國立勤益科技大學日間部四年制 112 學年度電機工程系學分計畫表

National Chin-Yi University of Technology

Curriculum Planning of 2023 Four-Year Degree in Department of Electrical Engineering

111.11.07.系課程會議通過 111.11.09.系務會議通過 111.11.30. 院課程會議審議通過 111.12.13. 校課程會議及 111.12.22.臨時教務會議審議通過

	上學期 Fall Semester				下學期 Spring Semester				
科目	Courses	學分	正課	實習	學分	正課	實習		
	中国 7 存付口(90 億八) C 1 D · 1 C	Credit	Lecture	Internship	Credit	Lecture	Internship		
共同必修科目(28 學分) General Required Courses (28 credits hours) 第一學年First Year									
		0	1 0	0		1			
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					
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					
藝術鑑賞	Art Appreciation	1	1	0	0	0	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		
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		
音樂鑑賞	Music Appreciation				1	1	0		
42.1 46.02.3	第二學年Second Year	_		_		ı	Γ		
憲法與民主	Constitution and Democracy	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		
博雅通識課程	Liberal Education				2	2	0		
	第三學年Third Year	T							
歷史與文化(一)	History and Culture (I)	2	2	0					
博雅通識課程	Liberal Education	2	2	0					
歷史與文化(二)	History and Culture (II)				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	l Courses)						
	專業必修科目(63學分) Department Required Cou	ırses(63 c r	redits ho	urs)					
	第一學年First Year								
●微積分(一)	Calculus (I)	3	3	0					
●電路學(一)	Electric Circuit Analysis (I)	3	3	0					
●邏輯設計	Logic Circuit Design	3	3	0					
●微積分(二)	Calculus (II)				3	3	0		
●電路學 (二)	Electric Circuit Analysis (II)				3	3	0		
●△計算機程式	Computer Program				3	3	0		
●△計算機程式實習	Computer Programming Practice				1	0	3		
●工業配電設計	Industrial Distribution Design	3	3	0					
●工業配電設計實習	Industrial Distribution Design Practice				1	0	3		
	第二學年Second Year								
●電子學(一)	Electronics (I)	3	3	0					
●電子實習(一)	Electronics Lab (I)	1	0	3					
■工程數學(一)	Engineering Mathematics (I)	3	3	0					
●△微處理機及實習	Microprocessor Experiment	3	2	2					
●電子學 (二)	Electronics (II)				3	3	0		
●電子實習(二)	Electronics Lab (II)				1	0	3		
●工程數學 (二)	Engineering Mathematics (II)				3	3	0		
●電機機械	Electric Machinery				3	3	0		
●電力電子學	Power Electronics				3	3	0		
	第三學年Third Year		•						
●實務專題(一)	Project study (I)	2	0	6					
●電機機械實習	Electric Machinery Practice	1	0	3					
●自動控制	Automatic Controls	3	3	0					
●電機控制	Motor Drives	3	3	0					
●電力電子學實習	Experiments of Power Electronics	1	0	3					
						l .	ı		

●實務專題 (二)	Project study (II)				2	0	6
●電力系統	Power System				3	3	0
●電機控制實習	Motor Drives Experiment				1	0	3
第四學年Fourth Year(無排定必修課程No Department Required Courses)							

