



課 綱 Course Outline

電機工程學系碩士班一般組

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| 中文課程名稱 Course Name in Chinese | 行動網路之無人載具通訊技術 | | | | |
| 英文課程名稱 Course Name in English | Unmanned Aerial Vehicle in Mobile Networks | | | | |
| 科目代碼 Course Code | EE__59400 | 班 別 Degree | 碩士班 Master' s | | |
| 修別 Type | 選修 Elective | 學分數 Credit(s) | 3.0 | 時 數 Hour(s) | 3.0 |
| 先修課程 Prerequisite | | | | | |
| 課程目標 Course Objectives | | | | | |
| 透過介紹無人載具及行動通訊技術的架構、技術、應用等內容，讓同學先行具備基本觀念，搭配各項實驗讓同學實作無人載具自動飛控及實踐行動通訊技術。 | | | | | |
| 系教育目標 Dept.'s Education Objectives | | | | | |
| 1 | 高階人才培育—厚實學生專業知能，培育高階科技人才。 To cultivate talents with advanced professional knowledg | | | | |
| 2 | 團隊分工領導—落實分工合作觀念，具備領導協調能力。 To train students with teamwork leading ability | | | | |
| 3 | 創新思維啟發—訓練專業實用技術，展現創新研發能力。 To inspire students with creative thinkin | | | | |
| 4 | 國際視野養成—營造國際宏觀視野，培育全球市場人才。 To educate students with global perspectiv | | | | |
| 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。 | | | ● | |

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| 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

課程大綱 Course Outline

- 無人載具通訊技術
5G 行動通訊簡介
5G 核網暨專網技術
ITS 在C-V2X應用實驗模組
C-V2X 的MEC之技術與應用實驗模組(高級)
- 無人載具飛控系統
無人載具結合人工智慧
無人載具飛行控制系統設計
無人載具自主駕駛系統設計

資源需求評估（師資專長之聘任、儀器設備的配合．．．等）
Resources Required (e.g. qualifications and expertise, instrument and equipment, etc.)

無人載具：Tello EDU
ITS 在C-V2X應用實驗：C-V2X RSU、C-V2X OBU
C-V2X 的MEC之技術與應用實驗：CSI定位開發板及模組系統

課程要求和教學方式之建議 Course Requirements and Suggested Teaching Methods

本課程除了理論授課外，將搭配無人載具通訊技術及無人載具飛控系統實驗課程，培養同學們的實作能力，此外，將邀請業師至課堂上分享無人載具於行動通訊應用的實務經驗，讓同學了解目前的產業趨勢。

其他 Miscellaneous