

國立交通大學電機工程學系「跨域學程」實施要點

National Chiao Tung University Department of Electrical and Computer Engineering Implementation Guidelines for Cross-Disciplinary Program

106年3月15日電機系課程委員會通過
106年3月22日電機系務會議通過
106年10月23日電機系課程委員會通過
106年11月14日電機系務會議通過
108年10月22日電機系務會議通過
108學年度第3次課程委員會通過(108.12.9)
108學年度第2次教務會議核備通過(108.12.31)

- 一、依據國立交通大學跨域學程實施辦法，國立交通大學電機工程學系(以下簡稱本系)為鼓勵學生進行跨領域學習，建立跨域學習深度，協助學生拓展第二專長，提供學生可以在畢業學分不增加(或僅少量增加)情況下，修畢跨域學程，特訂定本要點。

Article One These Implementation Guidelines are prescribed by National Chiao Tung University Department of Electrical and Computer Engineering(hereinafter referred to as Our Department) based on NCTU Cross-Disciplinary Program Implementation Regulations to provide the opportunity for students to proceed cross-disciplinary learning without increasing graduate credits (or only a few extra credits) in order to encourage students to conduct cross-disciplinary study, build the depth of cross-disciplinary study, and assist students to expand second specialty.

- 二、跨域學程係指由交通大學的學系、研究所、或學院提出模組課程，模組課程應包含該領域基礎核心知識，且總學分數以30學分為原則(最低可為28學分，最高不可超過32學分)，學生修習跨域學程，其課程將包含所屬學系的跨域學程模組課程以及第二專長系所或學院的跨域學程模組課程，並可於畢業證書上加註第二專長模組課程為「跨域專長」。

Article Two The cross-disciplinary program here means the cross-disciplinary module curriculum proposed by the departments, institutes or colleges in National Chiao Tung University. Module curriculum should include the core knowledge curriculum of the field and the total credits will be based on 30 credits (the minimum 28 credits and no more than 32 credits). The cross-disciplinary program that students take will include the cross-disciplinary program module curriculum of the department they belong to as well as the cross-disciplinary program module curriculum from the second specialty department or college. The module curriculum of the second specialty could be remarked as “Cross-Disciplinary Specialty” on the diploma.

- 三、本要點修業規定

Article Three Policies of these Guidelines

- 1.本系學生欲修習跨域學程者

1.For the student of our department who would like to take cross-disciplinary program

- (1) 得於每學年度公告申請期限內向本系提出申請，申請時註明欲申請的第二專長系所或學院，申請期限將由本系課程委員會提前一個月進行公告，公告中說明需準備的審查資料以及當年度本系開放給本系學生修讀跨域學程的名額，申請案經本系課

程委員會審查通過後，需送到第二專長系所或學院審查，通過雙邊審查後，方可進入跨域學程。

- (1) The application can be submitted to our department within the dates of annual announcements by faculty. The department or college of the second specialty that the student would like to apply for must be remarked on the application form, and the application deadline would be announced one month in advance by the Curricular Committee at our department. The information of evaluation documents needed to be prepared as well as the quota opened to the students of our department to study for this program in the given year will be released on the announcement. The application should be sent to the department or college of the second specialty for evaluation after it is approved by the Curricular Committee at our department. Students could only take the cross-disciplinary program after evaluation by both sides.
- (2) 本系學生修習跨域學程的課程，列示於『電機工程學系跨域學程本系學生必修科目表』，其課程包含：校必修(含共同必修 28 學分)，本系基礎必修課程，本系跨域模組課程，以及第二專長系所或學院的跨域模組課程(以下簡稱他系跨域模組課程)，畢業學分以 128 學分為原則。他系跨域模組課程認定為跨域專長，於畢業證書本系名稱後加註此跨域專長。
- (2) The courses of cross-disciplinary program studied by students in our department should be listed on “The Required Course List for the students at our department study cross-disciplinary program in Department of Electrical and Computer.” The courses include required courses of the university (including 28 credits of general education subjects), core curriculum at our department, cross-disciplinary module curriculum at our department, and the cross-disciplinary module curriculum of the second specialty department or college (hereinafter referred to as cross-disciplinary module curriculum at other department) with at least 128 graduate credits. The cross-disciplinary module curriculum at other department would be recognized as cross-disciplinary specialty, and it will be remarked after the title of our department on the diploma.
- (3) 本系學生修習跨域學程，若無法修畢跨域學程課程，得選擇放棄跨域學程，改修習原電機工程學系的學士學位課程。
- (3) For students at our department who study for cross-disciplinary program but are not able to complete the program, they shall give up the cross-disciplinary program and transfer to study for the bachelor degree program at the original Department of Electrical and Computer.

