



課 綱 Course Outline  
電機工程學系博士班國際組

中文課程名稱 Course Name in Chinese	半導體元件模擬				
英文課程名稱 Course Name in English	Simulation and Modeling of Semiconductor Devices				
科目代碼 Course Code	EE_D0140	班 別 Degree	博士班 Ph. D.		
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					
讓學生在修習此一課程後，能對半導體元件模擬有概念，以利研究工作的進行					
系教育目標 Dept.'s Education Objectives					
1	研究人才培育—訓練嚴謹思考能力，培育國家研究人才。 To cultivate talents with research knowledge				
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 and coordinate ability				
3	創新思維啟發—建立積極挑戰態度，展現獨力研究能力。 To inspire students with creative thinking				
4	國際視野養成—營造國際宏觀視野，培育卓越領導人才。 To educate students with global perspective and vision				
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

#### 課程大綱

#### Course Outline

半導體物理、半導體方程式、利用數值方法解偏微分方程式、PN接面一維模擬、量子效應模擬。

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.)

以具有該課程專長之教師擔任授課；整理資料所需之電腦、印表機；討論所需之投影機等教學設備。

#### 課程要求和教學方式之建議

#### Course Requirements and Suggested Teaching Methods

以專題方式按預定進度進行教學。教學以講授及討論為主，必要時以相關文獻資料加以補充。

#### 其他

#### Miscellaneous