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②國玄東華大學 安國主教 C.11.

教學計劃表 Syllabus							
課程名稱(中文) Course Name in Chinese	光電學(一)				學年/學期 Academic Year/Se	114/1	
課程名稱(英文) Course Name in English	Photonics (I)						
科目代碼 Course Code	OE10000	系級 Department 學二 & Year		開課單位 Course-Offering Department	光電工程學系		
修別 Type	學程 Program	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							
Provides a basic introduction of photonics							

課程目標 Course Objectives

簡介光學科學在工程領域上的基本應用。幾何光學:光線追蹤法、像差、透鏡設計、孔 徑和光柵、輻射計量學和光度學。波動光學:基本電磁學、偏振、干涉、波導、菲涅耳 (Fresnel)及夫朗和斐 (Faunhofer) 繞射、成像、鑑別度、空間帶寬元件。重點在使用 分析和數字工具進行光學設計。

	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	具有光電相關的物理、化學、材料及數學的知識。Physics, chemistry, material, and math knowledge related to opto-electronic engineering	•
В	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	•
С	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	•
Е	具備適當的英文能力,應用於學習與交流。English language ability to study and interact	0
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	0

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	Ch. 2 Geometry optics	
2	Ch. 2 Geometry optics	
3	Ch. 2 Geometry optics	
4	Ch. 2 Geometry optics & Ch. 18 Matrix methods in Paraxial optics	

5	Ch. 18 Matrix methods in Paraxial optics					
6	Ch. 18 Matrix methods in Paraxial optics & Ch. 3 Optical Instrumentation					
7	Ch. 3 Optical Instrumentation					
8	Ch. 3 Optical Instrumentation					
9	期中考					
10	Ch. 20 Aberration Theory					
11	Ch. 4 Wave equations, complex number, and Plane waves					
12	Ch. 4 Wave equations, complex number, and Plane waves					
13	Ch. 5 Superposition of waves					
14	Ch.7 Interference of Light					
15	Ch.7 Interference of Light					
16		行憲紀念日(放假)				
17		中華民國開國紀念日(放假)				
18	期末考試週 Final Exam					
	教 學 策 略 Teaching Strategies					
✓ 課堂講授 Lecture						
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						
社會責任(Social Responsibility)						
■ 在地實踐Community Practice ■ 産學合作 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	配分比例	多元評量方式 Assessments								
Items	Percentage	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)	10%									
期中考成績 Midterm Exam	30%									
期末考成績 Final Exam	30%									
作業成績 Homework and/or Assignments	10%									
其他 Miscellaneous (小考7次)	20%									

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.)

Reference:

- 1. Introduction to Optics (3rd Edition) authors: Frank L Pedrotti, Leno M Pedrotti, and Leno S Pedrotti
- 2. Optics, author: Ajoy Ghatak
- 3. Principles of physical optics, author: C. A. Bennett

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.)

課程講義放置於東華e學苑 http://www.elearn.ndhu.edu.tw/moodle/

線上教學連線資訊,也會一併公布在東華e學苑http://www.elearn.ndhu.edu.tw/moodle/

其他補充說明(Supplemental instructions)