2.外系學生欲修習跨域學程且選擇本系做為其跨域專長者

2.For students of other departments who would like to study for cross-disciplinary program and choose our department as their cross-disciplinary specialty

- (1) 得於每學年度公告申請期限內向其所屬學系（以下簡稱原系），通過原系以及本系的雙邊審查後，方可進入跨域學程。
- (1) They could submit the application to the department that they belong to within the dates of annual announcements by faculty, they could only take the cross-disciplinary program after

approved by both their original department and our department.

- (2) (2)外系學生修讀跨域學程且選擇本系做為其跨域專長者，其課程包含：原系要求之校必修(含共同必修 28 學分)，原系基礎必修課程及跨域模組課程，以及列示於『電機工程學系跨域模組課程必修科目表』的模組課程，畢業學分達到原系要求，並於畢業證書原系名稱後加註電機工程為其跨域專長。。
- (2) The courses for the students of other departments who would like to study for cross-disciplinary program and choose our department as their cross-disciplinary specialty include original department required courses of the university (including 28 credits of general education subjects), core curriculum at their original department, cross-disciplinary module curriculum at their original department, and the module curriculum listed on “The Required Course List for the students study cross-disciplinary module curriculum in Department of Electrical and Computer” with reaching the graduate credits of original department requirements . The Department of Electrical and Computer will be remarked as their cross-disciplinary specialty after the title of their original department on the diploma.
- (3) 若外系與本系另訂定兩系雙向鎖定之跨域學程實施要點，則相關學生應依實施要點提出修習跨域學程。
- (3) If the external department and the department have separately set out the two-way locked cross-domain course implementation points, the relevant students should propose a cross-domain course based on the implementation points.

四、本系指定一名專任教師擔任跨域學程導師，與外系所或學院的跨域學程導師組成導師群，專責輔導跨域學程的學生。

Article Four Our department assigned one full-time teacher to be the mentor of the cross-disciplinary program and formed mentor group with teachers of cross-disciplinary program at other department or college to give guidance to cross-disciplinary program students.

五、為鼓勵不同系所或學院合作提出跨域共授課程，由兩位以上教師開授跨領域之創新整合式課程，得依本校教師授課鐘點核計原則第九條第六款規定，教師的授課鐘點數可按到場時數計，但以開課前該門課程之實際簽呈為依據。

Article Five In order to encourage different departments or colleges working together for the proposal of cross-disciplinary curriculum, the number of teaching hours for the innovating integrated curriculum offered by more than two teachers could be calculated by the actual time of teaching according to Subparagraph 6, Article 9 of National Chiao Tung University Teaching Hours Accounting Principle; however, it will be in accordance with the official approval of the curriculum before the course starts.

六、本要點如有未盡事宜，悉依本校學則及其他相關規定辦理。

Article Six If there is any unaccomplished matter of these guidelines, it shall be handled in accordance with the school constitution of our university as well as other relevant regulations.

七、本要點經校級課程委員會通過並提教務會議核備後實施，修訂時亦同。

Article Seven These guidelines were approved by Curricular Committee at university level and then submitted to the Council of Academic Affairs for approval-for-reference before putting it into practice; the same shall be done upon any amendment thereto.

