

國立勤益科技大學 **113** 學年度日間部四年制化工與材料工程系國際學生產學合作專班 學分計畫表
National Chin-Yi University of Technology Curriculum Planning for 2024 Four-Year Bachelor Industry-Academia
Collaboration Program for International Students in Department of Chemical and Materials Engineering

112.10.24 系課程會議審議通過
112.11.08 系務會議審議通過
112.11.23 院課程會議審議通過
112.12.07 校課程委員會及 112.12.21 臨時教務會議審議通過
113.4.10 及 113.4.29 系課程會議修正通過
113.5.2 系務會議修正通過
113.5.14 院課程會議審議通過
113.5.21 校課程委員會及 113.6.6 臨時教務會議審議訂通過
113.9.11 系課程會議審議修正通過
113.10.16 系務會議審議修正通過
113.11.19 院課程委員會審議修正通過
113.12.5 校課程委員會及 113.12.24 臨時教務會議審議訂通過
114.4.28 系課程會議及 114.4.29 系務會議審議訂通過
114.5.6 院課程會議審議訂通過
114.5.20 校課程委員會及 114.6.5 臨時教務會議審議訂通過

科目	Courses	上學期 First Semester			下學期 Second Semester		
		學分 Credits	正課 Lecture	實習 Internship	學分 Credits	正課 Lecture	實習 Internship
共同必修科目(24 學分) General Required Courses (24credits hours)							
第一學年 First Year							
微積分	Calculus	3	3	0			
華語聽說（一）	Chinese Listening and Speaking (I)	3	5	0			
華語讀寫（一）	Chinese Reading and Writing (I)	3	5	0			
華語輔導課程	Extracurricular Chinese Class	0	5	0			
體育（一）	Physical Education (I)	0	2	0			
音樂鑑賞	Music Appreciation	1	1	0			
藝術鑑賞	Art Appreciation	1	1	0			
華語聽說（二）	Chinese Listening and Speaking (II)				3	5	0
華語讀寫（二）	Chinese Reading and Writing (II)				3	5	0
體育（二）	Physical Education (II)				0	2	0
第二學年 Second Year							
體育（三）	Physical Education (III)	1	2	0			
華語聽說（三）	Chinese Listening and Speaking (III)	3	3	0			
體育（四）	Physical Education (IV)				1	2	0
人權與法治	Human Rights and Rule of Law				2	2	0
專業必修科目(63 學分) Department Required Courses(63credits hours)							
第一學年 First Year							
物理	Physics				3	3	0
化學	Chemistry				3	3	0
產業概論	Introduction to Industries				3	3	0
第二學年 Second Year							
工程倫理	Engineering Ethics	3	3	0			
計算機程式	Computer Program	3	2	1			
半導體光電材料	Semiconductors and Optoelectronic Materials	3	3	0			
物理化學實作	Experiment of Physical Chemistry				3	2	1
材料分析	Materials Analysis				3	3	0
材料工程實作	Experiment of Materials Engineering				3	2	1
半導體元件導論	Introduction to Semiconductor Devices				3	3	0
第三學年 Third Year							
★產業實務實習（一）	Industrial Practice Internship (I)	9	0	9			
工程數學	Engineering Mathematics	3	3	0			
★產業實務實習（二）	Industrial Practice Internship (II)				9	0	9
半導體製程	Introduction to Semiconductor Manufacture Processes				3	3	0
太陽能光電系統	Photovoltaic Power System				3	3	0
第四學年 Fourth Year							
程序控制	Process Control	3	3	0			
複合材料	Composite Materials				3	3	0

科目	Courses	上學期 First Semester			下學期 Second Semester		
		學分 Credits	正課 Lecture	實習 Practice	學分 Credits	學分 Credits	正課 Lecture
共同選修科目 General Electives Courses							
第一學年First Year							
英文聽與說(一)	English Listening and Speaking (I)	3	3	0			
英文聽與說(二)	English Listening and Speaking (II)				3	3	0
專業選修科目 Professional Electives Courses							
第一學年 First Year							
半導體物理導論	Introduction to Semiconductor Phvics	3	3	0			

