國立勤益科技大學 115 學年度日間部四年制機械工程系學分計畫表
National Chin-Yi University of Technology
Curriculum for 2026 Four-Year Bachelor Program of Department of Mechanical Engineering

114.10.22 系課程及 114.11.05 系務會議審議通過
114.11.20 院課程會議審議通過
114.12.4.校課程委員會議及 114.12.23.臨時教務會議審議通過

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	正課 Lecture	實習 Practice
共同必修科目(28 學分) General Required Courses (28credits)							
第一學年First Year							
國文(一)	Chinese (I)	2	2	0			
大一英文(一)	Freshman English (I)	2	2	0			
英文聽講(一)	Listening and Speaking (I)	1	1	0			
歷史與文化(一)	History and Culture (I)	2	2	0			
音樂鑑賞	Music Appreciation	1	1	0			
體育(一)	Physical Education (I)	0	2	0			
國文(二)	Chinese (II)				2	2	0
大一英文(二)	Freshman English (II)				2	2	0
英文聽講(二)	Listening and Speaking (II)				1	1	0
歷史與文化(二)	History and Culture (II)				2	2	0
藝術鑑賞	Art Appreciation				1	1	0
體育(二)	Physical Education (II)				0	2	0
第二學年Second Year							
博雅通識課程	Liberal Education	2	2	0			
體育(三)	Physical Education (III)	0	2	0			
博雅通識課程	Liberal Education				2	2	0
博雅通識課程	Liberal Education				2	2	0
體育(四)	Physical Education (IV)				0	2	0
第三學年Third Year							
博雅通識課程	Liberal Education	2	2	0			
博雅通識課程	Liberal Education				2	2	0
憲法與民主	Constitution and Democracy				2	2	0
第四學年Fourth Year (無必修課程No General Required Courses)							
專業必修科目(62 學分) Department Required Courses (62credits)							
第一學年First Year							
微積分(一)	Calculus (I)	3	3	0			
△程式語言	Programming Language	3	3	0			
●工廠實習	Factory Practices	1	0	3			
●電腦輔助機械製圖	Computer Aided Mechanical Drawing	1	0	3			
材料科學與工程	Material Science and Engineering	3	3	0			
微積分(二)	Calculus (II)				3	3	0
●精密製造實習	Precision Manufacture Practices				1	0	3
靜力學	Statics				3	3	0
製造學	Manufacturing Processes				3	3	0
第二學年Second Year							
材料力學(一)	Mechanics of Materials (I)	3	3	0			
工程數學(一)	Engineering Mathematics (I)	3	3	0			
電機學	Electrical Machinery	3	3	0			
動力學(一)	Dynamics (I)	3	3	0			
材料試驗	Experiment of Engineering Material	1	0	3			
機械工程實驗(一)	Experiment of Mechanical Engineering (I)	1	0	3			
工程數學(二)	Engineering Mathematics (II)				3	3	0
應用電子學(一)	Applied Electronics (I)				3	3	0
機構學	Mechanisms				3	3	0
熱力學(一)	Thermodynamics (I)				3	3	0
自動控制	Automatic Controls				3	3	0
第三學年Third Year							
流體力學(一)	Fluid Mechanics (I)	3	3	0			
機械設計(一)	Mechanical Design (I)	3	3	0			
實務專題 (一)	Project study (I)	2	0	6			
機械工程實驗(二)	Experiment of Mechanical Engineering (II)	1	0	3			
實務專題 (二)	Project study (II)				2	0	6
機械工程實驗(三)	Experiment of Mechanical Engineering (III)				1	0	3
第四學年Fourth Year (無必修課程No Department Required Courses)							

