



## 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	112/2	
課程名稱(英文) Course Name in English	Semiconductor Devices				
科目代碼 Course Code	MS_40800	系級 Department & Year	學三	開課單位 Course-Offering Department	材料科學與工程學系
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)	3.0/3.0		
授課教師 Instructor	/林育賢				
先修課程 Prerequisite					
課程描述 Course Description					
Modern Semiconductor Devices for Integrated Circuits, First Edition introduces students to the world of modern semiconductor devices with an emphasis on integrated circuit applications. This course is appropriate for both undergraduate and graduate students.					
課程目標 Course Objectives					
讓學生瞭解半導體材料基本性質與元件基本理論。 This course provides students with the basic properties of semiconductor materials and the basic theory of components.					
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				
2	Semiconductor Materials, Review				
3	Semiconductor Materials, PN Junction, Review				
4	Metal-Semiconductor Junction				
5	Metal-Semiconductor Junction				
6	Metal-Semiconductor Junction				
7	清明節(放假)				
8	MOS Capacitor				
9	期中考試週 Midterm Exam				
10	MOS Capacitor				
11	MOS Capacitor				
12	MOS Capacitor				
13	Introduction to FETs				
14	High-Mobility FETs				
15	MOSFETs				

16	MOSFETs	
17	期末考試週 Final Exam	
18	彈性補充教學時間	

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: 實務

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 General Performance	30%								
期中考成績 Midterm Exam	25%								
期末考成績 Final Exam	35%								
作業成績 Homework and/or Assignments	5%								
其他 Miscellaneous (Classroom Attendance )	5%								

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.)

Textbook

Title: Modern Semiconductor Devices for Integrated Circuits

Author: Chenming Calvin Hu

References:

1. Solid State Electronic Devices

Author: Ben G. Streetman and S. K. Banerjee

2. Semiconductor Physics And Devices

Author: Donald Neamen

3. Semiconductor Devices: Physics and Technology

Author: Simon M. Sze, Ming-Kwei Lee

4. Physics of Semiconductor Devices

Author: Simon M. Sze, Kwok K. Ng

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)