電機工程學系「跨域學程」本系學生必修科目表(A)

The Required Courses List for the students at our department study
Cross-disciplinary Program in ECE Department

類別 Category	選別 Classification	科目名稱 Courses	學分 Credits		開課系 所 Dept.	備註 Remarks
			上學期 Fall Semester	下學期 Spring Semester		
本系基礎必修 (51 學分) Core curriculum at our department (51 credits)	基礎必修課程 (51 學分) Fundamental Compulsory Courses (51credits)	微積分(一)(二) Calculus (I) (II)	4	4	電機系 ECE	
		物理(一)(二) General Physics (I) s(II)	4	4	電機系 ECE	
		線性代數 Linear Algebra	3		電機系 ECE	
		微分方程 Differential Equation	3		電機系 ECE	
		生涯規劃與導師時間 Career Planning and Mentor's Hours	0	0	電機系 ECE	得以生涯規 劃免修 Can be waived by "Career Planning"
		服務學習(一)(二) Student Service Education (I) (II)	0	0	電機系 ECE	
		電路學 Circuit Theory	3		電機系 ECE	
		電磁學 Electromagnetics		3	電機系 ECE	
		電子學(一)(二) Electronics (I) (II)	3	3	電機系 ECE	
		電子實驗(一)(二) Electronics Labs (I) (II)	2	2	電機系 ECE	
		訊號與系統 Signals and Systems	3		電機系 ECE	
		計算機概論與程式設計 Intro. to Computers and Programming	3		電機系 ECE	
		機率 Probability		3	電機系 ECE	
		邏輯設計 Logic Design	3		電機系 ECE	
專題討論 Seminar	1		電機系 ECE			
專業選修領域 Elective Courses in Professional		應從本系開授之專業課程至少修得 21 學分(不含基礎必修與專題)，課程需涵蓋至少 12 學分之本系專業選修核心課程與 3 學分之本系專業必修實驗課程。 At least 21 credits (excluding basic compulsory and special subjects) from the professional courses taught in this department. The courses must cover at least				

Programs		12 credits of core core optional courses and 3 credits of compulsory lab courses.
他系跨域模組 (依他系學分數規定) Cross-disciplinary modules at other department (28-32 credits)	本校各系所或學院所提供 之跨域模組學程，擇一修 畢 The cross-disciplinary modules offer by departments or colleges at our university; choose one to complete.	28
共同必修 Common Required Courses		通識課程至少 22 學 分，外語至少 8 學 分，共同課程至多採 計 38 學分 [註 1] <u>General Courses at least 22 credits, Language at least 8 credits, Common courses 30credits(include Language 8 credit), count 38 credits at most.</u>
最低畢業學分 Minimum Credits Required for Graduation		128

註：本校共同必修科目表規定，外語課程必修至少 6 學分。如大學部學生修習共同必修學分數超過 28 學分以上，本校至多可採至 40 學分於最低畢業學分內，但各學系另有規定者，從其規定。

電機工程學系「跨域模組課程」必修科目表(B)

The Required Courses List for the students study Cross-disciplinary module curriculum in ECE Department

類別 Category	選別 Classification	科目名稱 Courses	學分 Credits	開課系所 Dept.	備註 Remarks
本系跨域模組 (32 學分) Cross-disciplinary courses at our department (32 credits)	必修(17 學分) Compulsory Courses (17 credits)	邏輯設計 Logic Design	3	電機系 ECE	
		跨領域專題(一) Projects of Cross- disciplinary(I)	1	電機系 ECE	
		跨領域專題(二) Projects of Cross- disciplinary(II)	1	電機系 ECE	必選修 Required elective courses
		電子學(一) Electronics (I)	3	電機系 ECE	
		電路學 Circuit Theory	3	電機系 ECE	
		訊號與系統 Signals and Systems	3	電機系 ECE	
		微分方程 Differential Equation 機率 Probability 線性代數 Linear Algebra 三選一	3	電機系 ECE	
專業選修領域 Elective Courses in Professional Programs	應從本系開授之專業課程至少修得 15 學分(不含基礎必修)，課程需涵蓋至少 9 學分之本系專業選修核心課程與 3 學分之本系專業必修實驗課程。 At least 15 credits (excluding basic compulsory) must be taken from the professional courses taught in this department. The courses must cover at least 9 credits of core core elective courses and 3 credits of compulsory lab courses.				
總學分 Total Credits			32		

