國立勤益科技大學日間部四年制 108 學年度資訊工程系學分計畫表

National Chin-Yi University of Technology

Curriculum Planning of 2019 Four-Year Degree in Department of Computer Science and Information Engineering

108.04.10 與 108.04.30 系課程委員會及 108.04.14 系務會議審議通過 108.05.07 院課程委員會議審議通過

108.5.21.校課程委員會議及 108.5.30.教務會議審議通過

. 109.12.10.校課程委員會議及 109.12.17.教務會議審議修訂通過

110.05.11.院課程委員會議審議通過

110.05.25.校課程委員會議及 110.06.15.教務會議審議通過

		上學期 First Semester			下學期 Second Semester			
科目	Courses	學分 Credits	正課 Lecture	實習 Internship	学分 学分 Credits	正課 Lecture	實習 Internship	
	<u>+</u> 共同必修科目(30 學分) General Requir		30credits ho	-				
	第一學年 First Firs		(,				
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	
	第二學年 Second Y	ear						
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 Ye				,			
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		_					
	專業必修科目(58 學分) Department Requ		s (97credits	hours)				
	第一學年 First Yea		1		1			
微積分(一)	Calculus (I)	3	3	0			<u> </u>	
計算機概論	Basic Concept of Computer	3	3	0			<u> </u>	
●程式設計與實習(一)	Programming Language and Laboratory (I)	3	2	2			<u> </u>	
●數位邏輯與實習(一)	Digital Logic Laboratory (I)	3	2	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 ([]) The Experiment of Electronics Circuit				3	2	2	
電子電路與實習	1				3	2	2	
一 一 中 的 ()	第二學年 Second Y	1	1 2	0				
工程數學 (一) 電影網數攤添	Engineering Mathematics (I) Introduction to Computer Network	3	3	0			 	
電腦網路概論	Data Structures	3		0			 	
資料結構	Engineering Mathematics (II)	3	3	0	2	2	0	
工程數學 (二) 離散數學	Discrete Mathematics (II)				3	3	0	
計算機組織與結構	Computer Organization and Architecture				3	3	0	
計 并 機 組 織 典 結 傳 演 算 法	Algorithms	1	1	+	3	3	0	
供开 仏	_				3	3	U	
機率	第三學年 Third Yes	ar 3	3	0			T	
實務專題(一)	Project study (I)	2	0	6			<u> </u>	
實務專題(二)	Project study (I)		U	U	2	0	6	
作業系統	Operating System				3	3	0	
17 ポ か ツロ	第四學年 Fourth Year (無必修課程 No D	onartment T	Doguired Co	urene)	J	J		
	币均字平 rourun rear (無必珍鞣柱 № D	epartment b	xequirea Co	urses)				

		l l	上學期 First	Semester	下車	Semester	
科目	Courses	學分	正課	實習	學分	正課	實習
		Credits	Lecture	Interns	Credits	Lecture	Interns
	共同選修科目 General Ele 第一學年 First Yea (無排定共同選修課程			amana)			
	第二字平 First Tea (無辨及共內送修課程 第二學年 Second Yea		Elective Co	urses)			
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	The out Betonic Education Timing (11)				1	2	-
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			
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 I			~ `			
	第一學年 First Year (無排定專業選修課程	No Departm	ent Elective	Courses)			
	第二學年 Second Yo	ear					
	核心專業選		科 目				
●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			
●Web 程式設計與實習 信號與系統	Web Programming Signals and Systems	3	2	2	2	2	0
信號與系統 [AI]電腦視覺概論	Introduction To Computer Vision				3	3	0
多媒體科技學程選修	introduction to computer vision				3	3	0
[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
[AI]影像辨識	Image Recognition				3	3	0
平面顯示技術	Flat Panel Display Technology Introduction to Multimedia Coding				3	3	0
多媒體編碼概論 ●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
學程共同選修	rippireuron riojecto or internigent riatemine vision				3	3	-
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 虚 以 払 助 座 円 肉 切 寸	Information and Multimedia Engineering Application and Design of Computer Software	3	3	2			
電腦軟體應用與設計 C#程式語言	C# Programming Language	3	3	0	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
●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				3	0	3
師徒實務專題(一) 智慧型嵌入式技術學程選修	Mentor-Apprentice Project study (I)				3	0	3
智慧電子應用設計概論	Fundumental of Innovtive Electronic Design	3	3	0		1	
日志电了 恋 用 改 引 似 珊 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
	第三學年 Third	Year					
核心專業選修科目	In the second	T			1		
● 資料庫系統與實習	Database Management System and Laboratory Mobile Device Application Design Practice	3	2	2			
▲ 仁毛 財 昭 市 田 ユロ ユ1 応 → レ	Livionue Device Application Design Practice	3	2	2			
●行動裝置應用設計實務		2	2	Λ			
●行動裝置應用設計實務 ●系統分析與設計實務 [AI]人工智慧	System Analysis & Design Artificial Intelligence	3	3	0			