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	正課 Lecture	實習 Practice
共同選修科目 General Electives Courses							
第一學年First Year							
外語選修課程	Foreign language elective courses	2	2	0	2	2	0
外語菁英課程	Foreign Language Elite Courses	6	6	0	6	6	0
全民國防教育軍事訓練(一)	All-Out Defense Education Military Training（Ⅰ）	1	2	0			
全民國防教育軍事訓練(二)	All-Out Defense Education Military Training（Ⅱ）				1	2	0
第二學年Second Year							
外語選修課程	Foreign language elective courses	2	2	0	2	2	0
外語菁英課程	Foreign Language Elite Courses	6	6	0	6	6	0
全民國防教育軍事訓練(三)	All-Out Defense Education Military Training(III)	1	2	0			
全民國防教育軍事訓練(四)	All-Out Defense Education Military Training (IV)				1	2	0
第三學年Third Year							
外語選修課程	Foreign language elective courses	2	2	0	2	2	0
外語菁英課程	Foreign Language Elite Courses	6	6	0	6	6	0
體育選修	Physical Education, Elective Course	1	2	0	1	2	0
全民國防教育軍事訓練(五)	All-Out Defense Education Military Training (V)	1	2	0			
第四學年Fourth Year							
外語選修課程	Foreign language elective courses	2	2	0	2	2	0
外語菁英課程	Foreign Language Elite Courses	6	6	0	6	6	0
體育選修	Physical Education, Elective Course	1	2	0	1	2	0
專業選修科目 Professional Electives Courses							
第一學年First Year							
物理學	Physics				3	3	0
化學	Chemistry				3	3	0
科技英文	English for Science and Technology				3	3	0
第二學年Second Year							
CAE 概論	Introduction to CAE Analysis	3	3	0			
3D 參數化機械設計	3D Parametric Mechanical Design	3	3	0			
●CNC 加工(一)	CNC Machining (I)	3	3	0			
奈米材料概論	Introduction to Nanomaterials	3	3	0			
科技論文導讀	Guidance of Scientific Article Reading				3	3	0
幾何光學	Geometric Optics				3	3	0
數位邏輯	Digital logic				3	3	0
●CNC 加工(二)	CNC Machining (II)				3	3	0
電腦輔助立體製圖	Three Dimensional Computer Graphics				3	3	0
第三學年Third Year							
工程材料與應用	Engineering Material and Applications	3	3	0			
訊號與系統	Signals and Systems	3	3	0			
應用熱傳學	Applied Heat Transfer	3	3	0			
材料力學(二)	Mechanics of Materials (II)	3	3	0			
夾治具設計	Jig and Fixture Design	3	3	0			
AI/ 智慧機械概論	Introduction to Intelligent Machinery	3	3	0			
衝壓模設計	Stamping Die Design	3	3	0			
銲接學	Weldings	3	3	0			
鑄造學	Foundry	3	3	0			
●精密加工技術	Precision Machining	3	3	0			
切削刀具學	Tooling for Metal Cutting	3	3	0			
工具機組裝技術	Machine Tools Assembly Technology	3	3	0			
塑膠材料	Plastic Materials	3	3	0			
快速原型加工	Rapid Prototyping Processes	3	3	0			
電腦輔助製造	Computer Aided Manufacturing	3	3	0			
△C 程式語言設計	Computer Programming C++ Language	3	3	0			
△LabVIEW 程式設計與應用	LabVIEW Programming and Applications	3	3	0			
變頻元件閘流體	VFD Elements and Thyristors	3	3	0			
工程統計學	Engineering Statistics	3	3	0			
半導體製程	Semiconductor Processing Technology	3	3	0			
高等工程數學	Advanced Engineering Mathematics	3	3	0			
電腦輔助工程分析(一)	Computer Aided Engineering Analysis (I)				3	3	0
機器人控制實務	Robot Control Practice				3	3	0
再生能源技術	Technology and Application of Renewable Energy				3	3	0
動力學(二)	Dynamics (II)				3	3	0
創意性機構設計	Creative Mechanism Design				3	3	0
流體力學(二)	Fluid Mechanics (II)				3	3	0
流體機械	Fluid Machinery				3	3	0
電腦輔助產品設計	Computer Aided Product Design				3	3	0
工具機設計與量測	Machine Tool Design and Measurement				3	3	0
數值分析	Numerical Analysis				3	3	0