電機工程學系專業選修 核心課程 暨 相關專業選修課程 表
Elective Curricula of the Department of Electrical and Computer Engineering:
Table of Core Courses and Related Elective Courses

109 學年度 Academic Year 2020

領域名稱 Program	核心課程 Core Courses	大學部領域相關專業選修課程 Related Undergraduate Elective Courses	研究所相關課程 Related Graduate Courses
智慧與感測元件 Intelligent and Sensor Device	材料科學導論 Introduction to Material Science 電磁波 Electromagnetic Wave 感測與光電導論 Introduction to Sensor and Optoelectronics	量子力學導論 Introduction to Quantum Mechanics 固態物理(一)(二) Solid State Physics(I)(II) 相關實驗課程 Related Laboratory Courses: 半導體實驗 Semiconductor Laboratory 元件電路計測實驗 Device and Circuit Characterization Laboratory	固態物理 Solid State Physics 半導體物理及元件(一)(二) Semiconductor Physics and Devices(I)(II) 光電子學 Optical Electronics 高等電磁學(一) Advanced Electromagnetics(I) 積體電路技術(一)(二) Integrated Circuit Technology(I)(II) 記憶體元件與製程 Semiconductor Memories and Their Fabrication Technologies 太陽能電池物理與技術 Solar Cell Physics and Technology CMOS 元件、可靠度及應用之特論 Special Topics of CMOS Devices, Reliability, and Applications 量子力學 Quantum Mechanics 材料分析 Materials Analysis 微機電元件技術 Component Technology of MEMS 元件電路計測實驗 Device and Circuit Characterization Laboratory 電子材料 Electronic Materials 薄膜技術及分析 Thin Film Technology and Analysis 單光子元件與系統 Single-Photon Devices and Systems 半導體雷射 Semiconductor Laser 光電半導體物理及元件 Semiconductor Optoelectronic Devices and Physics