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변화함보호문제품	2D 虚 服利 事	多媒體科技學程選修	2	2		1		
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용우는 유 원 및 및 함께 전								
응한 도함으로 준			3	3	0	3	2	2
#변度展及所書								
● 項荷性が下降		-						
### Data Analysies ### ### ### ### ### ### ### ### ### #								
Linux も地帯像								
Pinnis Add ## Procincial Guide to Linux Administration			<u> </u>	1	<u>l</u>			
報告信から対象	●Linux 系統實務		3	3	0			
参照性的経緯機構		Workplace Ethics Forum	3	3	0			
影響の	[AI]智慧生活科技概論	Introduction to Smart Living Technologies	3	3	0			
#素素の技術を観覧	系統性創新理論與應用	Systematic Innovation and TRIZ Methodology	3	3	0			
Scripting 経代等等	色彩學概論	Chromatics introduction	3	3	0			
金良音楽音楽(元)	專業能力檢定輔導	Professional Competencies Exam Counselling	3	3	0			
製造合質 Numerical analysis	Scripting 程式語言	Scripting Language	3	3	0			
概念等の使 Professional Efficis (and Career Management) 3 3 3 0 0 3 3 0 0 2 0 0 0 0 0 0 0 0 0 0	●校外實習(寒假)(二)	Off-campus Internship (winter) (II)	1	0	1			
30 列門は出来	數值分析	Numerical analysis				3	3	0
● 投作等信誉的(三)	職場倫理	Professional Ethics (and Career Management)				3	3	0
● 成別音の面文計書籍	3D 列印技術	3D Printing Technology				3	3	0
● 飲入八系純税論 Introduction to ERP	●校外實習(暑期)(二)					3	0	3
### ### ### ### ### ### ### ### ### ##	●感測器介面設計實務	Performances of Sensors Interfacing Design				2	1	3
● 飲木式素純原論	企業資源規劃導論	Introduction to ERP				3	3	0
● 特別朝祖論			程選修					
Sangange Sensor Network	● 嵌入式系統概論	An Introduction to Embedded system	3	3	0			
●実端應用管褥 Practical Applications of Cloud Computing	● 物聯網概論	Introduction for IOT	3	3	0			
●介布技術與實習 Interface Technology and Lab.			3	3	0			
●動聯網控制實務 Internet of Things control	●雲端應用實務					3	2	2
対象型環体 3 3 0 0 3 0 0 3 0	●介面技術與實習	= -				3	2	2
### Fourth Year	●物聯網控制實務	Internet of Things control				3	2	2
### Fourth Year								
第四季年 Fourth Year		計畫型選修						
株で享来選修料目(無神文権の考集選修課権 No Department Elective Courses)			3	3	0			
核心專業選修科目(無轉定核心專業選修課報 No Department Elective Courses)	雲端環境管理與維護					3	3	0
互量資料應用 Application of Big Data 3 3 0 □ <th< td=""><td></td><td>, , ,</td><td></td><td></td><td></td><td></td><td></td><td></td></th<>		, , ,						
E曼資料應用 Application of Big Data 3 3 0 計算機系統與效能 Computer System and Performance 3 3 3 0 整理共同逐修 ※程共同逐修 企業資源規劃 Enterprise Resource Planning 3 3 0 ○ 前2 高月程式設計 English for Science and Technology (I) 3 3 0 ○ 砂水育實保約(三) Off-campus Internship (winter) (II) 1 0 1 ○		核心專業選修科目(無排定核心專業選修課程 N	o Departme	nt Elective C	Courses)	1	1	
E曼資料應用 Application of Big Data 3 3 0 計算機系統與效能 Computer System and Performance 3 3 3 0 整理共同逐修 ※程共同逐修 企業資源規劃 Enterprise Resource Planning 3 3 0 ○ 前2 高月程式設計 English for Science and Technology (I) 3 3 0 ○ 砂水育實保約(三) Off-campus Internship (winter) (II) 1 0 1 ○		# 11h mh 41 11 62 45 182 16						
計算機系統與效能						1		
軟體工程帳論			3	3	0			
● 位業資源規劃		1 *						
金業資源規劃 Enterprise Resource Planning 3 3 3 0 0 日 日 日 日 日 日 日 日 日 日 日 日 日 日 日	軟體工程概論	A - Internal and a - C - Consum English and						
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 ●技介實習(一) Off-campus Internship (winter) (III) 1 0 1 ●技介實習(一) Extracurricular Intern (I) 12 0 12 專題師徒實習(一) Mentor-Apprentice Internship Course for 3 0 3 師徒實務專題 (一) Mentor-Apprentice Project study (II) 3 0 3 科技英文(一) English for Science and Technology (II) 3 3 0 供應鏈資訊系統 Supply Chain Information System 3 3 0 Mall ab 程式開發與工程應用 MATLAB Programming and Engineering 3 3 0 ●net 程式設計實務 The Practice of Programming .NET 3 3 0 昼在式檢定輔導 Programming Examination Counseling 3 3 3 0 賣加素統圖案研究 Case Study of Information System 3 3 3 0 ●成整全及景質 Mechatronic & Experiments 3 3								