有限元素分析	Finite Element Analysis				3	3	0
向量與張量分析	Vector and Tensor Analysis				3	3	0
逆向工程	Reverse Engineering				3	3	0
精密鑄造	Precision Casting				3	3	0
熱處理	Heat Treatment				3	3	0
陶瓷材料	Ceramic Materials				3	3	0
電腦輔助整合與應用	Computer Aided Integration and Application				3	3	0
電腦整合製造	Computer Integrated Manufacturing				3	3	0
塑膠模具設計	Plastics Mold Design				3	3	0
板金彈性製造系統	Flexible Manufacturing System of Sheet Metal Working				3	3	0
五軸加工技術	5-Axis Machine Tool Technology and Application				3	3	0
工具機結構分析	Machine Tool Structural Analysis				3	3	0
薄膜材料與應用	Thin Film Materials and Applications				3	3	0
真空技術	Vacuum Technology				3	3	0
塑性加工	Plastic Processing				3	3	0
電動車概論	Introduction to Electric Vehicle				3	3	0
感測器原理與應用	Sensor Principle and Application				3	3	0
機電整合	Mechatronics and Integration				3	3	0
PC Based 控制	PC Based Control Interface Techniques				3	3	0
微控制器	Microcontroller				3	3	0
數位 IC 實務	Digital IC Practices				3	3	0
可靠度工程	Introduction to Reliability Engineering				3	3	0
線性代數	Linear Algebra				3	3	0
微成形概論	Introduction to Microforming				3	3	0
MATLAB 軟體之工程應用	Applications of MATLAB on Engineering				3	3	0
△Java 程式語言設計	Java Programming				3	3	0
半導體製程設備	Semiconductor Equipment				3	3	0
綠色能源科技	Green Energy Technology				3	3	0
機械性質檢測原理與分析	Mechanical Property Testing Principles and Analysis				3	3	0
緊固件學理與檢測	Fastener Theory and Testing				3	3	0
近代物理	Modern Physics				3	3	0
第四學年Fourth Year							
微機電系統	Microelectromechanical Systems （MEMS）	3	3	0			
振動學	Mechanical Vibrations	3	3	0			
電腦輔助工程分析(二)	Computer Aided Engineering Analysis (II)	3	3	0			
高等熱力學	Advanced Thermodynamics	3	3	0			
自動化光學量測系統	Automatic Optical Inspection	3	3	0			
液壓系統設計	Hydraulic System Design	3	3	0			
電腦輔助模流分析	Computer Aided Moldflow Analysis	3	3	0			
精密量測	Precision Measurement	3	3	0			
三維金屬積層設計	3D Metal Additive Manufacturing Design	3	3	0			
粉末冶金	Powder Metallurgy	3	3	0			
非傳統加工	Non-Traditional Machining Processes	3	3	0			
AI/ 智慧製造技術	Intelligent manufacturing technology	3	3	0			
非破壞檢驗	Non-Destructive Testing	3	3	0			
應用電子學(二)	Applied Electronics (II)	3	3	0			
積體電路與介面	IC Interface	3	3	0			
現代控制	Modern Control	3	3	0			
自動化生產系統	Automatic Production Systems	3	3	0			
模糊控制	Fuzzy Controls	3	3	0			
AI/智慧機械聯網整合技術	Intelligent Machine Networking Integration Technology	3	3	0			
工具機控制器實務	Machine Tool Controller Practice	3	3	0			
奈米科技物理	Nanotechnology Physics	3	3	0			
太陽能概論	Introduction to Solar Energy Engineering	3	3	0			
造型藝術與創新設計	Formative Arts and Innovation Design	3	3	0			
光電概論	Introduction to Optoelectronics	3	3	0			
發明與專利	Innovative Invention and Patent Layout	3	3	0			
醫工設備概論	Introduction to Equipment of Biomedical Engineering	3	3	0			.
汽車工程	Automotive Engineering	3	3	0			
淨零概論	Introduction to Net Zero	3	3	0			
生醫材料概論	Introduction to Biological Materials	3	3	0			
鋰電池設計與開發	Design and Development of Lithium-ion Batteries	3	3	0			
工程倫理	Engineering Ethics				3	3	0
機械系統設計	Mechanical System Design				3	3	
複合材料力學	Mechanics of Composite Material				3	3	0
科技論文寫作	Technical Thesis Writing				3	3	0
數位控制	Digital Control				3	3	0
生醫力學概論	Introduction to Biomedical Mechanics				3	3	0
最佳化設計	Optimal Design				3	3	0
航空產業概論	Introduction to Aviation Industry				3	3	0
彈塑性力學	Mechanics of Elasticity and Plasticity				3	3	0
精密模具設計與加工	Precision Mold Design and Manufacturing				3	3	0

防蝕工程	Anti-corrosion Engineering				3	3	0
微系統製造技術	Microsystem Manufacturing Technology				3	3	0
關鍵模組組裝與檢測	Key Module Assembly and Testing				3	3	0
校外實習(一)	Factory Practical Internship (I)	9	0	9			
校外實習(二)	Factory Practical Internship（II）				9	0	9

備註 Note:

一、畢業至少應修滿 131 學分【必修 90 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 131 credits before graduation, includes 90 required credits, 41 elective credits (elective credits should have at least 28 credits from professional elective courses).

