國立勤益科技大學日間部四年制 114 學年度資訊工程系學分計畫表

National Chin-Yi University of Technology
Curriculum Planning of 2024 Four-Year Degree in Department of Computer Science and Information Engineering

科目	Courses	學分 Credits	正課 Lecture	實習 Internship	學分 Credits	正課 Lecture	實習 Internship
共同必修科目(28 學分) General Required Courses (28credits hours)							
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			
藝術鑑賞	Art Appreciation	1	1	0			
體育(一)	Physical Education（Ⅰ）	0	2	0			
全民國防教育軍事訓練(一)	All-Out Defense Education Military Training（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
音樂鑑賞	Music Appreciation				1	1	0
體育(二)	Physical Education（Ⅱ）				0	2	0
全民國防教育軍事訓練(二)	All-Out Defense Education Military Training（Ⅱ）				0	2	0
第二學年 Second Year							
憲法與民主	Constitution and Democracy	2	2	0			
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
第四學年 Fourth Year (無必修課程 No General Required Courses)							
專業必修科目(58 學分) Department Required Courses (58credits hours)							
第一學年 First Year							
微積分（一）	Calculus（Ⅰ）	3	3	0			
計算機概論	Basic Concept of Computer	3	3	0			
●△程式設計與實習(一)	Programming Language and Laboratory（Ⅰ）	3	2	2			
●△數位邏輯與實習（一）	Digital Logic Laboratory（Ⅰ）	3	2	2			
微積分（二）	Calculus（Ⅱ）				3	3	0
線性代數	Linear Algebra				3	3	0
●△程式設計與實習(二)	Computer Programming and Experiment（Ⅱ）				3	2	2
●△數位邏輯與實習(二)	Digital Logic Laboratory（Ⅱ）				3	2	2
電子電路與實習	The Experiment of Electronics Circuit				3	2	2
第二學年 Second Year							
工程數學(一)	Engineering Mathematics（Ⅰ）	3	3	0			
電腦網路概論	Introduction to Computer Network	3	3	0			
△資料結構	Data Structures	3	3	0			
工程數學(二)	Engineering Mathematics（Ⅱ）				3	3	0
離散數學	Discrete Mathematics				3	3	0
計算機組織與結構	Computer Organization and Architecture				3	3	0
△演算法	Algorithms				3	3	0
第三學年 Third Year							
機率	Probability	3	3	0			
實務專題(一)	Project study（Ⅰ）	2	0	6			
實務專題(二)	Project study（Ⅱ）				2	0	6
作業系統	Operating System				3	3	0
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 Internship	學分 Credits	正課 Lecture	實習 Internship

