

南台科技大學 103 學年度第 1 學期課程資訊

課程名稱	數位通訊專論
課程編碼	30M20801
系所代碼	03
開課班級	碩研通訊一甲
開課教師	朱展毅
學分	3.0
時數	3
上課節次地點	一 4 5 6 教室 S609
必選修	必修
課程概述	本課程主要教授學生數位通訊系統的理論、數位通訊系統的結構和數位通訊傳播在各種不同環境的影響。我們將以數位電視系統為例子，讓學生了解理論與實際的相對情況。
課程目標	(1) Build theoretic backgrounds of modulation and channel coding (2) Develop a solid understanding of digital communications systems (3) Practice practical communications systems by Matlab simulation
課程大綱	1. 數位通訊系統的介紹與未來發展 2. 無線數位傳輸系統的基本結構 3. 無線數位傳輸理論與雜訊 4. 編碼理論:Viterbi and Reed-Solomon 5. 無線數位網路系統: WLAN, WPAN, and WPAN 6. 無線數位廣播系統: DVB and ATSC
英文大綱	1 Signals and spectra a) Classification of Signals b) Spectral Density and autocorrelation c) Random signals d) Signal transmission through linear systems e) Bandwidth of digital data 2 Formatting and Baseband Modulation a) Formatting data b) Formatting analog information c) Sources of noises d) Quantization e) Baseband modulation f) Correlative coding 3 Baseband Demodulation/Detection a) Signals and noise b) Detection of binary signals in Gaussian noise c) Intersymbol interference d) Equalization 4 Bandpass Modulation Demodulation/Detection a) Digital bandwidth modulation techniques b) Detection of signals in Gaussian noise c) Coherent detection d) Noncoherent detection e) Complex envelop f) Error performance for binary systems g) Error performance for M-ary Systems 5 Channel Coding: Part 1 a) Type of error control b) Structured sequences c) Linear block codes d) Cyclic codes e) Error correction and detection capability f) Well-known block codes 6 Channel Coding: Part 2 a) Convolution encoder representation b) Properties

	of convolutional codes c) Viterbi decoder 7 Channel Coding: Part 3 a) Interleaving c) Finite field d) Reed-Solomon codes d) Concatenated codes 8 Digital communications systems examples: DTV broadcasting system DVB-T
教學方式	
評量方法	
指定用書	
參考書籍	
先修科目	DSP and Probability courses
教學資源	
注意事項	
全程外語授課	0
授課語言 1	華語
授課語言 2	
輔導考照 1	
輔導考照 2	