

明志科技大學四技部114學年度入學 化學工程系 課程總表

Ming Chi University of Technology 「2025 SchoolYear」 Department of Chemical Engineering

114/06/17校課程委員會會議通過
114/06/03院課程委員會會議通過
114/05/29系課程委員會會議通過
Examination at School Curriculum Committee Meeting on July 17, 2025
Examination at College Curriculum Committee Meeting on June 3, 2025
Examination at Department Curriculum Committee Meeting on May 29, 2025

	科目名稱 Course Name	一上 Grade 1 First Semester		一下 Grade 1 Second Semester		二上 Grade 2 First Semester		二下 Grade 2 Second Semester		三上 Grade 3 First Semester		三下 Grade 3 Second Semester		四上 Grade 4 First Semester		四下 Grade 4 Second Semeste		選課 條件 Course Selection Conditions	每班人數 Number of Class		備註 Remarks
		學分 Credits	時數 Hours	學分 Credits	時數 Hours	學分 Credits	時數 Hours	學分 Credits	時數 Hours	學分 Credits	時數 Hours	學分 Credits	時數 Hours	學分 Credits	時數 Hours	學分 Credits	時數 Hours		上限 Upper Limit	下限 Lower Limit	
基礎 課程 開設 22 學 分 Basic Course (22 Credits)	文學鑑賞與情意表達(Appreciation of Literature and Emotional Expression)	2	2																		
	永續發展與社會實踐 (Sustainable Development and Social Practice)	1	1																		
	生活與職場英文(English for Life and Business)	3	3	3	3																
	全民國防教育軍事訓練(All-out Defense Education Military Training)	0.5	2	0.5	2																
	體育(Physical Education)	1	2	1	2	1	2	1	2												
	藝文活動與社會參與(Art Literacy and Social Participation)			2	2																
	歷史思維與多元文化領域(Historical Thinking and Multicultural Studies)							2	2												
	英語聽講(Aural-Oral English)					1	2	1	2												
	英文實務(一)-(二)(Practical English(I)-(II))													1	2	1	2				
	合 計Total	7.5	10	6.5	9	2	4	4	6	0	0	0	0	1	2	1	2				
核心課程(共2學分) Core Course (2 Credits)	大學之道(The Goal of University Education)	1	2																		
	設計思考(Design Thinking)			1	1																
	合 計Total	1	2	1	1																
校共同必修(共18學分) Common School Course (18 Credits)	多元學習前素養訓練(Reliminary Literacy Training for Multimodal Learning)									1	1										「工讀實務實習前素養訓練」、「專業研究實習前素養訓練」、「海外交換學習前素養訓練」課程三擇一修課*Choose one course to take from Pre-Work-study Practicum Training, 'Pre-Professional Research Practicum Training', or 'Pre-Overseas Exchange Learning Training
	多元學習模組(一)(Multimodal Learning Module I)											4	40								「工讀實務實習(一)」、「專業研究實習(一)」、「海外交換學習(一)」課程三擇一修課*Choose one course to take from Work-study Practicum (I), 'Professional Research Practicum (I)', or 'Overseas Exchange Learning (I).
	多元學習模組(二)(Multimodal Learning Module II)											4	40								「工讀實務實習(二)」、「專業研究實習(二)」、「海外交換學習(二)」課程三擇一修課*Choose one course to take from Work-study Practicum (II), 'Professional Research Practicum (II)', or 'Overseas Exchange Learning (II).
	多元學習模組(三)(Multimodal Learning Module III)											4	40								「工讀實務實習(三)」、「專業研究實習(三)」、「海外交換學習(三)」課程三擇一修課*Choose one course to take from Work-study Practicum (III), 'Professional Research Practicum (III)', or 'Overseas Exchange Learning (III).
	多元學習模組(四)(Multimodal Learning Module IV)											5	40								「工讀實務實習(四)」、「專業研究實習(四)」、「海外交換學習(四)」課程三擇一修課*Choose one course to take from Work-study Practicum (IV), 'Professional Research Practicum (IV)', or 'Overseas Exchange Learning (IV).
	合 計 Total	0	0	0	0	0	0	0	0	1	1	17	160		0	0	0				
核心必修課程50學分 Department Professional Compulsory (50 Credits)	微積分(Calculus)	3	3	3	3																
	普通物理(General Physics)	3	3																		
	普通化學(General Chemistry)	3	3	3	3																
	計算機程式設計(Computer Programming)			3	3																
	質能平衡(Material and Energy Balance)			3	3																
	有機化學(一)(Organic Chemistry I)					3	3														
	物理化學(一)(Physical Chemistry I)					3	3														
	工程數學(一)(Engineering Mathematics I)					3	3														
	單元操作與輸送現象(一)(Unit Operation and Transport Phenomena I)							3	3												
	單元操作與輸送現象(二)(Unit Operation and Transport Phenomena II)									3	3										
	化工熱力學(Chemical Engineering Thermodynamics)									3	3										
	儀器分析(Instrumental Analysis)									3	3										
	程序設計(Process Design)													3	3						
	實務專題(I)(I)(Special Topics in Practice, (I-II))													1	2	1	2				
	反應工程(Chemical Reaction Engineering)													3	3						
	合 計 Total	9	9	12	12	9	9	3	3	9	9	0	0	7	8	1	2				
模組選修課程20學分 Elective modules (20 Credits)	普通化學實驗(一)(二)(General Chemistry Experiment, I-II)	2	3	2	3																應用化學模組Applied Chemistry module 化工製程模組Chemical Engineering Processes module
