

**114學年度化學工程與材料工程學系課程規畫表(114學年度入學新生適用)**  
**Tamkang University Department of Chemical Engineering and Materials Engineering**  
**Curriculum Planning Chart for 114 academic year (2025-2026) incoming freshmen**

科目名稱 /subjects		學分 credits	第 1 學年		第 2 學年		第 3 學年		第 4 學年		備註 Remarks		
			1st academic year		2nd academic year		3rd academic year		4th academic year				
			上 1st semester	下 2nd semester	上 1st semester	下 2nd semester	上 1st semester	下 2nd semester	上 1st semester	下 2nd semester			
基本知能課程12學分 12 credits for general education curriculum	外國語文學門(Q) Foreign Languages (Field Q)	8	2	2	2	2					大1英文必修、大2外文自由選 Required English in freshman year; elective foreign language in sophomore year.		
	中國語文能力表達 ABILITY OF EXPRESSING IN SPOKEN AND WRITTEN CHINESE	2	2								語文表達 ABILITY OF EXPRESSING		
	大學學習 LEARNING IN UNIVERSITY	1	1								學習與發展學門(N) Learning And Development (Field N)		
	社團學習與實作(K) LEARNING AND PRACTICE OF CLUBS	1		1							課外活動與團隊發展 Extracurricular Activities and Team-Ship Development (Field K)		
通識核心課程12學分 12 credits for General Education Curriculum	人工智慧導論 Exploring Sustainability	1	1										
	探索永續 Exploring Sustainability	1	1										
	文學經典學門(L) Classics In World Literature (Field L)	2									人文領域至少2學分 At least 2 credits in the Humanities field.	每學門至多修習2科4學分 Students may take up to 2 courses (4 credits) in each academic field.	
	歷史與文化學門(P) History And Culture (Field P)	2											
	哲學與宗教學門(V) Philosophy and Religion (Field V)	2											
	藝術欣賞與創作學門(M) Arts Appreciation and Invention (Field M)	2											
	全球視野學門(T) Global Outlook (Field T)	2									社會領域至少2學分 At least 2 credits in the Social Sciences field.		
	未來學學門(R) Futures Studies (Field R)	2											
	社會分析學門(W) Social Analysis (Field W)	2											
	公民社會及參與學門(S) Civil Society And Participation (Field S)	2											
	資訊教育學門(O) Information & Computer Education (Field O)	2									科學領域至少2學分 At least 2 credits in the Science field.		
	全球科技革命學門(Z) Global Technology Revolution (Field Z)	2											
	自然科學學門(U) Natural Sciences (Field U)	2											
其他課程 other subjects	體育 Physical Education	4	1	1	1	1					不計入畢業學分 Not counted toward graduation		
	全民國防教育軍事訓練（一）-國防科技 ALL-OUT DEFENSE EDUCATION MILITARY TRAINING(I)-NATIONAL DEFENSE TECHNOLOGY	1	1								不計入畢業學分 Not counted toward graduation credits.		
校園與社區服務學習 CAMPUS AND COMMUNITY SERVICE-LEARNING		2	1	1							不計入畢業學分 Not counted toward graduation credits.		
■本系必修課程：58學分 Required Courses：58 credits	化學工程與材料工程概論 INTRODUCTION TO CHEMICAL AND MATERIALS ENGINEERING	1	1										
	普通物理 GENERAL PHYSICS	3	3										
	微積分 CALCULUS	3		3									
	普通化學 GENERAL CHEMISTRY	4	2	2									
	普通化學實驗 GENERAL CHEMISTRY LAB.	1		1									
	材料科學 MATERIALS SCIENCE	2		2									
	質能均衡 MATERIAL AND ENERGY BALANCES	2		2									
	工程數學 ENGINEERING MATHEMATICS	6			3	3							
	有機化學 ORGANIC CHEMISTRY	4			2	2							
	有機化學實驗 ORGANIC CHEMISTRY LABORATORY	1			1								
	物理化學 PHYSICAL CHEMISTRY	6			3	3							
	無機材料 INORGANIC MATERIALS	3			3								

