



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	有機電子導論		學年/學期 Academic Year/Semester		114/2			
課程名稱(英文) Course Name in English	Organic Electronics							
科目代碼 Course Code	OE_53120	系級 Department & Year	碩士	開課單位 Course-Offering Department	光電工程學系			
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)	3.0/3.0					
授課教師 Instructor	/林伯彥							
先修課程 Prerequisite								

課程描述 Course Description

This course will introduce the basic optoelectronic properties of organic materials and the technology of their devices (i.e. OLED). The instruction of this course is mainly based on lecture notes and supplemented by HW and reports in related to journal papers. It is hoped that students who want to engage in organic electronics and components in the future can build up relevant basic knowledge after taking this course. Besides, office hour is 1:00-3:00 PM every Monday.

課程目標 Course Objectives

Lean the fundamental theory of organic electronics which includes photophysical and electroluminescent characteristics, and also applications

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 interact	●
F	具有良好的溝通與團隊合作的能力。Ability to communicate and teamwork	●
G	具有創新思維及終身學習的能力。Creative thinking and life-long 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	
3	Syllabus	

4	Optical Prop. 1: Born–Oppenheimer & Franck–Condon, Fermi’s golden rule, transitions	
5	Optical Prop. 2: Excitons, Spin, Energy transfer	
6	Optical Prop. 3: Exciton diffusion and recombination	
7	Electronic Properties 1: Energy bands, electron transport	
8	Electronic Properties 1: Energy bands, electron transport	
9	期中考試週 Midterm Exam	
10	Light emitters 1: Basics, efficiency, fluorescence, phosphorescence, TADF	
11	Light emitters 1: Basics, efficiency, fluorescence, phosphorescence, TADF	
12	Light emitters 2: Roll-off, White OLEDs, outcoupling	
13	Light emitters 2: Roll-off, White OLEDs, outcoupling	
14	Light emitters 3: Outcoupling, reliability	
15	Light emitters 3: Outcoupling, reliability	
16	Light detectors 1: Basics	
17	Light detectors 2: Efficiency, architect., materials, transparency	
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 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
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								
作業成績 Homework and/or Assignments								
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)

課程內容依實際上課情形滾動式調整進行