

國立勤益科技大學日間部四年制 106 學年度資訊工程系學分計畫表  
National Chin-Yi University of Technology  
Curriculum Planning of 2017 Four-Year Degree in Department of Computer Science and Information Engineering

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
<b>共同必修科目(30 學分) General Required Courses (30credits hours)</b>							
<b>第一學年 First First Year</b>							
國文(一)	Chinese ( I )	3	3	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			
勞作與社會服務教育(一)	Labor and Social services Education ( I )	0	0	1			
國文(二)	Chinese ( II )				3	3	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
勞作與社會服務教育(二)	Labor and Social services Education ( II )				0	0	1
<b>第二學年 Second Year</b>							
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
<b>第三學年 Third Year</b>							
博雅通識課程	Liberal Education	2	2	0			
博雅通識課程	Liberal Education				2	2	0
<b>第四學年 Fourth Year (無必修課程 No General Required Courses)</b>							
<b>專業必修科目(58 學分) Department Required Courses (97credits hours)</b>							
<b>第一學年 First Year</b>							
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
<b>第二學年 Second Year</b>							
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			
Web 程 式 設 計 與 實 習	Web Programming	3	2	2			
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
<b>第三學年 Third Year</b>							
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
<b>第四學年 Fourth Year (無必修課程 No Department Required Courses)</b>							

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
<b>共同選修科目 General Elective Courses</b>							
<b>第一學年 First Year (無排定共同選修課程 No General Elective Courses)</b>							
<b>第二學年 Second Year</b>							
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
<b>第三學年 Third Year</b>							
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 (V)	1	2	0			
<b>第四學年 Fourth Year</b>							
體育選修	Physical Elective Course	1	2	0	1	2	0
<b>專業選修科目 Department Elective Courses</b>							
<b>第一學年 First Year (無排定專業選修課程 No Department Elective Courses)</b>							
<b>第二學年 Second Year</b>							
<b>核 心 專 業 選 修 科 目</b>							
專業證照輔導實務	Professional counseling skill test license	3	2	2			
晶片設計實務	Chip Design	3	3	0			
可編程系統晶片設計 SOPC	SOC Chip Design	3	3	0			
程式方法概論	Programming Methodology Concept	3	3	0			
演算	Algorithms				3	3	0
信號與系統	Signals and Systems				3	3	0
電腦視覺概論	Introduction To Computer Vision				3	3	0
<b>多媒體科技學程選修</b>							
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			
生醫訊號處理	Biomedical Signal Processing				3	3	0
影像辨識	Image Recognition				3	3	0
平面顯示技術	Flat Panel Display Technology				3	3	0
多媒體編碼概論	Introduction to Multimedia Coding				3	3	0
網路協定分析	Internet Protocols Analysis				3	3	0
智慧型機器視覺系統應用專題	Application Projects of Intelligent Machine Vision				3	3	0
<b>學程共同選修</b>							
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			
V L S I 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			
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
專題師徒實習(一)	Mentor-Apprentice Internship Course for Project(I)				3	0	3
<b>智慧型嵌入式技術學程選修</b>							
智慧電子應用設計概論	Fundamental of Innovtive Electronic Design	3	3	0			
單晶片原理	Theory of Microcontroller	3	3	0			
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
<b>第三學年 Third Year</b>							
<b>核心專業選修科目</b>							
資料庫系統與實習	Database Management System and Laboratory	3	2	2			
行動裝置應用設計實務	Mobile Device Application Design Practice	3	2	2			
系統分析與設計實務	System Analysis & Design	3	3	0			

人工智慧	Artificial Intelligence	3	3	0			
系統性創新方法實務	TRIZ Systematic Innovation Practice				3	2	2
多媒體科技學程選修							
3D電腦動畫	3D Computer Animation	3	3	0			
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			
多平台遊戲設計實務	Multi-latform Game Design Practices				3	2	2
3D電腦動畫實務	3D Computer Animation Practice				3	2	2
雲端運算概論	Introduction to Cloud Computing				3	3	0
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
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			
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			
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
智慧型嵌入式技術學程選修							
嵌入式系統概論	An Introduction to Embedded system	3	3	0			
物聯網概論	Introduction for IOT	3	3	0			
感測網路	Sensor Network	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
計畫型選修							
雲端生產數據中心導論		3	3	0			
雲端環境管理與維護					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)							
多媒體科技學程選修							
巨量資料應用	Application of Big Data	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
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			
校外實習(寒假)(三)	Off-campus Internship (winter) (III)	1	0	1			
校外實習(一)	Extracurricular Intern (I)	1	2	0	1	2	
專題師徒實習(二)	Mentor-Apprentice Internship Course for Project(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程式開發與工程應用	MATLAB Programming and Engineering Applications				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
校外實習(二)	Extracurricular Intern (II)				1	2	0
智慧型嵌入式技術學程選修							
機器人控制與感測	Robot Control & Sensing	3	3	0			
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
機器視覺應用	Machine Vision Applications				3	3	0