共同選修科目 General Elective Courses							
第一學年 First Yea (無排定共同選修課程 No General Elective Courses)							
第二學年 Second Year							
全民國防教育軍事訓練(三)	All-Out Defense Education Military Training	1	2	0			
全民國防教育軍事訓練(四)	All-Out Defense Education Military Training				1	2	0
第三學年 Third Year							
體育選修	Physical 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	1	2	0			
第四學年 Fourth Year							
體育選修	Physical Elective Course	1	2	0	1	2	0
專業選修科目 Department Elective Courses							
第一學年 First Year (無排定專業選修課程 No Department Elective Courses)							
選修學程							
第二學年 Second Year							
核心專業選修科目							
△程式方法概論	Programming Methodology Concept	3	3	0			
●△Web 程式設計與實習	Web Programming	3	2	2			
信號與系統	Signals and Systems				3	3	0
[AI]電腦視覺概論	Introduction To Computer Vision				3	3	0
[AI]影像辨識	Image Recognition				3	3	0
多媒體編碼概論	Introduction to Multimedia Coding				3	3	0
智慧多媒體科技學群選修							
[AI]數位影像處理導論	Introduction to Digital Image Processing	3	3	0			
多媒體概論	Generalization of Multimedia	3	3	0			
生理工程導論	Introduction To Physiological Engineering	3	3	0			
計算機圖學	Generalization of Computer Graphics	3	3	0			
[AI]生醫訊號處理	Biomedical Signal Processing				3	3	0
平面顯示技術	Flat Panel Display Technology				3	3	0
●網路協定分析	Internet Protocols Analysis				3	3	0
學程共同選修							
△C 語言程式設計	C Programming Language	3	3	0			
電子學(一)	Electronics（Ⅰ）	3	3	0			
●△圖控程式設計及實習	Graphical Computer Program and Experiment	3	2	2			
VLSI 概論	VLSI Lab.	3	3	0			
●校外實習(寒假)(一)	Off-campus Internship (winter)（Ⅰ）	1	0	1			
●資訊與多媒體工程實務	Information and Multimedia Engineering	3	2	2			
電腦軟體應用與設計	Application and Design of Computer Software	3	3	0			
●晶片設計實務	Chip Design	3	3	0			
可編程系統晶片設計	SOC Chip Design	3	3	0			
資訊安全概論	Introduction to Information Security	3	3	0			
物件導向程式設計	Object-Oriented Programming	3	3	0			
Python 程式設計	Python Programming	3	3	0			
△C#程式語言	C# Programming Language				3	3	0
電子學(二)	Electronics（Ⅱ）				3	3	0
網頁設計與網站管理	Web Design				3	3	0
訊號檢測與估值導論	Introduction to Signal Detection and Estimation				3	3	0
●創意應用設計實務	Originality Design by Computer Graphic				3	3	0
●△DSP 晶片應用及實習	DSP Chip Applications & Experiments				3	2	2
●校外實習(暑期)(一)	Off-campus Internship (summer)（Ⅰ）				3	0	3
師徒實務專題(一)	Mentor-Apprentice Project study (I)				3	0	3
智慧型嵌入式技術學群選修							
智慧電子應用設計概論	Fundamental of Smart Electronic Design	3	3	0			
單晶片原理	Theory of Microcontroller	3	3	0			
△嵌入式系統程式設計與	Embedded System Programming and Internship	3	2	2			
△verilog 硬體描述語言	Verilog Hardware Description Language				3	3	0
可編程矽智財設計	PSIP Design				3	3	0
感測原理	Fundamentals of Sensors				3	3	0
機器視覺概論	Introduction to Machine Vision				3	3	0
分散式系統	Distributed System				3	3	0
計畫型選修							
機聯網嵌入式系統設計與實習	Industrial Internet of Things Embedded System Design and Practice				3	3	0
第三學年 Third Year							
核心專業選修科目							
● △資料庫系統與實習	Database Management System and Laboratory	3	2	2			
● 系統分析與設計實務	System Analysis & Design	3	3	0			
[AI]人工智慧概論	Fundamentals of Artificial Intelligence	3	3	0			
雲端運算概論	Introduction to Cloud Computing				3	3	0
智慧多媒體科技學群選修							
3D 電腦動畫	3D Computer Animation	3	3	0			