<p>半導體元件及工程 Semiconductor Device and Engineering</p>	<p>材料科學導論 Introduction to Material Science 近代物理導論 Introduction to Modern Biology 半導體元件物理 Semiconductor Device Physics 半導體工程 Semiconductor Engineering</p>	<p>半導體基礎理論 Basic Semiconductor Physics 數值分析 Numerical Analysis 固態物理(一)(二) Solid State Physics(I)(II)</p> <p>相關實驗課程 Related Laboratory Courses: 半導體實驗 Semiconductor Laboratory 元件電路計測實驗 Device and Circuit Characterization Laboratory</p>	<p>半導體物理及元件(一)(二) Semiconductor Physics and Devices(I)(II) 積體電路技術(一)(二) Integrated Circuit Technology(I)(II) 三維積體電路 3D Integrated Circuits 記憶體元件與製程 Semiconductor Memories and Their Fabrication Technologies 太陽能電池物理與技術 Solar Cell Physics and Technology 元件製程技術及可靠度 Reliability on Semiconductor Device and Process Technology 矽奈米元件及物理 Silicon Nanometer Devices and Physics 低功率 CMOS 元件技術 Low Power Si CMOS Electronics and Device Technology 高功率半導體元件物理與技術 High Power Semiconductor Device Physics and Technology 固態物理 Solid State Physics 量子力學 Quantum Mechanics 光電子學 Optical Electronics 高等電磁學(一) Advanced Electromagnetics(I) 材料分析 Materials Analysis 電子材料 Electronic Materials 薄膜技術及分析 Thin Film Technology and Analysis 微機電元件技術 Component Technology of MEMS</p>
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固態與量子物理 Solid State and Quantum Physics	近代物理導論 Introduction to Modern Physics 量子力學導論 Introduction to Quantum Mechanics 固態物理(一) Solid State Physics(I) 固態物理(二) Solid State Physics(II)	半導體基礎理論 Basic Semiconductor Physics 半導體元件物理 Semiconductor Device Physics 電磁波 Electromagnetic Wave 相關實驗課程 Related Laboratory Course: 物理實驗(一) Physics Laboratory(I) 物理實驗(二) Physics Laboratory(II)	固態物理 Solid State Physics 固態理論 Solid State Theory 量子力學 Quantum Mechanics 光電子學 Optical Electronics 高等電磁學(一) Advanced Electromagnetics(I) 半導體物理及元件(一)(二) Semiconductor Physics and Devices(I)(II)
電子設計自動化 Electronic Design Automation	資料結構 Data Structures 演算法(概論) Algorithms(Intro.) 電子設計自動化概論 Introduction to Electronic Design Automation	離散數學 Discrete Mathematics 物件導向程式設計 Object-Oriented Programming 數位電路與系統 Digital Circuits and Systems 計算機組織 Computer Organization 超大型積體電路設計導論 Introduction to VLSI Design 相關實驗課程 Related Laboratory Courses:	實體設計自動化 Physical Design Automation 計算機輔助設計特論 Special Topics in Computer Aided Design VLSI 測試與可測試性設計 VLSI Testing and Design for Testability 高等演算法 Advanced Algorithms 計算機結構 Computer Architecture 數位積體電路 Digital Integrated Circuits 積體電路設計實驗 Integrated Circuit Design Laboratory 機器學習 Machine Learning 平行程式設計 Parallel Programming 電腦輔助電路設計與分析 Computer-Aided Circuit Design and Analysis VLSI 導線效應之模型與最佳化 Modeling and Optimization of VLSI Interconnects 矩陣運算 Matrix Computation

<p>系統控制 System Control</p>	<p>自動控制系統 Automatic Control Systems 控制系統設計 Design and Simulation of Control System 數位控制系統 Digital Control System</p>	<p>微計算機系統與實驗 Microcomputer Systems and Lab 動態系統分析與模擬 Analysis and Simulation of Dynamic Systems 數位訊號處理導論 Introduction to Digital Signal Processing</p> <p>相關實驗課程 Related Laboratory Courses: 控制實驗 Control Lab 微計算機原理與實驗 Principle of Microcomputer</p>	<p>數位訊號處理 Digital Signal Processing 嵌入式作業系統 Embedded Operating Systems 隨機過程 Stochastic Processes 線性系統理論 Linear System Theory 智慧型控制 Intelligent Control 電腦控制系統 Computer Control System</p>
<p>多媒體訊號處理 Multimedia Signal Processing and Communications</p>	<p>語音處理導論 Introduction to Speech Processing 互動式音訊處理導論 Introduction to Interactive Audio Processing 數位訊號處理導論 Introduction to Signal Processing</p>	<p>人工智慧導論 Introduction to Artificial Intelligence</p> <p>相關實驗課程 Related Laboratory Courses: 數位訊號處理晶片實驗 Digital Signal Processing Chips Labs</p>	<p>數位訊號處理 Digital Signal Processing 機器學習 Machine Learning 雲端運算與巨量資料分析 Cloud Computing and Big Data Analytics 適應性訊號處理 Adaptive Signal Processing 語音處理 Digital Speech Processing 聽語資訊處理 Auditory and Acoustic Information Process 資料壓縮 Data Compression</p>
<p>系統晶片設計 System-on-chip</p>	<p>超大型積體電路(設計)導論 Introduction to VLSI Circuits (Design)</p>	<p>數位訊號處理導論 Introduction to Digital Signal Processing 微機電系統技術導論 Introduction to Micro Electro Mechanical Systems 程式化邏輯系統設計 Programmable Logic System Design</p> <p>相關實驗課程 Related Laboratory Courses: VLSI 實驗 LSI Lab 積體電路設計實驗 Integrated Circuit Design Laboratory</p>	<p>超大型積體電路系統設計 VLSI System Design and Application 數位訊號處理 Digital Signal Processing</p>

