8. CAM, ROM, and PLA
9. Design for Testability

資源需求評估（師資專長之聘任、儀器設備的配合．．．等）
Resources Required (e.g. qualifications and expertise, instrument and equipment, etc.)

計算機結構方面的師資、個人電腦。
Lecturer in the area of VLSI design, and personal computers.

課程要求和教學方式之建議
Course Requirements and Suggested Teaching Methods

講授、程式設計實作與討論。
Lecture and discussion.

其他
Miscellaneous