		上學士	胡 Fall Sen	ester	下學期	Spring Se	emester
科目	Courses	學分	正課	實習	學分	正課	實習
		Credits	Lecture	Internship	Credits	Lecture	Internship
	共同選修科目 General Elective						
	第一學年 First Year(無排定共同選修課程 No Ger	neral Elec	ctive Cour	ses)			
入口回りせてアキルは(-)	第二學年 Second Year	1	2	0	I		1
全民國防教育軍事訓練(三)	All Out Defense Education Military Training (III)	1	۷	U	1	2	0
全民國防教育軍事訓練(四)	All-Out Defense Education Military Training (IV)	<u> </u>			1	2	U
助 去、 既	第三學年 Third Year	1	9	0	1	2	0
體育選修 全民國防教育軍事訓練(五)	Physical Elective Course	1	2	0	1	۷	0
全民國防教育甲爭訓練(五)	All-Out Defense Education Military Training (V)	1	Z	U			
助 去、 既	第四學年 Fourth Year	1	2	0	1	2	0
體育選修	Physical Elective Course			U	1		U
	專業選修科目 Department Electiv	<i>le</i> Courses	5				
÷L	第一學年First Year 算機應用領域選修 Computer Application	Field F	laatina	Courses			
●計算機概論	Basic Concept of Computer Application	3	3	0	1	<u> </u>	Ī
●數位電路晶片設計及實習	CPLD/FPGA Chip Application Design and Practical	0	J	U	3	2	2
	支選修 Mechanical & Electrical Control Field E	lective	Courses	&Electric	, ,		
●△可程式控制與實驗	Programmable Control and Experiment	3	2	2			
●△機電概論	Mechatronics	3	3	0			
	電能科技領域選修 Power & Energy Technology Fie	·	·	·	I	<u>I</u>	1
●電機概論	Introduction to Electric	1			3	3	0
●電腦輔助繪圖設計及實習	Computer Aided Drawing (CAD) and Practice				3	2	2
C Star Interview Control	其它專業選修課程 Other Electiv	e Courses					
●光電概論	Introduction to Electro-optics	3	3	0			
●能源應用	Energy Application	3	3	0			
● 唐 歩 - 和 lun → 人 付 四 l 目 八 TB	Introduction to Electrical Engineering and	1	1	0			
●電機工程概論與職場倫理	Ethics in Worksite	1	1	0			
●物理(一)	Physics (I)	3	3	0			
●物理(二)	Physics (II)				3	3	0
	第二學年 Second Year						
	算機應用領域選修 Computer Application	1			1	ı	1
●△視窗程式設計及實習	Windows Programming and Experiments	3	2	2			
●△圖控程式設計及實習	Graphical computer program and experiment	3	2	2			
●△物件導向程式設計及實習	Object Oriented Programming and Practice	3	2	2			
●智慧感測與計算	Intelligent sensing technology and Computing	3	3	0			
●信號與系統	Signals and Systems				3	3	0
●電腦網路概論	Introduction to Computer Network				3	3	0
●工程儀表與量測	Instrumentation and Measurement Development and assessment of a printed				3	3	0
●印刷電路設計及實習	circuit board				3	2	2
●電路設計模擬及實習	Printed Circuit Board Design and Experiment				3	2	2
●電腦模擬與計算	Computer Simulations and Computational	3	3	0	-	-	
	Models			_			
●雲端運算概論	Cloud Computing	3	3	0	0	9	0
●△Python 程式應用	Applications for Python	1 0:-11	E1	0 0	3	3	0
	控制領域選修 Mechanical & Electrical Contro The Application of Fluid Power System and				s		<u> </u>
●油氣壓應用	Pneumatics	3	3	0			
●物聯網感測系統應用及實習	IoT Sensing System Application and Practice	3	2	2			
	『能科技領域選修 Power & Energy Technology F	ield El	e <u>ctiv</u> e C	Courses			
●消防工程設計	Design of fire fighting system	3	3	0			
●電能儲存技術	Energy Storage Technologies				3	3	0
●新能源車介紹	Introduction of New Energy Vehicles				3	3	0
	其它專業選修課程 Other Electiv	e Courses					
●科技英文	English for Science and Technology	3	3	0			
●數值分析	Numerical analysis	3	3	0			
●網路語言 I/O 應用及實習	Network Programming and I/O Application Experiments				3	2	2
i e e e e e e e e e e e e e e e e e e e	ı -	-		1	1		

●線性代數	Linear Algebra				3	3	0
●師徒實務專題(一)	Mentor-Apprentice Project study (I)				3	0	3
一种依具符号超(一)					J	U	J
÷L	第三學年 Third Year	Field F	laativa	Coumana			
	算機應用領域選修 Computer Application	3	2	2		1	1
●嵌入式系統設計及實習 ●專業軟體應用及實習	Embedded system design and experiment Expert Program Design And Application	3	2	2			
●并来软腹應用及貝白	Practical Programming of Mobile Value-Added	J		2			
●行動加值開發實務	Services	3	2	2			
●△MATLAB 程式設計及實習	MATLAB Programming and Practice	3	2	2			
●△微控制器應用及實習	Microcontroller Application and Practice				3	2	2
●超大型積體電路設計及實習	Introduction to Very Large Scale Integration				3	2	2
	(VLSI) Design and Experiment						
●△Android 應用程式及實習	Android Application Development and Practice				3	2	2
●△JAVA 程式設計及實習	JAVA Language Programming and Practice				3	2	2
●虚擬儀器設計及應用	Virtual instrument design and application	3	3	0			
●△網頁設計及實習	Web design and internship	3	2	2			
●半導體設備概論	Introduction to Semiconductor Equipment	3	3	0			
	控制領域選修 Mechanical & Electrical Contro		1		S	1	1
●△人機介面設計及實習	Human Computer Interface Design and Practice	3	2	2			
●感測器應用及實習	Sensor Application/Experiments	3	2	2			
●生醫工程概論 ● PRID 京 R	Introduction to biomedical engineering	3	3	0			-
●RFID 應用	RFID theorem and practice	3	3	0			
●物聯網電子系統應用與設計	IoT Electronic Systems Applications and Design	3	3	0			
●[AI]智慧型機器人學	Intelligent Robotics	3	3	0			
●生醫感測技術實習	Biosensing Technology and Practice				3	2	2
●無線感測網路	Wireless Sensors Networks				3	3	0
●控制系統	Control system				3	3	0
●△智慧電子應用設計及實習	Intelligent Electronics Design Applications and				3	2	2
	Practice				J		۷
	:能科技領域選修 Power & Energy Technology F		1			1	1
●發變電工程	Generation Transformation Engineering	3	3	0			
●燃料電池概論	Introduction to Fuel Cells	3	3	0			
●再生能源技術	Renewable Energy Technology				3	3	0
●電腦輔助電機設計及實習	Computer aided design (CAD) of electrical				3	2	2
●電池概論	machinery & practice Introduction to Batteries				3	3	0
电心似端	Electrochemical Power Technology: Secondary						0
■電化學動力技術:二次電池	Battery				3	3	0
●電力電子實務	Practice of Power Electronics				3	3	0
	其它專業選修課程 Other Electiv	e Courses	1				
●網路分析	Network Analysis	3	3	0			
●綠色能源工程	Green Energy Engineering	3	3	0			
●電磁學	Basic Electromagnetics	3	3	0			
●數位通訊系統	Digital Communication System				3	3	0
●資訊網路	Information Networks				3	3	0
●物聯網概論	Internet of Things Introduction	3	3	0			
●工程倫理	Engineering Ethics	3	3	0			
	第四學年 Fourth Year			•		•	
計	算機應用領域選修 Computer Application	Field E	lective	Courses			
●雲端運算技術	Cloud Computing Technology	3	3	0			
●△數位信號處理及實習	Digital Signal Processing and Practice				3	2	2
機電	控制領域選修 Mechanical & Electrical Contro	l Field	Electiv	e Course	S	•	1
●控制系統實務	Control System Practice	3	2	2			
●系統動態模擬	System Dynamic Simulation	3	2	2			
●連網型系統晶片嵌入式軟體	Networked SOC Embedded Software	3	3	0			
●智慧機電實務	Smart Mechatronics Practice	3	3	0			
●△機電整合及實習	Mechatronic & Experiments				3	2	2
●驅動器設計技術	Driver Design Technology				3	3	0
· · · · · · · · · · · · · · · · · · ·	:能科技領域選修 Power & Energy Technology F	ield El	ective (Courses			
●電力品質	Electric Power Quality	3	3	0			
助換式電源轉換器設計及實習	and Practice of Switching Power Supply	3	2	2			
	Design and Practice of Solar Photovoltaic	9	9	0			İ
●太陽光電發電系統設計及應用	Systems	3	3	0			
●風力發電工程	Wind Power System Practical Cases	3	3	0			
●配電系統自動化	Distribution System Automation	3	3	0			