高動態範圍影像處理	High Dynamic Range Image Processing				3	3	0
計畫型選修							
虛擬化服務介面設計		3	3	0			

備註 Note:

一、本校訂有「國立勤益科技大學學生英文及資訊能力與服務學習畢業門檻辦法」，請依規定辦理。

Please follow the rule of English, Computer Ability and Service Learning Graduation Threshold in National Chin-Yi University of Technology.

二、學生於畢業前須修過「學術研究倫理教育課程」必修 0 學分(2 小時)課程。

Before graduation, each student should complete Academic Research Ethics Education Course, which is 2 hours required course with 0 credit.

三、通識教育學院所開設之「博雅通識課程」學分數(時)為 2 學分 2 學時或 3 學分 3 學時，經 101 學年度第二學期校課程委員會會議通過。

Liberal Arts General Study courses opened by College of General Education, are divided into 2 hours course with 2 credits or 3 hours course with 3 credits, ratified by Course Committee in 2012.

四、學生於畢業前須修習專業必修科目中之「多元實習」0 學分(320 小時)。

Students should complete internship in one's department required courses (0 credit/ 320 hours) before graduation.

五、(各系自行修改)

修習【校外實習(暑期)、校外實習(一)、校外實習(二)]課程及格者，且實習時數至少 320 小時以上，得免修「多元實習」課程，(惟畢業總學分數及畢業條件仍應符合規定，方符合畢業資格)。

六、畢業至少應修滿 130 學分【必修 88 學分(包含共同科目 30 學分、基礎科目 33 學分、專業科目 25 學分)，選修至少 42 學分(其中至少需含本系專業選修 30 學分，且至少需含核心專業選修 12 學分)]。

Graduation should at least reach 130 credits [Compulsory 88 credits (including the common subjects of 30 credits, basic subjects of 33 credits, and professional subjects of 25 credits), and elective at least 42 credits (which must include at least 30 credits of the specialized Elective of our department), and must be at least include core Elective 12 credits].

七、畢業時至少應修畢本系 4 門核心專業選修課程，並累積至少 12 學分之核心專業選修課程學分。

Students should complete at least four core elective courses and accumulate at least 12 credits before graduation.

八、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 courses 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.

九、學生於畢業前須修習專業必修科目中之「多元實習」0 學分(320 小時)。

Before graduation, students must attend and finish the specialized compulsory subject "Diversified Internship" (0 credit with 320 hours).

十、修習【校外實習專業課程】課程及格者，且實習時數至少 320 小時以上，得免修「多元實習」課程(惟畢業總學分數及畢業條件仍應符合規定，方符合畢業資格)。相關抵免作業依照國立勤益科技大學學生校外實習課程開設要點與國立勤益科技大學學生校外實習要點辦理。

The student attends the "Off-campus Internship specialized course" and passes it, and all the internship hours at least over 320 hours, can be exempted to attend the "Diversified Internship" course (Only when the total credits of graduation and the conditions compliance, can eligible for graduation). The relevant credits exemption operations are in accordance with the "The open course point of Off-campus Internship course of National Chin-Yi University of Technology" and "The point of Off-campus Internship of National Chin-Yi University of Technology" to implementation.

十一、本校另訂有「國立勤益科技大學學生英文及資訊能力與服務學習畢業門檻辦法」，相關規定請依辦法辦理。

School has stipulated another "graduation threshold provision of the students of National Chin-Yi University of Technology in English, IT capabilities and service-learning field". Please follow by the relevant provision.

十二、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).

十三、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，延修生可逕行修習「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 certificate, in 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.