



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	材料基礎實驗(三):微電子製程			學年/學期 Academic Year/Semester	113/1			
課程名稱(英文) Course Name in English	Fundamental Experiments in Materials (III) : Processing in Microelectronics							
科目代碼 Course Code	MS_30800	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)	2.0/					
授課教師 Instructor	/傅彥培/陳怡嘉/林育賢/魏茂國							
先修課程 Prerequisite								

課程描述 Course Description

課程目標是訓練材料系同學對台灣蓬勃發展的半導體工業所需的微電子製程有基礎認識與實際操作經驗，做未來進入就業的準備。

The goal of the course is to train students to gain a basic understanding and practical experience in microelectronic processes required by Taiwan's booming semiconductor industry in preparation for their future career..

課程目標 Course Objectives

課程目標是訓練材料系同學對台灣蓬勃發展的半導體工業所需的微電子製程有基礎認識與實際操作經驗，做未來進入就業的準備。

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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	具備材料科學所需的物理、化學及數學的知識。Acquire required basic physical, chemical, and mathematic knowledge for materials science and engineering.	<input type="circle"/>
B	具備材料科學的專業知識，並能應用於解決工程上之問題。Acquire required professional knowledge for materials science and engineering, applicable in solving engineering problems.	<input checked="" type="circle"/>
C	具備邏輯思考、實驗執行、報告撰寫與數據解釋之能力。Equipped with capabilities of logic thinking, execution of experiment, and data interpretation.	<input checked="" type="circle"/>
D	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 and responsibility, and capability of quality communication and team cooperation	<input type="circle"/>
E	具備適當的英文能力，應用於學習與交流。Acquire English capability used for learning and interaction.	<input type="circle"/>

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	課程介紹及分組	
2	二極體的認識與測試	
3	二極體開關	

4	電晶體開關	
5	雙極性電晶體的認識與測試	
6	RC 充放電實驗	
7	染料敏化太陽能電池製作	
8	太陽能電池電壓電流的量測	
9	期中考試週 Midterm Exam	
10	管型爐燒結製備 MOS 閘極	
11	霍爾測試	
12	無塵衣穿戴+矽晶圓清洗	
13	微影製程 (1)	
14	微影製程 (2)	
15	PDMS 模造+紫外線成型	
16	AFM 測量	
17	彈性補充教學	
18	期末考試週 Final Exam	

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:

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 Industy-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
平時成績(含出缺席) General Performance (Attendance Record)								
期中考成績 Midterm Exam								
期末考成績 Final Exam	30%	✓						
作業成績 Homework and/or Assignments	70%		✓					
其他 Miscellaneous (_____)								

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.)

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)