■最佳化電機設計及實習	Optimal Design of Electrical Machinery and Practice	3	2	2			
●捷運機電系統概論	Introduction on MRT Electro-Mechanical- System				3	3	0
●風力發電工程實務	Wind power system practical cases				3	3	0
●電機設備保護及實習	Electrical Power Distribution Design				3	2	2
●電動車設計與製作	Introduction of New Energy Vehicles				3	3	0
其它專業選修課程 Other Elective Courses							
●[AI]人工智慧	Artificial Intelligence	3	3	0			
●工業安全衛生	Industrial Safety Health	3	3	0			
●個人行銷與形象管理	Personal Marketing and Image Management	3	3	0			
●校外實習(一)	Extracurricular Intern (I)	9	0	9			
●[AI]類神經網路應用	Artificial Neural Networks and Application				3	3	0
●工廠管理	Factory Management				3	3	0
●特殊空調系統	Distinctive Air-Conditioning				3	3	0
●校外實習(二)	Extracurricular Intern (II)				9	0	9
●師徒實務專題 (二)	Mentor-Apprentice Project study (II)	3	0	3	3		

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(其中至少需含本系專業選修及跨領域學程選修 28 學分,選修學分內必須修習三門以上(含)具有實驗(習)課之課程(3 學分/4 學時),)】 Students should complete at least 131 credits before graduation including 90 required credits and 41 elective credits (at least 28 professional elective credits containing no less than three experimental courses (3 credits / 4 class hours) in EE.).
- 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

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. 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. 考取本系學生核心證照可抵免:

Students who get core certifications can apply to waive one of the following options: 一張(含以上)證照僅限抵一門具有實驗(習)課程之畢業門檻(不可抵畢業學分),僅限抵免一次。 One (or above) certification can transfer one experimental course only one time (no transfer graduation credits).

- 五. 課程名稱前有標示「 \triangle 」符號者,為程式設計課程。 Courses with a " \triangle " refers to an application of
 - 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. 課程名稱前有標示「●」符號者,為「職能專業課程」。

- - Courses with a "O" refer to a professional competence course.
- 八、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

智慧電網與能	三源		智慧物聯網		
課程選別	學年	課程名稱(學分/學時)	課程選別	學年	課程名稱(學分/學時)
必修	一上	工業配電設計 3/3	必修	二上	微處理機及實習 3/4
必修	二下	電力電子學 3/3	必修	三上	電機控制 3/3
選修	一上	能源應用 3/3	選修	一上	計算機概論 3/3
選修	三上	發變電工程 3/3	選修	三上	智慧型機器人學 3/3
外系選修	二下	監控系統設計及實習 3/4	外系選修	二上	Python 程式設計 3/3
外系選修	三上	智慧電能儲存技術 3/3	外系選修	三上	數位影像處理及實習 3/4