



## 教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	通訊理論與應用		學年/學期 Academic Year/Semester	112/1
課程名稱(英文) Course Name in English	Communication Theory and Applications			
科目代碼 Course Code	EE_D0120	系級 Department & Year	博士	開課單位 Course-Offering Department
電機工程學系				
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)	3.0/3.0	
授課教師 Instructor	/陳俊全			
先修課程 Prerequisite				
課程描述 Course Description				
This course provides a comprehensive coverage of digital communication systems and more engineering concepts in communication systems.				
課程目標 Course Objectives				
讓學生在修習此一課程後，能對通訊理論與應用深入的了解，以利研究工作的進行				
系專業能力 Basic Learning Outcomes				課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.'s Education Objectives
A	培育具備電機電子資訊工程等專業技術研發之能力。To cultivate the research and developing ability of electrical, electronics and information engineering。			●
B	培育系統分析、模擬驗證、實作實現之能力。To cultivate the advanced ability of analysis, verification and implementation of systems。			●
C	訓練軟體工具使用與硬體實務驗證相互輔助之能力。To train the auxiliary ability between the utilization of software tool and the verification of the hardware practice。			●
D	訓練電機電子資訊專業知識與工程實務相互結合運用之能力。To train the integrate ability between professional EECS knowledge and engineering practice。			●
E	落實高科技研究之分工整合與團體合作之領導能力。To fulfill the leading ability in high-tech research with integration and teamwork cooperation。			○
F	落實發掘問題、邏輯分析、克服瓶頸與持續學習之能力。To fulfill the ability of question finding, logical analyzing, bottleneck overcoming and continuous learning。			●
G	了解學術倫理與智慧財產觀念，掌握國內外產業更迭需求與具備多元專長之能力。To obtain the ability of multi-specialization and to meet the industry demand as well as to have the ability of academic ethics and concept of intellectual property。			○
H	參與國際研討會了解國際市場變化與未來研究走向，具備純熟科技英文閱讀溝通寫作之能力。To participate the conferences to understand the change of global market and the future trend as well as to have the skillful ability of reading, conversation and technical writing in English。			○
圖示說明Illustration：● 高度相關 Highly correlated ○ 中度相關 Moderately correlated				
授課進度表 Teaching Schedule & Content				
週次Week	內容 Subject/Topics			備註Remarks
1	1. Overview 2. Introduction of digital communication signal processing			

2	Classification of signals and spectral density	
3	Random signals and auto-correlation	
4	Signal transmission through linear systems	
5	Formatting analog information and sources of corruption	
6	Baseband modulation	
7	Baseband demodulation	
8	Baseband detection	
9	期中考試週 Midterm Exam	
10	Digital bandpass modulation techniques	
11	Detection of signals in Gaussian noise	
12	Coherent detection	
13	Non-coherent detection	
14	Error performance for binary systems	
15	M-ary signaling and performance	
16	Paper study and discussions (I)	
17	Paper study and discussions (II)	
18	期末考試週 Final Exam	

教學策略 Teaching Strategies

- 課堂講授 Lecture                       分組討論 Group Discussion                       參觀實習 Field Trip  
 其他 Miscellaneous:

教學創新自評 Teaching Self-Evaluation

創新教學(Innovative Teaching)

- 問題導向學習(PBL)                       團體合作學習(TBL)                       解決導向學習(SBL)  
 翻轉教室 Flipped Classroom                       磨課師 Moocs

社會責任(Social Responsibility)

- 在地實踐 Community Practice                       產學合作 Industry-Academia Cooperation

跨域合作(Transdisciplinary Projects)

- 跨界教學 Transdisciplinary Teaching                       跨院系教學 Inter-collegiate Teaching

- 業師合授 Courses Co-taught with Industry Practitioners

其它 other:

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學期成績計算及多元評量方式 Grading & Assessments

配分項目 Items	配分比例 Percentage	多元評量方式 Assessments							
		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	其他
平時成績 General Performance	40%			✓					
期中考成績 Midterm Exam	30%	✓							
期末考成績 Final Exam	30%	✓							
作業成績 Homework and/or Assignments									
其他 Miscellaneous (_____)									

評量方式補充說明

Grading & Assessments Supplemental instructions

教科書與參考書目 (書名、作者、書局、代理商、說明)

Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

Textbook: "Digital Communications /Fundamentals and Applications" by Bernard Sklar. 全華科技圖書  
Reference: "Digital Communications" by John Proakis. Mc Graw Hill

課程教材網址(含線上教學資訊,教師個人網址請列位於本校內之網址)

Teaching Aids & Teacher's Website(Including online teaching information.  
Personal website can be listed here.)

其他補充說明 (Supplemental instructions)