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②图玄東華大學

		②國互東華大							
	教	學計劃表 Syl	labus						
課程名稱(中文) Course Name in Chinese	光電半導體元何	‡AA	學年/學期 Academic Year/Semes	ter	114/1				
課程名稱(英文) Course Name in English	Optoelectronic Semiconductor Devices								
科目代碼 Course Code	EE_3365AA	系級 開課單位 Department 學三 Course-Offering Department		電機工程學系					
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)	3.0						
授課教師 Instructor	/黄家華								
先修課程 Prerequisite									
	講	是程描述 Course Descr	iption						
levices are discussed. 介紹光電半導體元件原理,包		程目標 Course Objection and Course Objection and Course Objection (1988)		元件。					
	Basic Lean	專業能力 rning Outcomes		力相 Correlatio Course Of and De Educa	與系專業能 1關性 on betweer bjectives ept.'s ation ctives				
A knowledge of engineeri	ng, applied math								
verification and imple	ementation of sys								
the utilization of sof	tware tool and t	he verification of the			•				
between professional i	nstinct in learn	運用之能力。To train th ing technique and engin	eering practice.		D				
and teamwork competiti	on.	• To fulfill the abilit		(C				
finding, logical analy	zing, bottleneck	學習之能力To fulfill th overcoming and continu	ous learning.						
		迭需求與具備多元專長之前 meet the industry dema		($\overline{}$				

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

ability of multi-specialization and to meet the industry demand as well as to have

了解國內外市場變化,具備基本科技英文閱讀溝通之能力。To understand the change of global market and the have the basic ability of reading and conversation in English.

the ability of academic ethics and concept of intellectual property

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授課進度表 Teaching Schedule & Content

週次Week 内容 Subject/Topics 備註Remarks

1	 Intrinsic and extrinsic semiconductors. Nondegenerate and degenerate semiconductors. Formation of pn junctions.
2	 band diagrams of pn junctions. Forward bias and Shockley equation.
3	Moon Festival
4	National Day
5	1. Excess Minority Carrier recombination lifetimes 2. Heterojunction
6	1. Homojunction LED 2. Heterostructure LED
7	Exam 1
8	1. LED materials 2. LED efficiency and luminous flux
9	 Optical absorption coefficients Introduction of photodetectors
10	 Operation principle of photodetectors photovoltaic mode of operation photodiode mode of operation
11	1. Spectral responsivity 2. Quantum efficiency
12	Exam 2
13	 Solar spectrum Operation principles of photovoltaic devices
14	1. IV characteristics of pn junction photovoltaic devices 2. Equivalent circuit of photovoltaic devices 3. Series resistance and parallel resistance
15	1. Materials for photovoltaic devices 2. Si and III-V Crystalline photovoltaic devices
16	New Year's Day
17	Thin-film photovoltaic devices
18	期末考試週 Final Exam

教 學 策 略 Teaching Strategies
✓ 課堂講授 Lecture ✓ 分組討論Group Discussion 参觀實習 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 Industy-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:

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	其他
平時成績(含出缺席) General Performance (Attendance Record)									
期中考成績 Midterm Exam	66%								
期末考成績 Final Exam	34%								
作業成績 Homework and/or Assignments									
其他 Miscellaneous ()									

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.)

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.)

其他補充說明(Supplemental instructions)