



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	光電電磁元件模擬		學年/學期 Academic Year/Semester	113/2
課程名稱(英文) Course Name in English	Simulation of opto-electromagnetic devices			
科目代碼 Course Code	OE_53200	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	/李政誼			
先修課程 Prerequisite				
課程描述 Course Description				
Provide a comprehensive introduction of modern Photonic Devices: its physics and modelling.				
課程目標 Course Objectives				
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	Modelling environment, material library, structural construction, and setting of wave equation and boundary conditions			
2	Review of electromagnetic theory			
3	Review of electromagnetic theory and plane wave			
4	Gaussian beam: theory and its modelling			
5	Waves of Reflection and Transmission, Brewster angle, and Goos-Hänchen effect			
6	Mie's scattering theory for 2D object [米式散射]: theoretical background and its simulation			
7	Mie's scattering theory for 2D object [米式散射]: theoretical background and its simulation, Transfer matrix [傳遞矩陣] and scattering matrix [散射矩陣]			
8	1D photonic crystal [一維光子晶體]: theoretical background			
9	期中考試週 Midterm Exam			
10	1D photonic crystal [一維光子晶體]: Simulation			
11	Localized surface plasmon [區域性表面電漿共振]: theoretical background and its modelling			
12	Step-index fiber [步階光纖]: theoretical background and its modelling			
13	Yagi-Uda nano-Antena [八木奈米天線]: theoretical background and its modelling			
14	2D photonic crystal [二維光子晶體]: theoretical background			

15	2D photonic crystal [二維光子晶體]: Simulation	
16	Metasurfaces [超穎介面]: theory and its modelling	
17	Project report	
18	Project report	

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 General Performance									
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)