

課程簡介 Course Introduction

開課班級 Department	電機工程學系
授課方式 Instructional Method	課堂教學、中文
課程代號 Course Reference Number	182007
課程名稱(中文) Course Title (Chinese)	數位通訊
課程名稱(英文) Course Title (English)	Digital Communication
學分數/時數 Credit Hours	3 / 3
必(選)修 Requirement / Elective Course	選修
授課老師 Instructor	陳居毓

課程目標 Learning Objectives

The field of communications has seen many innovations with rapid and continuing advances in microelectronics. The cellular telephone is a ubiquitous example. Binary digital data transmission in the presence of noise is addressed. More advanced topics in data communication systems including M-ary systems, synchronization, spread spectrum systems, multicarrier modulation and OFDM will be also discussed in this course. MATLAB will be chosen as the simulation tool for some specific examples.

先修（前置）課程 Prerequisite

Signals and systems
Analog communication

課程大綱 Course Syllabus

週次 Week	課程單元大綱 Unit	教學方式 Instructional Method/Style/Teaching Style	參考資料或相關作業 References or Related Materials	評量方式 Grading
1	Introduction	lecture		
2	Basic concepts review	lecture		
3	Baseband communications	lecture		
4	Equalization	lecture		
5	Synchronization	lecture	computer exercises	
6	Noise effects in simple modulation systems	lecture		
7	Noise in Angle modulation	lecture		
8	Noise in Pulse-Code modulation	lecture	computer exercises	
9	Midterm exam.			Report and presentation

10	Basic binary digital communication systems	lecture	
11	Modulation schemes	lecture	
12	Fading channels	lecture	computer exercises
13	M-ary Data Communication Systems	lecture	
14	Spread-Spectrum communication systems	lecture	
15	Multicarrier Modulation	lecture	computer exercises
16	Estimation theory	lecture	
17	Source coding	lecture	
18	Final Exam.		Report and presentation

單一課程對應校能力指標程度

The Degree to Which Single Course Corresponds to School Competence

編號 No.	校核心能力 School Core Competencies	符合程度 Degree of conformity
1	道德力 (Morality)	3
2	自學力 (Self-learning)	4
3	創造力 (Creativity)	4
4	溝通力 (Communication)	3
5	就業力 (Employability)	4

單一課程對應系能力指標程度

The Degree to Which Single Course Corresponds to Department Competence

代碼 No.	類別 Category	系核心能力 Department Core Competencies	符合程度 Degree of conformity
01	系所	具備專業知識運作及運用之能力	5
02	系所	發掘問題、實驗分析及驗證之能力	4
03	系所	創新思考開發之能力	4
04	系所	協調合作、領導團隊與管理規劃之能力	3
05	系所	中英文寫作與簡報之能力	3
06	系所	強化國際觀與國際交流之能力	3

單一課程對應院能力指標程度

The Degree to Which Single Course Corresponds to College Competence

編號 No.	院核心能力 College Core Competencies	符合程度 Degree of conformity
1	語文能力	3
2	溝通與合作能力	3
3	創新與實踐能力	3
4	專業知能	5

教科書或參考用書(備註) Textbooks or Reference Books(Remarks)

自編教材

教學方法 Teaching Method

教學方法 Teaching Method	百分比 Percentage
講述	50.0
問題導向學習	30.0
討論	20.0
總和 Total	100.0

成績評量方式 Grading

評量方式 Grading	百分比 Percentage
期中考	30.0
期末考	30.0
課堂參與	20.0
作業撰寫	20.0
總和 Total	100.0