課程名稱	Course Name						
●[AI]電腦視覺實務	Implementation of Computer Vision	3	2	2			
行動與無線通訊	Mobile and Wireless Communication	3	3	0			
● 巨量資料處理概論	The Introduction of Big Data and its Processing	3	3	0			
巨量資料分析概論	Fundamentals of Data Analysis for Big Data	3	3	0			
3D繪圖設計	3D Drawing	3	3	0			
●3D 電腦動畫實務	3D Computer Animation Practice				3	2	2
● △遊戲程式設計	Introduction to the AS3 Game Programming Design				3	3	0
● 巨量資料分析	Big Data Analytics				3	3	0
虛擬實境概論	Introduction to Virtual Reality				3	3	0
●△多平台遊戲設計實務	Multi-platform Game Design Practices				3	2	2
學程共同選修							
●Linux 系統實務	Practical Guide to Linux Administration	3	3	0			
職場倫理論壇	Workplace Ethics Forum	3	3	0			
[AI]智慧生活科技概論	Introduction to Smart Living Technologies	3	3	0			
系統性創新理論與應用	Systematic Innovation and TRIZ Methodology	3	3	0			
色彩學概論	Chromatics Introduction	3	3	0			
專業能力檢定輔導	Professional Competencies Exam Counselling	3	3	0			
△Scripting 程式語言	Scripting Language	3	3	0			
●△ 行動裝置應用設計實務	Mobile Device Application Design Practice	3	2	2			
數位影像處理及實習	Digital Image Processing and Practice	3	2	2			
●校外實習(寒假)(二)	Off-campus Internship (winter) （Ⅱ）	1	0	1			
數值分析	Numerical Analysis				3	3	0
職場倫理	Professional Ethics （and Career Management）				3	3	0
3D 列印技術	3D Printing Technology				3	3	0
●校外實習(暑期)(二)	Off-campus Internship (summer) （Ⅱ）				3	0	3
●感測器介面設計實務	Performances of Sensors Interfacing Design				2	1	3
企業資源規劃導論	Introduction to ERP				3	3	0
●系統性創新方法實務	TRIZ Systematic Innovation Practice				3	2	2
微處理機系統實務	Practice of Microcontroller System				3	3	0
管理資訊系統	Management Information System				3	3	0
智慧型嵌入式技術學群選修							
● 嵌入式系統概論	An Introduction to Embedded System	3	3	0			
● 物聯網概論	Introduction to IOT	3	3	0			
感測網路	Sensor Network	3	3	0			
[AI]機器學習概論	Introduction to Machine Learning	3	3	0			
物聯網控制	Internet of Things Control	3	3	0			
資安威脅檢測與防護	Cyber Security Implementation Technology	3	3	0			
●雲端應用實務	Practical Applications of Cloud Computing				3	2	2
●介面技術與實習	Interface Technology and Lab.				3	2	2
●物聯網控制實務	Internet of Things Control				3	2	2
平行計算	Parallel Computing				3	3	0
資訊安全實作技術	Cyber Security Implementation Technology				3	3	0
智慧雲資料擷取	Data Capture in Smart Cloud Service				3	3	0
單晶片應用	Microcontroller Applications				3	3	0
第四學年 Fourth Year							
核心專業選修科目(無排定核心專業選修課程 No Department Elective Courses)							
智慧多媒體科技學群選修							
巨量資料應用	Application of Big Data	3	3	0			
虛擬實境應用	Virtual Reality Applications	3	3	0			
音訊處理概論	Introduction to Audio Processing	3	3	0			
自然語言處理概論	Introduction to Natural Language Processing	3	3	0			
計算機系統與效能	Computer System and Performance				3	3	0
軟體工程概論	An Introduction to Software Engineering				3	3	0
專案管理	Project Management				3	3	0
學程共同選修							
企業資源規劃	Enterprise Resource Planning	3	3	0			
科技英文(一)	English for Science and Technology （Ⅰ）	3	3	0			
● △iOS應用程式設計	Application Programming in iOS System	3	3	0			
●校外實習(寒假)(三)	Off-campus Internship (winter) （Ⅲ）	1	0	1			
●校外實習(一)	Extracurricular Intern （Ⅰ）	12	0	12			
師徒實務專題(二)	Mentor-Apprentice Project Study （Ⅱ）	3	0	3			
科技英文(二)	English for Science and Technology （Ⅱ）				3	3	0
供應鏈資訊系統	Supply Chain Information System				3	3	0
△MATLAB 程式開發與工	MATLAB Programming and Engineering				3	3	0
●△.net 程式設計實務	The Practice of Programming .NET				3	3	0
程式檢定輔導	Programming Examination Counseling				3	3	0
資訊系統個案研究	Case Study of Information System				3	3	0
電子產品創新設計	Electrical Product Innovation Design				3	3	0
●機電整合及實習	Mechatronic & Experiments				3	2	2
雲端科技應用	Applied Cloud Computing				3	3	0

醫學影像原理與應用	Principles and Applications of Medical Imaging					3	3	0
●校外實習(二)	Extracurricular Intern（Ⅱ）					12	0	12
智慧型嵌入式技術學群選修								
△機器人控制與感測	Robot Control & Sensing	3	3	0				
[AI]軟式計算	Soft Computing	3	3	0				
物聯網(IOT)整合應用	Application integration of Internet of Things	3	3	0				
車載網路技術與應用	Vehicle Network Technologies and Applications					3	3	0
智慧型系統設計概論	Introduction to Smart-Living System Design					3	3	0

備註 Note:

一、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.

二、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.

三、畢業至少應修滿 130 學分【必修 86 學分(包含共同科目 28 學分、基礎科目 33 學分、專業科目 25 學分)，選修至少 44 學分(其中至少需含本系專業選修 30 學分)】。
　　Graduation should at least reach 130 credits [Compulsory 86 credits (including the common subjects of 28 credits, basic subjects of 33 credits, and professional subjects of 25 credits), and elective at least 44 credits (which must include at least 30 credits of the specialized Elective of our department)].

四、程式檢定輔導課程係為【系證照與技能畢業門檻】之補救課程，相關學分認定及門檻之抵免依據【國立勤益科技大學資訊工程系日間四技部學生畢業門檻及輔導辦法】辦理。
　　The course of "Programming examination counseling" is a remedial course of "graduation threshold of license and skills". The relevant credits identification and waive are based on "the graduation threshold and counseling provision of the day-division students of the Information Engineering Department of National Chin-Yi University of Technology" to implement.

