

朝陽科技大學 099學年度第1學期教學大綱
Introduction to Digital Communications 數位通訊原理

當期課號	2540	Course Number	2540
授課教師	程大川	Instructor	Cheng, Da Chuan
中文課名	數位通訊原理	Course Name	Introduction to Digital Communications
開課單位	資訊工程系(四日)四A	Department	
修習別	選修	Required/Elective	Elective
學分數	3	Credits	3
課程目標	本課程主要講述數位通訊的基本原理。課程內容包括-數位通訊專有名詞及數位通訊的基本原理。學生在完成本課程後，將可了解以下之數位通訊基本原理：1. 帶通數位傳輸、2. 展頻調變、3. 多使用者輻射通訊、4. 消息理論、5. 改錯碼。	Objectives	The goal of this course is to provide the students with a basic knowledge of digital communications. The main topics include terminology of digital communications and the concept of digital communication basics. The students will realize the following digital communication basics after finishing this course: 1. the functions and operation of passband digital transmission, 2. the spread-spectrum modulation, 3. the multiuser radio communications, 4. the fundamental limits in information theory, and 5. error-control coding.
教材	數位通訊-譯者：郭文光 高立圖書	Teaching Materials	Pursley : Introduction to Digital Communications
成績評量方式	期中考40% 平時成績20% 期末考40%	Grading	Midterm exam 40% Presence and homework 20% Final exam 40%
教師網頁	-		
教學內容	1.機率與隨機變數 2.隨機程序簡介 3.隨機程序的線性過濾 4.在線性系統中隨機程序頻率域的分析 5.二元資料的基頻傳輸	Syllabus	1.Probability and random variables 2. Introduction to random process 3. Linear filtering of random processes 4. Frequency-domain analysis random processes in linear system 5. Baseband transmission of binary data 1. Probability and random variables 2. Introduction to random process 3. Mean, autocorrelation, and autocovariance 4. white noises 5. discrete and continuous time linear system 6. Time domain analysis of second-order random processes in linear system 7. Gaussian random processes in linear system 8. The use of Fourier transform techniques 9. Midterm exam 10. Frequency-domain analysis random processes in linear system 11. Spectrum of amplitude modulated signals 12 The spectral density of a wide-sense stationary random process 13 bandpass frequency functions 14 bandpass random processes 15 Signal sets for binary baseband transmission 16 analysis of linear receivers 17 optimization of the threshold 18 final exam

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