



教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	高分子材料科學		學年/學期 Academic Year/Semester		114/2			
課程名稱(英文) Course Name in English	Polymeric Materials Science							
科目代碼 Course Code	MS_54000	系級 Department & Year	碩士	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/時間 Credit(s)/Hour(s)	3.0/3.0					
授課教師 Instructor	/陳素華							
先修課程 Prerequisite								

課程描述 Course Description

高分子形態、相變化、溶液、機械性質、物化性鑑定、高分子之應用。

有機高分子合成方法、反應機制、反應條件、加工方法

課程目標 Course Objectives

讓學生在修習此一課程後，能對高分子材料科學有深入的了解，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.	●
B	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.	●
C	具備獨立研究之能力。Equipped with capabilities of independent research.	○
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.	
E	具備進階的英文能力，應用於學習與交流。Acquire English capability used for learning and interaction.	○

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	ntroduction to Polymer Science	
2	Polymer Structure (morphology)	
3	Molecular Weight of Polymers	
4	Testing and Spectrometric Characterization of Polymers	
5	Rheology and Physical Tests	
6	Naturally Occurring Polymer	

7	Step-Reaction Polymerization or Polycondensation Reaction	
8	Ionic Chain-Reaction and Complex Coordinative Polymerization (Addition Polymerization)	
9	期中考試週 Midterm Exam	
10	Copolymerization	
11	Free Radical Polymerization	
12	Mesophase state	
13	Mechanical Behavior of Polymers	
14	Polymer Surfaces and Interfaces	
15	Muticomponent Polymeric Materials	
16	Modern Polymer Topic-I	
17	Modern Polymer Topic-II	
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 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:

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)		✓						
期中考成績 Midterm Exam	50%	✓						
期末考成績 Final Exam	50%	✓						
作業成績 Homework and/or Assignments								
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.)

1. C. N. Satterfield, Heterogeneous Catalysis In Industrial Practice, 2nd ed.
2. G. Strobl, the Physics of Polymers , Springer

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.)

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其他補充說明 (Supplemental instructions)