



## 課 綱 Course Outline

### 光電工程學系學士班

中文課程名稱 Course Name in Chinese	光電學(一)				
英文課程名稱 Course Name in English	Potonics (I)				
科目代碼 Course Code	OE__10000	班 別 Degree	學士班 Bachelor' s		
修別 Type	學程 Program	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite					
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。					
系教育目標 Dept.'s Education Objectives					
1	傳授科學知識，培訓實用技能 Acquire science knowledge, develop practical skills				
2	培養工程倫理，啟發創新思維 Sublimate engineering ethics, encourage creative thinking				
3	培養團隊精神，促進協調合作 Promote teamwork spirit, inspire coordination and cooperation				
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 interac	○
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

### 課程大綱 Course Outline

- 1.Introduction/Reflection and Refraction
- 2.Geometrical Optics - Lenses
- 3.Mirrors and Prisms
- 4.Optical Systems
- 5.Thick Lenses/ Aberrations/Optical Design
- 6.Geometrical Optics Overview
- 7.Light as wave/ Wave Paramters
- 8.Wave propagation; complex numbers; phasors
- 9.Polarization. Light sources and detectors
- 10.Fiber optics. Optical networking

資源需求評估（師資專長之聘任、儀器設備的配合．．．等）  
Resources Required (e.g. qualifications and expertise, instrument and equipment, etc.)

### 課程要求和教學方式之建議 Course Requirements and Suggested Teaching Methods

### 其他 Miscellaneous

Optics by Hecht, 3rd edition, Addison-Wesley  
Photonics: optical electronics in modern communications by Yariv and Yeh, 6th edition, Oxford