	有機化學(二)(Organic Chemistry II)							3	3												應用化學模組Applied Chemistry module
	物理化學(二)(Physical Chemistry II)							3	3												應用化學模組Applied Chemistry module
	化工產業與人工智慧應用 (Chemical Engineering Industry and Artificial Intelligence Application)							1	2												應用化學模組Applied Chemistry module 化工製程模組Chemical Engineering Processes module 演講式課程Lecture series
	工程數學(二)(Engineering Mathematics II)							3	3												化工製程模組Chemical Engineering Processes module
	有機化學實驗(Organic Chemistry Experiment)							2	3												應用化學模組Applied Chemistry module 化工製程模組Chemical Engineering Processes module
	物理化學實驗(Physical Chemistry Experiment)									2	3										應用化學模組Applied Chemistry module 化工製程模組Chemical Engineering Processes module
	工程倫理與實務講座(Engineering Ethics and Professional Topics)													1	2						應用化學模組Applied Chemistry module 化工製程模組Chemical Engineering Processes module 演講式課程Lecture series
	化學工程實習(I)(I)(Practice for Chemical Engineering, I-II)													2	4	2	4				應用化學模組Applied Chemistry module 化工製程模組Chemical Engineering Processes module
	單元操作與輸送現象(三)(Unit Operation and Transport Phenomena III)													3	3						化工製程模組Chemical Engineering Processes module
	合 計 Total	2	3	2	3	0	0	12	14	2	3	0	0	6	9	2	4				
專業選修課程 (至少28學分) Professional Elective (Requires at least 34 Credits)	材料科學導論(Introduction to Material Science)			3	3																
	分析化學暨實驗(Analytical Chemistry and Experiment)			3	4																
	高分子化學(Polymer Chemistry)					3	3														
	生物化學(Biochemistry)					3	3														
	分子生物學(Molecular Biology)					3	3														
	化學技術實習(Chemical Technology in Practice)					2	4														
	化工實務專題一 (Special Topics in Practice of Chemical Engineering I)					1	2														
	能源工程概論 (Introduction to Energy Engineering)					3	3														
	能源材料與製程導論 (Introduction to Energy Materials and Processes)					3	3														
	高分子加工暨實驗(Polymer Processing and Experiment)							3	4												
	化工實務專題二 (Special Topics in Practice of Chemical Engineering II)							1	2												
	電池製程技術(Battery Process Technology)							3	3												
	公用設施(Utility Installations)									3	3										
	電化學(Electrochemistry)									3	3										
	合成化學暨實驗(Synthetic Chemistry and Experiments)									3	3										
	化工實務專題三 (Special Topics in Practice of Chemical Engineering III)									1	2										
	電池組裝與分析實作(Battery Assembly and Analysis Practice)									3	3										
	電池材料與分析實作(Battery Materials and Analysis Practice)									3	3										
	綠色化學技術叢論(Green Chemistry Technology Forum)											3	3								遠距教學Distance learning
	化工基礎概念解析 (Fundamental Conception Analysis of Chemical Engineering)													3	3						遠距教學Distance learning
	生物科技與生質能源產業 (Industrial Biotechnology and Bioenergy)													3	3						遠距教學Distance learning
	儀器分析實驗(Instrumental Analysis Experiment)													2	3						
	化工產業之機電實務講座(Lectures on Electro-Mechanical Engineering Practice for Chemical Industry)													3	3						演講式課程Lecture series
	化工裝置設計(Equipment Design in Chemical Engineering)													3	3						
	奈米觸媒技術與應用(Nanocatalytic Technology and Application)													3	3						
	數值分析(Numerical Analysis)													3	3						
	生化工程(Biochemical Engineering)													3	3						
	化工程序與安全(Chemical Engineering Process and Safety)													3	3						
	程序控制與實驗(Process Control and Experiment)													3	3						
	電池檢測與分析技術(Battery Testing and Analysis Technology)													3	3						
	電路板與半導體製作(Fabrication of Semiconductor and PCB)															3	3				
	生物技術暨實驗(Biotechnology and Practice)																3	3			
	奈米材料與技術(Nanomaterial and Technology)																3	3			
	計算機化工應用(Computer Application in Chemical Eengiering)																3	3			
	綠色化學技術暨實驗 (Green Chemistry Technology and Experiment)																3	3			
	產業技術及問題解析 (Problem Solving and Technical Communication)																3	3			
	鋰電池產業實務專題講座(Lecture on Lithium Battery Industry Practice)																3	3			
	合 計 Total	0	0	6	7	18	21	7	9	16	17	9	9	26	27	21	21				
院專業選修 Professional Elective	基石專題 (Cornerston project)			1	3																
	頂石專題 (Capstone Project)									1	3										
	合 計Total	0	0	1	3	0	0	0	0	1	3	0	0	0	0	0	0				