二、本校訂有「國立勤益科技大學學生畢業門檻辦法」，畢業門檻條件：英文能力及自主學習，請依規定辦理。
Our school has established the "National Chin-yi University of Science and Technology Student Graduation Threshold Measures", Graduation threshold: English proficiency and independent study，please follow the regulations.

三、博雅通識課程三大領域中，每一領域至少各修習一門課程，學分總計至少 10 學分。每門課程學分數（時）為 2 學分 2 學時或 3 學分 3 學時。
Among the 3 core areas of liberal education curriculum, students should take 10 or more credits in 3 different areas. The credit hours for each course are either 2 hours course with 2 credits or 3 hours course with 3 credits.

四、課程名稱前有標示「●」符號者，為「職能專業課程」。
Courses with a “●” refer to a professional competence course.

五、課程名稱前有標示「△」符號者，為程式設計課程。
Courses with a “△” refers to an application design course.

六、課程名稱前有標示「AI」符號者，為「人工智慧相關課程」。
Courses with an “AI”refer to an artificial intelligence related course.

七、學生須選讀至少一門本系所訂定之跨領域學程課程，並有成績登錄。
Students need to register for at least one the course of inter-disciplinary program set by this department and have a record of grades.

製造與管理 跨領域學程 Cross-Disciplinary Curriculum Manufacturing and Management

本系課程 Courses from Mechanical Department					外系課程 Courses from Other Departments				
課程選別 Required/ Elective	學年 School Year	科目名稱 Course	學分 Credits	學時 Hours	課程選別 Required/ Elective	學年 School Year	科目名稱 Course	學分 Credits	學時 Hours
必修 Required	一上 First Year/ First Semester	工廠實習 Factory Practices	1	3					
必修 Required	一下 First Year/ Second Semester	製造學 Manufacturing Processes	3	3					
選修 Electives	三上 Third Year/ First Semester	工程材料與應用 Engineering Material and Applications	3	3	選修 Electives	三上 Third Year/ First Semester	科技管理 Technology Management	3	3
選修 Electives	三下 Third Year/ Second Semester	電腦輔助工程分析(一) Computer Aided Engineering Analysis (I)	3	3	選修 Electives	三下 Third Year/ Second Semester	品質工程 Quality Engineering	3	3

自動化與人工智慧 跨領域學程 Cross-Disciplinary Curriculum in Automation and AI

本系課程 Courses from Mechanical Department					外系課程 Courses from Other Departments				
課程選別 Required/ Elective	學年 School Year	科目名稱 Course	學分 Credits	學時 Hours	課程選別 Required/ Elective	學年 School Year	科目名稱 Course	學分 Credits	學時 Hours
必修 Required	一上 First Year/ First Semester	程式語言 Programming Language	3	3					
必修 Required	二下 Second Year/ Second Semester	自動控制 Automatic Controls	3	3					
選修 Electives	三上 Third Year/ First Semester	訊號與系統 Signals and Systems	3	3	選修 Electives	三上 Third Year/ First Semester	影像處理概論 Introduction to Image Processing	3	3

選修 Electives	三下 Third Year/ Second Semester	機器人控制實務 Robot Control Practice	3	3	選修 Electives	三下 Third Year/ Second Semester	Python 程式設計 Programming in Python	3	3

綠色能源　跨領域學程 Cross-Disciplinary Curriculum in Green Energy									
本系課程 Courses from Mechanical Department					外系課程 Courses from Other Departments				
課程選別 Required/ Elective	學年 School Year	科目名稱 Course	學分 Credits	學時 Hours	課程選別 Required/ Elective	學年 School Year	科目名稱 Course	學分 Credits	學時 Hours
必修 Required	一上 First Year/ First Semester	材料科學與工程 Material Science and Engineering	3	3					
必修 Required	二下 Second Year/ Second Semester	熱力學(一) Thermodynamics (I)	3	3					
選修 Electives	三上 Third Year/ First Semester	應用熱傳學 Applied Heat Transfer	3	3	選修 Electives	三上 Third Year/ First Semester	能源管理技術 Energy Management Technology	3	3
選修 Electives	三下 Third Year/ Second Semester	再生能源技術 Technology of Renewable Energy	3	3	選修 Electives	三下 Third Year/ Second Semester	節能技術概論 Introduction to Energy-Saving Technology	3	3

八、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.