



課 綱 Course Outline
光電工程學系學士班

中文課程名稱 Course Name in Chinese	電磁學(一)				
英文課程名稱 Course Name in English	Electromagnetism(I)				
科目代碼 Course Code	OE__10080	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					
本課程內容包括簡介三維空間中的向量場概念，以向量場概念，重新檢視靜電學、靜磁學及法拉第定律，最後並將詳述電磁互感與馬克斯威爾方程式，重新理解電磁波與光波。					
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. Vector Analysis and
2. Electric Fields in Matter
3. Magnetic Fields in Matter
4. Electrodynamics
5. Conservation Laws
6. Electromagnetic Waves
7. Potentials and Fields

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

Text book:
David J. Griffiths, "Introduction to Electrodynamics"
The Feynman Lectures on Physics Vol. 2
D. K. Cheng' s"Field and Wave Electromagnetics"