備註

1. 本系學生於畢業前至少須取得應用化學模組之必修學分20學分或化工製程模組之必修學分20學分。

2. 參照第二專長學分學程者：最低畢業學分結構總數為共需必修42學分（五專選，任選20課各2學分），專業必修50學分，模組選修20學分，專業選修28學分，合計140學分；已參學之第二專長學分學程外學分，則計為系專業選修學分。

3. 參照雙軌學分學程者：最低畢業學分結構總數為共需必修42學分，選修必修至少8學分（五專選，任選2課各2學分），專業必修50學分，模組選修20學分，專業選修28學分，合計140學分；已參學之雙軌學分學程外學分，則計為系專業選修學分。

4. 必修國語(三)、國語(四)、於大二至大四，擇其兩項修讀。

1.Students of this department must take at least 20 credits of elective courses in either the Applied Chemistry module or the Chemical Engineering Processes module before graduation.

2.Students who have completed a second-specialization credit program: The minimum graduation credit structure is adjusted as follows: 42 credits from common required courses, at least 8 credits from elective General Education courses (choose four categories from the given five categories: 2 credits for each category), and 50 credits from major required,20 credits for module electives, 28 credits from elective courses, totaling 148 credits in all. Completed second-specialization credit program credits earned from other departments are calculated as the Department's major elective credits.

3.Students who have completed an interdisciplinary credit program: The minimum graduation credit structure is adjusted as follows: 42 credits from common required courses, at least 8 credits from elective General Education courses (choose four categories from the given five categories: 2 credits for each category), and 55 credits from major required, 20 credits from module electives, 28 credits from elective courses, totaling 148 credits in all. Completed second-specialization credit program credits earned from other departments are calculated as the Department's major elective credits.

4.Students are required to take Physical Education (III) and Physical Education (IV). PE courses can be selected based on students' interest in their second to fourth years.

Catalog Remarks