五、系證照與技能畢業門檻：學生於入學後畢業前須符合以下規定方得畢業：
　(一)證照：取得至少 1 張本系規定之相關專業證照。
　(二)技能：通過「國際計算機協會程式競賽台灣協會」辦理之大學程式能力檢定(CPE)-進階級(單次測驗至少 2 題，或累計至 3 題)。
　　The graduation threshold of department license and skill: students shall comply with the following regulations.
　　(A) License: Get at least one of the professional licenses. Those licenses must relate with the provisions of department.
　　(B) Skills: Pass the Collegiate Programming Examination (CPE)-Expert Level (single exam at least 2 questions, or accumulate to 3 questions).

六、學生必需參加「國際計算機協會程式競賽台灣協會」辦理之大學程式能力檢定(CPE)並至少答對 1 題，且檢具考試成績證明，才可修習大四下學期開設之「程式檢定輔導」課程，延遲生可逕行修習「程式檢定輔導」課程，成績及格後納入系畢業門檻。
　　The students must attend the Collegiate Programming Examination (CPE) and pass it at least 1 question and provide the certify catenin order to enter the "Programming Examination Counseling " course offered in the next semester of the fourth year. The delay-graduated students can study the "Programming Examination Counseling " course directly. With the passing grades of the "Programming Examination Counseling " course, students can pass the graduation threshold.

七、畢業年級相當於國內高級中等學校二年級之國外或香港澳門地區同類學校畢業生，以同等學力資格入學大學部一年級者，除前項規定之畢業應修學分數外，需另增補選修 12 學分(至少包含專業選修 6 學分)。
　　Students from foreign countries or from Hong Kong and Macao area, whose graduation level of studies are the same level and same category of high schools as those of the second year of a domestic senior high school, i.e. with equivalent educational level, and enroll in a freshman program of the undergraduate study, should take extra 12 credits in addition to fulfillment of the graduation requirements stated in the above article. (For the extra 12 credits, at least 6 credits must be taken from the elective courses in professional areas.)

八、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.

九、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.

十、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.

十一、學生須選讀本系所訂跨領域學程課程 並有成績登錄。
　　　Students need to register for the course of inter-disciplinary program set by this department and have a record of grades

視覺檢測 Visual inspection			場域安全 Site safety		
課程選別 Required/ Elective Courses	學年 School Year	課程名稱(學分/學時) Course Name(Credit/Hours)	課程選別 Required/ Elective Courses	學年 School Year	課程名稱(學分/學時) Course Name(Credit/Hours)
必修 Required	一上 First Year/ First Semester	程式設計與實習(一)(3/4) Programming Language and Laboratory(Ⅰ) (3/4)	必修 Required	一上 First Year/ First Semester	程式設計與實習(一) 3/4 Programming Language and Laboratory(Ⅰ) 3/4
必修 Required	一下 First Year/ Second Semester	程式設計與實習(二)(3/4) Computer Programming and Experiment(Ⅱ) (3/4)	選修 Electives	一下 First Year/ Second Semester	資訊安全概論(3/3) Introduction to Information Security (3/3)
選修 Electives	二上 Second Year/ First Semester	電腦視覺概論(3/3) Introduction To Computer Vision (3/3)	選修 Electives	三上 Third Year/ First Semester	資安威脅檢測與防護(3/3) Cyber Security Implementation Technology (3/3)
選修 Electives	三上 Third Year/ First Semester	影像辨識(3/3) Image Recognition (3/3)	選修 Electives	三下 Third Year/ Second Semester	資訊安全實作技術(3/3) Cyber Security Implementation Technology (3/3)
外系選修 Elective course from another department	三上 Third Year/ First Semester	感測器應用及實習(3/3) Sensors Application and Practice (3/3)	外系選修 Elective course from another department	二下 Second Year/ Second Semester	FPGA 系統設計(3/3) FPGA System Design (3/3)
外系選修 Elective course from another department	四上 Fourth Year/ First Semester	人機介面(3/3) Design of Human-Machine Interface (3/3)	外系選修 Elective course from another department	三下 Third Year/ Second Semester	微控制器應用及實習(3/3) Microcontroller Application and Practice (3/3)

十二、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.