國立東華大學

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	113/1
課程名稱(英文) Course Name in English	Intelligent IoT technologies and applications				
科目代碼 Course Code	CSIEM0530	系級 Department & Year	碩士	開課單位 Course-Offering Department	資訊工程學系
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)	3.0/3.0		
授課教師 Instructor	/簡暐哲				
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	統合資工知識技術之能力Ability to integrate knowledge and technologies of computer science and information engineering.	●
B	設計技術理論驗證實驗之能力Ability to design and conduct science experiments and to validate hypotheses.	●
C	資訊軟硬體設計開發之能力Ability to design and develop computer software and hardware.	●
D	團隊專案開發之能力Ability to design and develop team projects.	○
E	批判性思考與創新研發之能力。Ability of analytical thinking, creative research planning, and innovative development.	○

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 Industy-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 General Performance	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)