國立東華大學

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/Semester	114/1
課程名稱(英文) Course Name in English	Photonics (I)				
科目代碼 Course Code	OE__10000	系級 Department & Year	學二	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	●
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	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 ☐ 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	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)