類比電路與系統	類比積體電路導論 Introduction to Analog Integrated Circuits	<p>相關實驗課程: 類比積體電路實驗 Analog Integrated Circuits LAB</p>	類比積體電路設計 Analog IC Design 射頻積體電路設計 Radio Frequency Integrated Circuits 資料轉換積體電路設計 Data conversion integrated circuit design 功率積體電路 Power Integrated Circuits 毫米波電路與系統 Millimeter-wave Circuits and Systems 微波電路 Microwave Circuits 類比濾波器設計 Analog Filter Design 高頻電路設計與實驗 High-Frequency Circuits & Design Laboratory 生醫電子與系統 Bio-Medical Circuits and Systems 積體電路之靜電防護設計特論 Special topic on ESD Protection Design in CMOS Ics
通訊科學與系統 Communication on Sciences and Systems	通訊系統導論 Introduction to Communication Systems 數位通訊導論 Introduction to Digital Communications	演算法概論 Introduction to Algorithms 數據通訊 Data Communication 數位訊號處理導論 Introduction to Digital Communications 相關實驗課程 Related Laboratory Courses: 通訊系統實驗 Communication System Lab 通訊系統電腦模擬 Computer Simulation of Communication Systems	數位通訊 Digital Communication 檢測與估計(理論) Detection and Estimation (Theory) 隨機過程 Random Process 編碼理論 Coding Theory 消息理論 Information Theory 適應性訊號處理 Adaptive Signal Processing 無線通訊(訊號處理) Wireless Communication (Signal Processing)

AI 機器人 AI Robots	進階物件導向程式設計 Advanced Object-Oriented Programming 人工智慧導論 Introduction to Artificial Intelligence	JAVA 程式設計 JAVA Programming 資料結構 Data Structure 自動控制系統 Automatic Control Systems 相關實驗課程 Related Laboratory Courses: 智慧機器人實驗 Intelligent Robotics Laboratory 數位訊號處理晶片實驗 Digital Signal Processing Chips Lab	嵌入式作業系統 Embedded Operating Systems 自走式機器人 Mobile Robots 數位訊號處理 Digital Communications 線性系統理論 Linear System Theory 機器人學 Robotics 智慧型資料分析 Intelligent Data Analysis 模糊系統 Fuzzy Systems
電力電子 Power Electronics	電力電子導論 Introduction to Power Electronics 電力工程導論 Introduction to Electrical Power Engineering	自動控制系統 Automatic Control Systems 類比積體電路導論 Analog Integrated Circuits 電機機械(機械系) Electric Machinery (Mechanical Engineering Department) 相關實驗課程 Related Laboratory Courses: 電力電子實驗 Power Electronics Lab 微算機原理與實驗 Principle of Microcomputer	電力電子 Power Electronics 高等電力電子 Advanced Power Electronics 數位電源控制 Digital Power Control 交流式電源供應器設計 Switching Power Supply Design 電動機控制 Motor Control 電力系統 Power System 類比積體電路設計 Design and Applications of Analog Integrated Circuits 功率積體電路設計 Power Integrated Circuit Design
無線科技 Wireless and Microwave Techniques	天線導論 Introduction to Antennas 微波工程導論 Foundations for Microwave Engineering	複變函數 Complex Variables 數值分析 Numerical Analysis 無線通訊之電波傳播與天線 Radio Propagation and Antennas for Wireless Communications 固態電子學 Solid State Electronics 通訊電子學 Communication Electronics 光電工程導論 Introduction to Opto-electronic Engineering 相關實驗課程: Related Laboratory Courses 射頻電路原理與實驗 Principle and Lab of RF Circuit	類比積體電路設計 Integrated Circuit Design 天線理論 Antenna Theory 物理數學 Mathematical Methods of Physics 微波工程(一)(二) Microwave Engineering(I)(II) 高等電磁學 Advanced Electromagnetics 手機行動通訊系統 Mobile Phone Communication System 射頻積體電路設計 Radio Frequency Integrated Circuits Design 電磁相容 Electromagnetic Compatibility in Integrated Circuits 射頻積體電路實驗

