



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	智慧物聯網技術與應用		學年/學期 Academic Year/Semester	114/2
課程名稱(英文) Course Name in English	Intelligent IoT technologies and applications			
科目代碼 Course Code	EE_M0240	系級 Department & Year	碩士	開課單位 Course-Offering Department
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)	3.0/3.0	
授課教師 Instructor	/簡暉哲			
先修課程 Prerequisite				
課程描述 Course Description				
As technologies like wireless communication and wireless sensor networks advance, the Internet of Things (IoT) has gained significant traction. IoT enables us to sense and collect data from the surrounding environment, allowing for automated, intelligent functions tailored to users. This has led to the development of numerous innovative IoT applications, including smart homes, smart grids, smart transportation, and smart manufacturing. In this course, students will explore key IoT technologies, focusing on the perception layer, network layer, and application layer. Through a combination of experiments and project-based assignments, students will gain practical experience in developing and implementing IoT systems.				
課程目標 Course Objectives				
透過介紹物聯網及無線通訊技術的起源、歷程、架構等內容，讓學生先行具備基本觀念，並搭配各項實驗及產業案例讓學生擁有開發物聯網相關應用的經驗。				
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	落實論文研究之群體討論與團隊合作之互助能力。To fulfill the research ability in thesis by group discussion 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	了解國內外市場變化，具備科技英文閱讀溝通與科技論文寫作之能力。To understand the change of global market and to have the 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	Course Introduction	
2	IoT Overview Internet of Things-physical layer Technology	
3	Perception Layer Technologies	
4	Perception Layer Simulators	
5	Perception Layer Experiments - Fire alarm system	
6	Perception Layer Experiments - Automated agricultural monitoring system	
7	Network Layer Technologies and Experiments	
8	Network Layer Technologies and Experiments	
9	Mid-Term Evaluation	
10	Internet of Things-Application Layer Technology and Experiments	
11	The Application of IoT Integrated with Multimedia	
12	IoT Platforms and System Architectures (I)	
13	IoT Platforms and System Architectures (II)	
14	Professional Teachers from the Industries	
15	Professional Teachers from the Industries	
16	Semester Evaluation	
17	Semester Evaluation	
18	Flexible Teaching	

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:

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(含出缺席) General Performance (Attendance Record)	10%		✓						參與線上課程
期中考成績 Midterm Exam	30%			✓					
期末考成績 Final Exam	40%				✓				
作業成績 Homework and/or Assignments	20%		✓						
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.)									
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.)									
NDHU E-learning									
其他補充說明 (Supplemental instructions)									