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## ②國玄東華大學

# 教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	薄膜科學與技術	Ī			學年/學期 Academic Year/Semester			
課程名稱(英文) Course Name in English	Thin Films: Science and Technology							
科目代碼 Course Code	MS52400	系級 Department 碩士 & Year		開課單位 Course-Offering Department	材料科學與工程學系			
修別 Type	選修 Elective	學分數/時 Credit(s)/Hou		3	3.0/3.0			
授課教師 Instructor	/陳怡嘉							
先修課程 Prerequisite								
All for late of Courses Description								

#### 課程描述 Course Description

This course illustrates various techniques for thin film deposition and their background science. Student should be able to learn the vacuum system that makes the deposition process possible, and will be able to design vacuum system and the choice of pumps to meet individual deposition requirements.

#### 課程目標 Course Objectives

讓學生在修習此一課程後,能對薄膜工程有深入的了解,以利研究工作的進行。

	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	具備材料科學所需的進階物理、化學及數學的知識。Acquire required advanced physical, chemical, and mathematic knowledge for materials science and engineering.	0
В	具備材料科學的進階專業知識,並能應用於解決工程上之問題。Acquire required advanced professional knowledge for materials science and engineering, applicable in solving engineering problems.	•
С	具備獨立研究之能力。Equipped with capabilities of independent research.	0
D	具備專業道德及責任感,與良好的溝通及團隊合作的能力。Acquire professional morality and responsibility, and capability of quality communication and team cooperation.	
Е	具備適當的英文能力,應用於學習與交流。Acquire English capability used for learning and interaction.	0

## 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	Kinetic Theory of Gases 2/20	Mat. Sci.	
2	Gas Transport and Pumping 2/27	Mat.Sci.	
3	Vacuum Pumps 3/06	Vacuum	
4	Vacuum Systems 3/13	Vacuum	

5	Physics and Chemistry of Evaporation 3/20	PVD		
6	Evaporation Hardwares and Processes 3/27	PVD		
7	4/3兒童節補假(放假) (04/03-04)			
8				
9	期中考			
10	Fundamental of Plasma Physics 4/24	Plasma		
11	Plasma Physics II 5/01	Plasma		
12	Plasma Physics II 5/08	Plasma		
13	Sputtering Processes 5/15	Sputtering		
14	Reaction Types of Chemical Vapor Deposition 5/22			
15	Substrate Surfaces and Thin-Film Nucleation 5/29	5/30補假		
16	supplementary Topics 6/05			
17	期末考試週 Final Exam 6/12	期末考		
18	supplementary Topics			
	教 學 策 略 Teaching Strategies			
✓ 課堂講	授 Lecture	Field Trip		
其他Mis	scellaneous:			
	教學創新自評 Teaching Self-Evaluation			
創新教學(	Innovative Teaching)			
✔ 問題導	向學習(PBL)	型習(SBL)		
翻轉教	室 Flipped Classroom			
社會責任(	Social Responsibility)			
在地實	踐Community Practice	on		
跨域合作(	Transdisciplinary Projects)			
跨界教	學Transdisciplinary Teaching			
✓ 業師合:	授 Courses Co-taught with Industry Practitioners			
其它 othe	r:			

學期成績計算及多元評量方式 Grading & Assessments									
配分項目	配分比例 Percentage	多元評量方式 Assessments							
Items		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)	20%	>							
期中考成績 Midterm Exam	30%	>	~						
期末考成績 Final Exam	40%	>		<b>&gt;</b>	<b>~</b>				
作業成績 Homework and/or Assignments	10%	<b>~</b>				<b>~</b>			
其他 Miscellaneous									

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.)

Milton Ohring, Materials Science of Thin Films, 2nd Ed, Academic Press, 2002.

## 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)