



課 綱 Course Outline
電機工程學系碩士班國際組

中文課程名稱 Course Name in Chinese	物聯網				
英文課程名稱 Course Name in English	Internet of Things				
科目代碼 Course Code	EE_M0090	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					
本課程旨在介紹一些重要且實用的近代線性系統回授控制理論，主要特點是針對系統狀態空間模型，運用數學方法進行系統性能分析，與回授控制器的設計，內容包括狀態回授、狀態估測與動態輸出回授等相關主題，使能實際的應用於高精度的馬達控制、機器臂、機器人與無人載具的運動控制。					
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。	●
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

內容主要包括狀態回授、狀態估測與動態輸出回授等相關理論；重要主題包括(一)線性系統狀態空間模型與座標轉換；(二)可控制與可觀測特性分析；(三)狀態回授；(四)狀態估測；(五)卡曼濾波原理；(六)最佳控制；(七)強健性控制與矩陣不等式(LMI)；(八)滑動模式控制。

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.)

Matlab/Simulink + Control System Design Toolbox

課程要求和教學方式之建議

Course Requirements and Suggested Teaching Methods

其他

Miscellaneous