			Radio Frequency Integrated Circuits Lab 微波電路設計與製造 Microwave Circuit Design Laboratory 微波量測原理 Theory of Microwave Measurement 微波主動元件 Active Microwave Circuit
資訊通訊 Information and Communications	數據通訊 Data Communication 網路程式設計 Network Programming 資料結構 Data Structure	演算法概論 Introduction to Algorithms 物件導向程式設計 Object-Oriented Programming 作業系統 Operating Systems 電腦網路導論 Introduction to Computer Networks JAVA 程式設計 JAVA Programming 無線網路導論 Introduction to Wireless Networks 網路安全導論 Introduction to Network Security 嵌入式系統導論 Introduction to Embedded Systems 相關實驗課程 Related Laboratory Courses: 通訊網路實驗 Communication Networks Lab	排隊理論 Queuing Theory 無線隨意網路 Wireless Ad Hoc Networks 演算法 Algorithms 計算機網路 Computer Networks 無線網路 Wireless Network 嵌入式系統設計 Embedded Systems Design 行動計算 Mobile Computing 網路安全 Network Security 無線感測網路 Wireless Sensor Networks and RFID Technologies 網路隨機過程 Network Random Process 最佳化理論與應用 Optimization Theory and Application
生醫工程 Biomedical Electronics and Information	醫學工程導論 Introduction to Biomedical Engineering Research 數位訊號處理導論 Introduction to Digital Signal Processing	人工智慧導論 Introduction to Artificial Intelligence 醫學工程 Biomedical Engineering Research 仿生科技 Biomimicry 人體結構、功能、臨床及醫療器材 Human Function Anatomy and Medical Instrument Application 相關實驗課程 Related Laboratory Courses: 生醫工程實驗 Biomedical Engineering Laboratory	數位訊號處理 Digital Signal Processing 影像處理 Digital Image Processing 生醫統計學 Biomedical Statistics 神經彌補裝置 Neural Prosthesis 超音波導論與應用 Introduction to Ultrasound and its Applications 近代生醫電學 Modern Bioelectricity

<p>人工智慧與計 算機工程 Artificial Intelligence and Computer Engineering</p>	<p>離散數學 Discrete Mathematics 資料結構 Data Structure 人工智慧導論 Introduction to Artificial Intelligence</p>	<p>物件導向程式設計 Object-Oriented Programming 電腦網路導論 Introduction to Computer Networks 嵌入式系統導論 Introduction to Embedded Systems 計算機組織 Computer Organization 作業系統 Operating Systems 相關實驗課程 Related Laboratory Courses: 人本計算實驗 Human-Centric Computing Laboratory</p>	<p>機器學習 Machine Learning 排隊理論 Queuing Theory 平行程式(設計) Parallel Programming (Design) 演算法 Algorithms 計算機結構 Computer Architecture 資料科學 Data Science 計算機網路 Computer Network 嵌入式系統設計 Embedded System Design 雲端運算與巨量資料分析 Cloud Computing and Big Data Analytics 智慧型手機應用程式設計 Smart Phone Programming</p>
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