● iOS 應用程式設計	人业少江口仙	學程共同選修						
● 校外實習(平假)(三) Off-campus Internship (winter) (Ⅲ) 1 0 1 1 9 4 1 1 1 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		學程共同選修 Enterprise Resource Planning						
●校外實習(一)	科技英文(一)	學程共同選修 Enterprise Resource Planning English for Science and Technology (I)	3	3	0			
專題師徒實習(二) Mentor-Apprentice Internship Course for 3 0 3 3 師徒實務專題 (二) Mentor-Apprentice Project study (Ⅱ) 3 0 3 3 0 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 3 3 0 Met 我校定輔導 The Practice of Programming .NET 3 3 0 程式檢定輔導 Programming Examination Counseling 3 3 0 實子產品創新設計 Case Study of Information System 3 3 0 電子產品創新設計 Electrical Product Innovation Design 3 3 0 ●検賓實習 Mechatronic & Experiments 3 2 2 ●校外實習(二) Extracurricular Intern (Ⅱ) 12 0 12 概然公式技術學程選修 機器人校制與感測 Robot Control & Sensing 3 3 0 1 [Al] 軟式計算 Soft Computing 3 3 0 1 (本書) Application integration of Interne	科技英文(一) ● iOS 應用程式設計	學程共同選修 Enterprise Resource Planning English for Science and Technology (I) Application Programming in iOS System	3	3 3	0			
師徒實務專題 (二)	科技英文(一) ● iOS 應用程式設計 ●校外實習(寒假)(三)	學程共同選修 Enterprise Resource Planning English for Science and Technology (I) Application Programming in iOS System Off-campus Internship (winter) (III)	3 3 1	3 3 0	0 0 1			
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 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 ●機電整合及實置 Mechatronic & Experiments 3 2 2 校外實習(二) Extracurricular Intern (Ⅱ) 12 0 12 機器人控制與感測 Robot Control & Sensing 3 3 0 機器人控制與感測 Robot Control & Sensing 3 3 0 本期網(IOT)整合應用 Application integration of Internet of Things 3 3 0 中裁網 Vehicle network technologies and applications 3 3 0 相對的報告 Introduction to Smart-Living System Design 3 3 3 0 <td>科技英文(一) ● iOS 應用程式設計 ●校外實習(寒假)(三) ●校外實習(一)</td> <td>學程共同選修 Enterprise Resource Planning English for Science and Technology (I) Application Programming in iOS System Off-campus Internship (winter) (III) Extracurricular Intern (I)</td> <td>3 3 1 12</td> <td>3 3 0 0</td> <td>0 0 1 12</td> <td></td> <td></td> <td></td>	科技英文(一) ● iOS 應用程式設計 ●校外實習(寒假)(三) ●校外實習(一)	學程共同選修 Enterprise Resource Planning English for Science and Technology (I) Application Programming in iOS System Off-campus Internship (winter) (III) Extracurricular Intern (I)	3 3 1 12	3 3 0 0	0 0 1 12			
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高動態範圍影像處理	High Dynamic Range Image Processing				3	3	0
	計畫型選修						
虚擬化服務介面設計		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、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.
- 三、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)].
- 四、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.
- 五、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.

- 六、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.
- 七、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).
- 八、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.

九、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.

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.