



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"