奈米科技導論	Introduction to Nanotechnology	3	3	0			
材料科學與工程概論	Introduction to Materials Science and Engineering	3	3	0			
永續能源導論	Introduction to Sustainable Energy				3	3	0
工業安全與衛生管理	Industrial Safety and Health Management				3	3	0
材料物理性質	Physical Properties of Materials				3	3	0
危害物質管理概論	Introduction to Hazardous Substance Management				3	3	0
第二學年 Second Year							
光電轉換導論	Introduction to Electric-Optical Conversion	3	3	0			
薄膜物理概論	Introduction to Thin Film Physics	3	3	0			
普通化學實作	Experiment of General Chemistry	3	2	1			
儀器分析實作	Experiment of Instrumental Analysis	3	2	1			
應用電化學	Applied Electrochemistry				3	3	0
人工智慧導論	Introduction to Artificial Intelligence				3	3	0
半導體與顯示器技術	Semiconductor and Display Technology				3	3	0
第三學年 Third Year							
光電材料與元件	Optoelectronic Materials and Devices	3	3	0			
半導體科技與供應鏈	Semiconductor Technology and Supply Chain	3	3	0			
科技製造與管理	Process and Management of Science	3	3	0			
材料光電磁特性	Optical, Electrical and Magnetic Properties of Materials				3	3	0
奈米材料製程與檢測技術	Nanomaterials Process and Testing Technology				3	3	0
成本分析	Cost Analysis				3	3	0
第四學年 Fourth Year							
★產業技術實習(一)	Industrial Technical Practice (I)	9	0	9			
半導體薄膜材料與製程	Semiconductor Thin Film Materials and Process	3	3	0			
實務專題(一)	Project Study (I)	2	0	6			
半導體雷射	Semiconductor Laser	3	3	0			
綠色能源材料	Green Energy Materials	3	3	0			
★產業技術實習(二)	Industrial Technical Practice (II)				9	0	9
實務專題(二)	Project Study (II)				2	0	6
半導體奈米化製程技術	Semiconductor Nano-Process Technology				3	3	0
半導體封裝製程與材料	Semiconductor Package Process and Materials				3	3	0

備註 Note:

一、畢業至少應修滿 128 學分【必修 87 學分，選修至少 41 學分(須含本系專業選修至少 28 學分)】

Students should complete at least 128 credits before graduation, including 87 required credits, 41 elective credits (elective credits should have at least 28 credits from department elective courses).

二、學生須於一年級第二學期結束前通過華語文能力測驗(TOCFL)A2(含)級以上測驗。如未能通過華語文能力 A2(含)級以上測驗者，則逕予退學。

Students must pass the Chinese Language Proficiency Test of A2 (inclusive) or above before the end of the second semester of the first grade. Those who fail to pass the Chinese language proficiency test of A2 (included) or above will be expelled from the school.

三、為因應法規變更、評鑑建議或政府計畫規定等外在因素，本系保有調整學分計畫之權利。若有修訂，將於學期開始前公告，並明確說明修訂內容、影響範圍及相關配套措施，以保障學生權益。

The department reserves the right to adjust the curriculum in response to external factors such as changes in regulations, suggestions of evaluation and accreditation, or government program regulations. If there are any revisions, will be announced before the start of the semester, and the revised content, scope of impact, and related supporting measures will be clearly stated to protect the rights and interests of students.

四、註記★為校外實習課程，說明如下：

產業實務實習(一)、(二)為必修課程，產業技術實習(一)、(二)為選修課程，因故無法參與校外實習課程者，每學期 9 學分，須由「實習替代課程選修科目」中三門課程修讀。

Courses marked with ★ indicate off-campus internship programs. The details are as follows:

Industrial Practice Internship (I) and (II) are required courses, while Industrial Technical Internship (I) and (II) are elective courses. Students who are unable to participate in off-campus internship programs for any reason are required to take 9 credits of courses per semester, including three courses selected from the "Alternative Courses for Internship" list.

實習替代課程選修科目 Alternative Courses for Internship					
課程名稱 Course Name	學分 Credits	學時 Hours	課程名稱 Course Name	學分 Credits	學時 Hours
分析化學實務 Analytical Chemistry Practice	3	3	自動控制與實習 Automatic Control and Practice	3	3
電鍍技術與實務 Electroplating Technology and Applications	3	3	電腦輔助產品設計與實習 Computer Aided Product Design and Practice	3	3
綠色材料檢測分析實驗 Green Material Testing Analysis Experiment	3	3	微控制器應用及實習 Microcontroller Application and Practice	3	3
半導體實務(一) Semiconductor Practice (I)	3	3	氣液壓學與實習 Pneumatic Hydraulic and Practice	3	3

半導體實務(二) Semiconductor Practice (II)	3	3	感測器原理應用與實習 Sensor Principle and Application and Practice	3	3
程序工程與能源應用實務 Practice of Process Engineering and Energy Applications	3	3	物聯網應用與實習 IoT Application and Practice	3	3
AI 控制實務 AI Control in Industrial Applications	3	3	控制系統設計及實習 Control System Design and Practice	3	3
人工智慧分析預測實務 Practical Applications of AI in Data Analysis and Forecasting	3	3	機電整合應用實習 Mechatronics Application and Practice	3	3
半導體產業實務 Semiconductor Industry Practice	3	3	Python 程式設計與實習 Python Programming and Practice	3	3
電腦輔助繪圖設計與實習 Computer Aided Drafting and Practice	3	3	電路設計模擬及實習 Circuit Design Simulation and Practice	3	3
非傳統加工實習 Non-Traditional Machining Processes and Practice	3	3	網路語言 I/O 應用及實習 Network Language I/O Application and Practice	3	3
MATLAB 程式設計與實習 MATLAB Programming and Practice	3	3	專業軟體應用及實習 Professional Software Application and Practice	3	3
機器人控制實務 Robot Control Practice	3	3	科技英文實務（一） English for Science and Technology I	3	3
精密量測原理與實習 Precision Measurement and Practice	3	3	科技英文實務（二） English for Science and Technology II	3	3
可程式控制與實習 Programmable Logic Controller Principles and Applications and Practice	3	3			