

南台科技大學 102 學年度第 2 學期課程資訊

課程名稱	嵌入式系統設計
課程編碼	2BM00301
系所代碼	02
開課班級	碩電機國際一甲
開課教師	魏兆煌
學分	3.0
時數	3
上課節次地點	一 5 6 7 教室 B503
必選修	選修
課程概述	Embedded systems are found everywhere, including in mobile phones, VCRs, camcorders, computerized factory controller, game machines, printers, set-top boxes, etc. This course deals with the exciting and rapidly-growing field of embedded computing systems.
課程目標	you'll learn how to develop and program embedded systems. We'll cover C programming of embedded microcontrollers, the function and use of common peripherals, and the programming and simulation (using VHDL) of custom circuits (custom digital hardware). In addition to lab exercises, homeworks, you'll have the opportunity to develop your own embedded system as a project. Graduate students are welcome to take the course.
課程大綱	<ol style="list-style-type: none"> 1. 嵌入式系統介紹 2. 實現技術 3. 硬體行為描述 4. FPGA 設計技術 5. 標準週邊設備設計 6. 通用微處理幾及 8051 發展環境 7. 軟硬體系統整合
英文大綱	<ol style="list-style-type: none"> 1. Embedded systems introduction: Processor technologies, implementation technologies, and design technologies. 2. Implementation technologies: Custom VLSI, standard cell and gate array, programmable logic devices (including FPGA's). 3. Describing behavior: sequential program, state machines, dataflow. 4. Design technologies: Synthesis (of custom processors using VHDL, Quartus II and Altera FPGA's), Verification (simulation and test), and Intellectual Property. 5. Standard peripheral (timers/counters, UARTs, LCD, Keypad, PWM, etc.) and designing custom circuit (combinational logic design, sequential logic design,

	state machine design). 6. General-purpose processors and the 8051, development environment. 7. Putting the pieces together: Memories (ROM, RAM, compositions), Interfacing (serial/parallel, interrupt-driven, parallel), Arbiters. Common interfacing protocols (PCI, ISA, I2C, CAN).
教學方式	
評量方法	
指定用書	
參考書籍	
先修科目	C language, digital circuits, microprocessor
教學資源	
注意事項	
全程外語授課	1
授課語言 1	英語
授課語言 2	
輔導考照 1	
輔導考照 2	