



課 綱 Course Outline

光電工程學系碩士班

中文課程名稱 Course Name in Chinese	奈米材料科技									
英文課程名稱 Course Name in English	Nanomaterials and Nanotechnology									
科目代碼 Course Code	OE_52400	班 別 Degree	碩士班 Master's							
修別 Type	選修 Elective	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0					
先修課程 Prerequisite										
課程目標 Course Objectives										
本課程探討不同維度的奈米結構之物理、化學及光電特性，以及相關奈米製成技術原理之介紹										
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 skill									
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，啟發獨創能力。 Develop the spirit of teamwork, and inspire the creative ability.									
4	提昇專業素養，拓展國際視野。 Develop professional ability, broaden global perspectives									
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	具有獨立研究能力 Equipped with abilities of independent research.				<input type="radio"/>					
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				<input checked="" type="radio"/>					
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

課程大綱
Course Outline

1. Nanomaterial Applications
2. Physical Chemistry of Nanomaterials
3. Fundamental of Nanotechnology
4. Nanotechnology for Synthesis of 0-dimential Nanostructures
5. Nanotechnology for Synthesis of 1-dimential Nanostructures
6. Nanotechnology for Synthesis of 2-dimential Nanostructures
7. Experimental technique in analysis of nanomaterials

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.)

無特殊需求

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

課堂講演

其他
Miscellaneous

參考書目：

1. "Nanostructures and Nanomaterials: Synthesis, Properties and Applications", Guozhong Cao, Imperial College Press, London, UK, 2004.
2. "Nanomaterials, Nanotechnologies and Design: An introduction for Engineers and Architects", M. Ashby, P. Ferreira, D. Schodek, Butterworth- Heinemann, 2009.
3. "Nanomaterials Handbook", Yury Gogotsi (Eds.), CRC Taylor & Francis, 2006.
4. "奈米科技", 葉瑞銘 編著, 高立圖書, 2009
5. SCI Journals