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# ② 图 玄東華大學

0123773								
教學計劃表 Syllabus								
課程名稱(中文) Course Name in Chinese	半導體材料AA				學年/學期 Academic Year/Se	114/1		
課程名稱(英文) Course Name in English	Semiconductor Materials							
科目代碼 Course Code	MS5060AA	系級 Department 碩士 & Year		開課單位 Course-Offering Department	材料科學與工程學系			
修別 Type	選修 Elective	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								
讓學生在修習此一課程後,能對半導體材料有深入的了解,以利研究工作的進行。								

課程目標與系專業能 力相關性 Correlation between 系專業能力 Course Objectives Basic Learning Outcomes and Dept.'s Education Objectives 具備材料科學所需的進階物理、化學及數學的知識。Acquire required advanced physical, A chemical, and mathematic knowledge for materials science and engineering. 具備材料科學的進階專業知識,並能應用於解決工程上之問題。Acquire required advanced В professional knowledge for materials science and engineering, applicable in solving engineering problems. С 具備獨立研究之能力。Equipped with capabilities of independent research. 具備專業道德及責任感,與良好的溝通及團隊合作的能力。Acquire professional morality D and responsibility, and capability of quality communication and team cooperation. 具備適當的英文能力,應用於學習與交流。Acquire English capability used for learning Е  $\bigcirc$ and interaction.

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 (a) History (b) Semiconductor (c) Semiconductor devices	
2	Electrons and Holes in Semiconductors (I)	
3	Electrons and Holes in Semiconductors (II)	
4	Electrons and Holes in Semiconductors (III)	

5	國慶日(放假)						
6	Motion and Recombination of Electrons and Holes (I)						
7	補假						
8	Motion and Recombination of Electrons and Holes (II)						
9	期中考試週 Midterm Exam						
10	Motion and Recombination of Electrons and Holes (III)						
11	PN Junctions (I)						
12	PN Junctions (II)						
13	PN Junctions (III)						
14	14 PN Junctions (IV)						
15	Application to Optoelectronic Devices (I)						
16	Application to Optoelectronic Devices (II)						
17	期末考試週 Final Exam						
18	彈性補充教學						
	教學策略 Teaching Strategies						
✓ 課堂講	授 Lecture						
其他Mis	scellaneous:						
	教 學 創 新 自 評 Teaching Self-Evaluation						
創新教學(	Innovative Teaching)						
問題導向學習(PBL) ■ ■體合作學習(TBL) 解決導向學習(SBL)							
翻轉教室 Flipped Classroom							
社會責任(Social Responsibility)							
在地實踐Community Practice							
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	r:						

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)	30%	>								
期中考成績 Midterm Exam	25%	<b>~</b>								
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

平時成績為小考的成績 (30%)

Classroom Attendance的分數: (出席次數/整學期點名次數)\*5 (分)

### 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.)

#### 粉科書

書名: Modern Semiconductor Devices for Integrated Circuits, Author: Chenming Calvin Hu

### 參考書目:

1. Semiconductor Devices Physics and Technology

Author: Author: S. M. Sze

2. Solid State Electronic Devices, Sixth edition Author: Ben G. Streetman and S. K. Banerjee

## 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)