朝陽科技大學 091學年度第2學期教學大綱
Digital Systems 數位系統

當期課號	2588	Course Number	2588
授課教師	余昌峰	Instructor	YU,CHANG FENG
中文課名	數位系統	Course Name	Digital Systems
開課單位	資訊工程系(四日)一A	Department	
修習別	必修	Required/Elective	Required
學分數	3	Credits	3
課程目標	這個課程介紹數位系統設計與實務，內容包含邏輯電路的基本觀念、電子電路實作邏輯電路、邏輯函數的最佳化、以較大型組合電路來設計邏輯函數、儲存元件、同步與非同步序向電路。在基本觀念上，說明布林代數與邏輯閘；在電子電路實作與邏輯函數最佳化的課程中，我們使用CAD工具來設計與合成電路；接著介紹利用解碼器、編碼器、與多工器來設計邏輯函數；序向電路是另一個重點，包括：位移記錄器、計數器、有限狀態機、以及CAD工具。	Objectives	This course is an introduction to the design and implementation of digital systems. We will study various topics including basic aspects and electronic aspects of logic circuits, optimized implementation of logic functions, combinational circuits used as building blocks, storage elements, synchronous and asynchronous sequential circuits. In the basic aspects of logic circuits, we will study Boolean algebra, logic gates; in the electronic aspects and optimized implementation of logic functions, we study how to synthesize combinational circuits using logic gates and CAD tools. Using decoder, encoders, and multiplexers as building blocks in larger design is presented. Following the studies of combinational circuits, sequential circuits are introduced. We study the storage element (flip-flops), realization of shift registers and counters; explain the behavior of synchronous (asynchronous) sequential circuits (finite state machines) and develop practical design technique for both manual and automated design.
教材	板書、練習、數位邏輯實習、測驗	Teaching Materials	homework, project
成績評量方式	期中考20% 期末考20% 平時考20% 實習20% 出習率20%	Grading	Homework: 20 % Midterm: 20% Fina 20% quiz 20% Project: 20%
教師網頁	-		
教學內容	藉由認識布林代數進而應用於邏輯函數之化簡，最後完成組合邏輯電路之設計。另外，分析TTL族及CMOS族內部電路結構，作爲往後數位積體電路設計及計算機結構相關課程之基礎。	Syllabus	: To provide an introduction to computer engineering concepts, both hardware and software, with emphasis placed on digital logic concepts. Topics include binary number representations, Boolean algebra, simplification methods for combinational circuits, introduction to sequential circuit, introduction to assembly language programming, and networks. This would serve to convince declared computer engineering majors to remain in the field, and to attract students from other majors to join computer engineering. Another goal is to prepare students to take some more advanced courses in each of the fields of computer engineering.. The concepts are applied to hands-on laboratory assignments that includes hardware and software designs of a controller to navigate a robot through

			a given obstacle course

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