

 國立東華大學
教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	半 導 體 元 件			學 年 / 學 期 Academic Year/Semester	114/1
課程名稱(英文) Course Name in English	Semiconductor Devices				
科目代碼 Course Code	EE__31700	系 級 Department & Year	學 三	開 課 單 位 Course-Offering Department	電 機 工 程 學 系
修 別 Type	學 程 Program	學 分 數 / 時 間 Credit(s)/Hour(s)		3.0/3.0	
授 課 教 師 Instructor	/林群傑				
先 修 課 程 Prerequisite					
課程描述 Course Description					
深入探討各種典型半導體元件的操作方式及物理機制，藉此對半導體元件有深入的了解。					
課程目標 Course Objectives					
期使學生對目前主流半導體元件有所瞭					
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	培育具備工程、應用數學與物理科學等數理知識之基本能力。To cultivate the basic knowledge of engineering, applied mathematics and physics.				●
B	培育系統分析、模擬驗證、實作實現之能力。To cultivate the basic 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	訓練電機本知學能技術與工程實務相互結合運用之能力。To train the integrate ability between professional instinct in learning technique and engineering practice.				●
E	落實專題製作之群體合作與團隊競爭之能力。To fulfill the ability of group cooperation and teamwork competition.				○
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，具備基本科技英文閱讀溝通之能力。To understand the change of global market and the have the basic ability of reading and conversation 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	Introduction to Solid State Electronics				本表僅供參考，實際進度以課堂宣佈為準。
2	Introduction to Solid State Electronics				

3	Introduction to Solid State Electronics	
4	Nonequilibrium Excess Carriers in Semiconductors	
5	Nonequilibrium Excess Carriers in Semiconductors	
6	The pn Junction Diode	
7	The pn Junction Diode	
8	Metal-Semiconductor and Semiconductor Heterojunctions	
9	期中考	
10	The Bipolar Transistor	
11	The Bipolar Transistor	
12	The Bipolar Transistor	
13	Fundamentals of the Metal-Oxide-Semiconductor Field-Effect Transistor	
14	Fundamentals of the Metal-Oxide-Semiconductor Field-Effect Transistor	
15	Metal-Oxide-Semiconductor Field-Effect Transistor: Additional Concepts	
16	期末考	
17	期末檢討	
18	彈性教學週	

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: 課堂討論

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)	20%			✓					
期中考成績 Midterm Exam	40%	✓							
期末考成績 Final Exam	40%	✓							
作業成績 Homework and/or Assignments									
其他 Miscellaneous (_____)									
評量方式補充說明 Grading & Assessments Supplemental instructions 本表僅供參考，評分方式以課堂宣佈為準。									
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.) Donald A. Neamen, “Semiconductor Physics and Devices,” 4th Edition, McGraw-Hill, New York.									
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.)									
其他補充說明 (Supplemental instructions) 本表僅供參考，實際進度以課堂宣佈為準。									