



## 教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	近代光學AB		學年/學期 Academic Year/Semester	112/2	
課程名稱(英文) Course Name in English	Modern Optics				
科目代碼 Course Code	PHYS3010AB	系級 Department & Year	學三	開課單位 Course-Offering Department	物理學系
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)	3.0/3.0		
授課教師 Instructor	/馬遠榮				
先修課程 Prerequisite					
課程描述 Course Description					
介紹近代光學與實際光學相關技術，增進學生對近代光學與技術的了解。					
課程目標 Course Objectives					
增進學生對近代光學領域的瞭解與興趣，培養獨立思考，邏輯判斷，解決近代光學問題的能力，從普物中幾何光學的概念演伸至古典光學的波動、極化、干涉、繞射，進而探討近代光學的重要理論。					
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	具備物理之基礎背景知識 Possessing fundamental knowledge in physical sciences.			●	
B	能運用基本物理知識與邏輯推理，分析解決物理問題 Being able to analyze and solve physics problems based on basic knowledge in physics as well as logical reasoning.			●	
C	對目前測量器材有基礎認識，且具有操作物理實驗儀器的能力 Being acquainted with modern equipment and being able to operate them for performing physics experiments.				
D	能使用基礎電腦程式語言解決物理問題 Being able to use basic computer programming for solving physics problems.				
E	善用各種資訊平台進行論文資料蒐集的能力 Being able to use various platforms for data collection benefiting a topical research.				
F	具備科技發展的國際視野以及外語溝通的能力 Having an international view of the technology developments and being able to use a foreign language for communications				
G	能整合物理與其它領域知識 Being able to integrate the knowledge of physics with that of other fields.				
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	本學期課程說明				
2	Ch1. Wave Motion				
3	Ch2. Electromagnetic Waves				
4	Ch3. Electromagnetic Theory				

5	Ch4. Propagation of light	
6	Ch5. Geometrical Optics I	
7	第一次期中考	
8	春假	
9	Ch6. Geometrical Optics II	
10	Ch7. Superposition of Waves I	
11	Ch8. Superposition of Waves II	
12	第二次期中考	
13	Ch9. Polarization	
14	Ch10. Interference	
15	Ch11. Diffraction	
16	期末考試週 Final Exam	
17	端午節	
18	期末解答	

### 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:

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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	0%								
期中考成績 Midterm Exam	60%								
期末考成績 Final Exam	30%								
作業成績 Homework and/or Assignments	10%								
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.)

教科書: Eugene Hecht, Optics 5th Edition (Global Edition), Pearson

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)