



## 教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	奈米材料科技			學年/學期 Academic Year/Semester	113/1			
課程名稱(英文) Course Name in English	Nanomaterials and Nanotechnology							
科目代碼 Course Code	OE_52400	系級 Department & Year	碩士 Master	開課單位 Course-Offering Department	光電工程學系 Department of Optoelectronic Engineering			
修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour(s)	3.0/3.0					
授課教師 Instructor	/徐裕奎							
先修課程 Prerequisite								

## 課程描述 Course Description

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。

## 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="circle"/>
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="circle"/>
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	<input checked="" type="circle"/>
F	具有良好的溝通與團隊合作的能力。Ability to communicate and teamwork	<input type="circle"/>
G	具有創新思維及終身學習的能力。Creative thinking and life-long learning ability	<input checked="" type="circle"/>

圖示說明Illustration : ● 高度相關 Highly correlated ○ 中度相關 Moderately correlated

## 授課進度表 Teaching Schedule &amp; Content

週次Week	內容 Subject/Topics	備註Remarks
1	Overview	
2	Introduction to Nanomaterials and Nanotechnology	
3	Physical Chemistry of Solid Surface (I)	
4	Physical Chemistry of Solid Surface (II)	
5	0-dimentional Nanostructures	

6	0-dimentional Nanostructures	
7	1-dimentional Nanostructures	
8	1-dimentional Nanostructures	
9	期中考試週 Midterm Exam	
10	2-dimentional Nanostructures	
11	2-dimentional Nanostructures	
12	Special Nanomaterials	
13	Special Nanomaterials	
14	Applications for Solar Cells	
15	期末報告 Paper report	
16	期末報告 Paper report	
17	期末考試週 Final Exam	
18	教師彈性補充教學	

#### 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
平時成績(含出缺席) General Performance (Attendance Record)	10%							
期中考成績 Midterm Exam	30%							
期末考成績 Final Exam	30%							
作業成績 Homework and/or Assignments								
其他 Miscellaneous (期末報告)	30%							

### 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.)

Textbook:

"Nanostructures and Nanomaterials: Synthesis, Properties and Applications", Guozhong Cao, (MSE, University of Washington, USA) Imperial College Press, London, UK, April 2004.

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.)

e學院

#### 其他補充說明 (Supplemental instructions)