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	物理化學實驗 PHYSICAL CHEMISTRY LAB.	1				1					
	輸送現象與單元操作(一) TRANSPORT PHENOMENA & UNIT OPERATION (I)	3				3					
	輸送現象與單元操作(二) TRANSPORT PHENOMENA & UNIT OPERATION (II)	3					3				
	高分子化學 POLYMER CHEMISTRY	3					3				
	化工熱力學 CHEMICAL ENGINEERING THERMODYNAMICS	3					3				
	化學工程與材料工程實驗(一) CHEMICAL AND MATERIALS ENGINEERING LABORATORY (I)	1					1				
	分離程序 SEPARATION PROCESSES	3						3			
	化學反應工程 CHEMICAL REACTION ENGINEERING	3						3			
	化學工程與材料工程實驗(二) CHEMICAL AND MATERIALS ENGINEERING LABORATORY (II)	1						1			
	儀器分析 INSTRUMENTAL ANALYSIS	2						2			
	程序控制 PROCESS CONTROL	2							2		
	程序設計 PROCESS DESIGN	3							3		
	儀器分析實驗 INSTRUMENTAL ANALYSIS LAB.	1							1		
	<div>■本系系選修課程：至少須修9學分以上。 Department Elective Courses: A minimum of 9 credits must be completed.</div> <div>附註： 系選修課程之開設科目，將 依據本校規定可開課學分數 開課。不是每個科目都會開 課。</div> <div>Note: The elective courses offered by the department will be arranged based on the number of credits permitted under the university's regulations. Not all listed courses will necessarily be offered.</div>	化學工業安全概論 INTRODUCTION TO CHEMICAL PROCESS SAFETY	2	2							
生物技術概論 INTRODUCTION TO BIOTECHNOLOGY		3	3								
化學工業減廢 WASTE MINIMIZATION FOR CHEMICAL PROCESSES		3	3								
環境工程概論 INTRO. TO ENVIRONMENTAL ENGINEERING		3		3							
電化學工程 ELECTROCHEMICAL ENGINEERING PRINCIPLES		3		3							
新能源材料 NEW ENERGY MATERIALS		2			2						
光電材料與技術 OPTOELECTRONIC MATERIAL AND TECHNOLOGIES		3			3						
化工程序電腦輔助設計 CHEMICAL PROCESS COMPUTER-AIDED DESIGN		3				3					
工程統計 ENGINEERING STATISTICS		3				3					
奈米材料概論 INTRODUCTION TO NANOMATERIALS		2				2					
生化工程 BIOLOGICAL AND CHEMICAL ENGINEERING		3					3				
半導體製程概論 INTRODUCTION TO SEMICONDUCTOR PROCESSING		3					3				
化材創新利器：專利佈局與競爭力 INNOVATIVE EDGE IN CHEMICAL AND MATERIALS ENGINEERING: PATENT LANDSCAPE AND COMPETITIVENESS		2					2				
化工機械 CHEMICAL ENGINEERING EQUIPMENT		3						3			
廢水處理 WASTEWATER TREATMENT		3						3			
高分子物理 POLYMER PHYSICS		3						3			

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	固態物理與化學 SOLID STATE PHYSICS AND CHEMISTRY	3						3			
	太陽能工程 SOLAR ENERGY ENGINEERING	3						3			
	專題研究 RESEARCH SEMINAR	2					1	1			
	生醫材料工程 BIOMATERIALS ENGINEERING	3							3		
	精密分離概論 INTRODUCTION TO SEPARATION PROCESS PRINCIPLES	3							3		
	高分子加工 POLYMER PROCESSING	3							3		
	化學材料講座 LECTURES ON CHEMICAL MATERIALS	2							2		
	專利實務概論 INTRODUCTION TO PATENT PRACTICE	2							2		
	高分子材料應用實習 PRACTICE AND APPLICATIONS OF POLYMERIC MATERIALS	4							4		
	高性能聚合物材料鑑定與性能檢測 HIGH PERFORMANCE POLYMERIC MATERIAL IDENTIFICATION AND PERFORMANCE TESTS	2							2		
	高分子材料 INTRODUCTION TO POLYMERIC MATERIALS	3								3	
	儲能材料科技 TECHNOLOGY OF ENERGY STORAGE MATERIALS	3								3	
	建廠工程實務 PLANT CONSTRUCTION PROJECT PRACTICES	2								2	

(1)必修科目總學分數：89 學分(含通識教育課程24學分)

(1)Total Credits for Required Courses: 89 credits (including 24 credits in General Education courses)

(2)最低應修本系選修科目總學分數：9 學分

(2)Minimum Credits Required for Departmental Elective Courses:9 credits

(3)其他選修總學分數：30學分

(3)Minimum Number of Credits Required for Other Elective Courses: 30 credits

**畢業總學分數：128學分**

**Total Number of Credits Required for Graduation: 128 credits**