


國立東華大學
教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	薄膜材料與光電元件技術		學年/學期 Academic Year/Semester	115/1
課程名稱(英文) Course Name in English	Thin film materials and optoelectronics device technology			
科目代碼 Course Code	OE_52910	系級 Department & Year	碩士	開課單位 Course-Offering Department
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)	3.0/3.0	
授課教師 Instructor	/林伯彥			
先修課程 Prerequisite				
課程描述 Course Description				
授課方式以播放投影片講授為主，課後作業與相關專業期刊之報告補充為輔，使同學能夠在這一學期課程對於對薄膜材料與光電元件技術有深入的了解，同時也開放每週一下午2:00-4:00做為office時間，藉此課程安排來了解學生的學習效果，做為未來從事微電子技術與半導體研究之根基。				
課程目標 Course Objectives				
讓學生在修習此一課程後，能對薄膜材料、真空技術、電漿技術與光電元件技術有深入的了解，做為未來從事微電子技術與半導體研究之根基。				
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	具有獨立研究能力。Equipped with abilities of independent research.			●
B	具有光電工程的專業知識及應用能力。Professional knowledge and application ability of Opto-electronic engineering.			●
C	具有設計與執行實驗、報告撰寫與數據解釋之能力。Abilities to design and execute experiment, write reports, and explain data.			●
D	使用儀器進行物件的分析及測試。Analysis and test of devices by instruments.			●
E	具備適當的英文能力，應用於學習與交流。English language ability to study and interac.			○
F	具有良好的溝通與團隊合作的能力。Ability to communicate and teamwork.			○
G	具有創新思維、永續發展及終身學習的能力。Creative thinking, sustainable development, and lifelong learning ability.			●
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	Syllabus_thin film material science (crystal structure)			
3	Syllabus_thin film material science (band theory & electronic transition)			

4	Syllabus_thin film material science (organic materials: electronic states and transitions (photophysical process), applications)	
5	Thin film deposition (chemical vapor deposition, CVD; i.e. MOCVD)	
6	Thin film deposition (physical vapor deposition, PVD; i.e. thermal evaporation, sputtering)	
7	Thin film characterization (Thickness, morphology, element analysis)	
8	Thin film characterization (Thickness, morphology, element analysis)	
9	期中考試週 Midterm Exam	
10	Light emitting diode (LED)_Material system, electrical and optical property, and device structure	
11	Micro light emitting diode (uLED)	
12	Organic light emitting diode (OLED)_material system, device structure	
13	Organic light emitting diode (OLED)_fabrication & characterization	
14	Exam	
15	Quantum dot light emitting diode (QDLED)_applications, challenges, material system, device structure and fabrication.	
16	Thin film transistor (TFT)_Crystalline Semiconductor, TFT Characteristics	
17	期末考試週 Final Exam	

彈性 教學 規劃 Flexible Teaching Plan	<p>請勾選(至少需勾選1 個項目): Please tick the box(es). (At least one item is required.):</p> <p><input checked="" type="checkbox"/> 問題討論 Problem-based Discussion</p> <p><input type="checkbox"/> 翻轉教學 Flipped Classroom</p> <p><input type="checkbox"/> 展演實作 Performance / Practical Presentation</p> <p><input type="checkbox"/> 校外參訪Off-campus Visit</p> <p><input type="checkbox"/> 講座活動 Lecture / Seminar</p> <p><input checked="" type="checkbox"/> 線上作業 Online Assignments</p> <p><input checked="" type="checkbox"/> 自主學習 Self-directed Learning</p> <p><input type="checkbox"/> 課業輔導Academic Support</p> <p><input type="checkbox"/> 實驗操作 Experiment Operation</p> <p><input type="checkbox"/> 遠距教學(同步) Distance Learning (Synchronous)</p> <p><input type="checkbox"/> 遠距教學(非同步) Distance Learning (Asynchronous)</p> <p><input type="checkbox"/> 其他(請填寫) Others (Please specify.):</p> <p>備註: 本校學期週數自115 學年度起調整為17 週, 為符合1學分18 小時之原則, 請教師規劃安排彈性教學。 Note: From the 115th academic year, the semester will be 17 weeks. Please include flexible teaching activities to meet the required 18 hours per credit.</p>
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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 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)	30%		✓						
期中考成績 Midterm Exam	20%	✓							
期末考成績 Final Exam	20%			✓					
作業成績 Homework and/or Assignments	30%		✓						
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.)

參考資料：

1. 自編講義

2. Introduction to Flat Panel Displays, Second Edition (Jiun-Haw Lee, I-Chun Cheng, Hong Hua, Shin-Tson Wu)

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)

課程進度依實際狀況做滾動式修正