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②国玄東華大學

教學計劃表 Syllabus

	課程名稱(中文) Course Name in Chinese 太陽能轉換光電化學 Aca					學年/學期 Academic Year/Seme	ester	113/2	
課程名稱(英文) Course Name in English Photoelectrochemistry in Solar Energy Conversion									
科目代碼 Course Code			OE51600	系級 開課單位 Department 碩士 Course-Offering Department		光電工程學系			
		修別 Type	選修 Elective	學分數/時間 Credit(s)/Hour		3.0	0/3.0		
		課教師 tructor	/徐裕奎						
	先修課程 Prerequisite								
			課	程描述 Course	e Descrip	otion			
太陽光能的利用藉由光電半導體材料在介面利用光電化學反應,將太陽能轉換成電能或者以化學能形式儲存,為本課程之主旨。課程內容將會以奈米光電材料以及光電化學電池為主要的介紹內容。									
			課	程目標 Cours	se Object	zives			
能源開發為當前科技發展之重要課題,本課程將探討與環境及太陽能轉換 相關之光電化學。									
課程目標與系專業能 力相關性 Correlation between Course Objectives Basic Learning Outcomes and Dept.'s Education Objectives									
A 具有獨立研究能力Equipped with abilities of independent research.								\circ	
	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								
	目右亞計與勃行會於、超生機管與數據超釋之於力。Abilitias to design and evecute							0	
D	使用儀器進行物件的分析及測試。Analysis and test of devices by instruments							\bigcirc	
Е	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	F 具有良好的溝通與團隊合作的能力。Ability to communicate and teamwork						\bigcirc		
G	G 具有創新思維及終身學習的能力。Creative thinking and life-long learning ability							\circ	
圖示說明Illustration : ● 高度相關 Highly correlated ○中度相關 Moderately correlated									
授課進度表 Teaching Schedule & Content									
週次Week		內容 Subject/Topics						備註Remarks	
1		Introduction							
2		Introduction and Characteristics of Solar Cells (I)							
3 Introduction an			nd Characteristics of Solar Cells (II)						
4 Fundamentals in			Semiconductor (I)						
5		Fundamentals in	damentals in Semiconductor (II)						

6	Fundamentals in Electrochemistry (I)					
7	兒童節暨民族掃墓節(放假)					
8	Fundamentals in Electrochemistry (II)					
9	期中考試週 Midterm Exam					
10	Fundamentals in Photoelectrochemistry (I)					
11	Fundamentals in Photoelectrochemistry (II)					
12	Photoelectrochemical Hydrogen Generation (I)					
13	Photoelectrochemical Hydrogen Generation (II)					
14	Dye-sensitised mesoscopic solar cells					
15	期末報告					
16	期末報告					
17	期末考試週 Final Exam					
18	彈性上課周					
	教學策略 Teaching Strategies					
	授 Lecture					
	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						
社會責任(Social Responsibility)						
在地實踐Community Practice						
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:						

學期成績計算及多元評量方式 Grading & Assessments									
配分項目	多元評量方式 Assessments								
Items	配分比例 Percentage	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	其他
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:

1. " Nanostructured and Photoelectrochemical Systems for Solar Photon Conversion "Mary D. Archer & Arthur J. Nozik (Editor)

(National Renewable Energy Laboratory, USA)

London: Imperial College Pr., : 2008.

2. "電化學-理論與應用", 田福助 編著,吳溪煌校閱,高立圖書,1997

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)

 $\label{thm:condition} \mbox{Teaching Aids \& Teacher's Website} (\mbox{Including online teaching information.}$

Personal website can be listed here.)

 	(Sunnlemental	instructions)