電子工程系　碩士班　114 學年度入學課程結構規劃表

2025 Curricula for the Master's Program in Department of Electronic Engineering (Jiangong Campus)

課程類別 Course Category				一年級 1st Academic Year						二年級 2nd Academic Year					
				第一學期 Semester 1			第二學期 Semester 2			第一學期 Semester 1			第二學期 Semester 2		
				課程名稱 Course Name	學分數 Credits	時數 Hours	課程名稱 Course Name	學分數 Credits	時數 Hours	課程名稱 Course Name	學分數 Credits	時數 Hours	課程名稱 Course Name	學分數 Credits	時數 Hours
學院共同課程（由學院開課） College Common Courses	選修 Elective		應修課程數/應修學分數 Credits Needed	開關變換器的基本設計與分析微學分/1/1 Basic design and analysis of switching converters/1/1 機器人競賽與挑戰微學分/1/1 Robotics competition and challenge/1/1 網路與排隊理論/3/3 Data Networks and Queuing Theory/3/3 微波工程與應用/3/3 Microwave Engineering and Applications/3/3 低碳能源技術導論微學分/1/1 Introduction on Technologies of Low Carbon Energy/1/1 再生能源導論微學分/1/1 Introduction to Renewable Energy/1/1											
學院跨領域課程（由學院開課） College Interdisciplinary Courses	選修 Elective		應修課程數/應修學分數 Credits Needed	區塊鏈技術與應用/3/3 Blockchain Technology and Application/3/3 區塊鏈智能合約實務/3/3 Block Chain Smart Contract Practice/3/3											
專業課程 Professional Courses	必修 Required	組別 Group	應修學分數 14 學分 14 Credits Needed	專題研討〈一〉 Seminar (1)	2	2	專題研討〈二〉 Seminar (2)	2	2	專題研討〈三〉 Seminar (3)	2	2	專題研討〈四〉 Seminar (4)	2	2
										論文 Thesis	6	6	論文 Thesis	6	6
	選修 Elective	電子組 Electronics Group	應修學分數 24 學分 24 Credits Needed	固態電子學/3/3 Solid State Electronic/3/3 工程量子力學/3/3 Engineering Quantum Mechanics/3/3			電子元件原理/3/3 Principle of Electronic Devices/3/3 半導體元件製程/3/3 Fabrication of Semiconductor Devices/3/3			材料科學/3/3 Foundations of Materials Science and Engineering/3/3 量子元件/3/3 Quantum Devices/3/3			光電元件/3/3 Optoelectronic Devices/3/3		

課程類別 Course Category			一年級 1st Academic Year				二年級 2nd Academic Year			
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			課程名稱 Course Name	學分數 Credits	時數 Hours	課程名稱 Course Name	學分數 Credits	時數 Hours	課程名稱 Course Name	學分數 Credits	時數 Hours	課程名稱 Course Name	學分數 Credits	時數 Hours
			半導體材料及物理/3/3 Semiconductor Materials and Physics/3/3 光電子學/3/3 Photonics/3/3 高等類比積體電路/3/3 Advanced Analog Integrated Circuit/3/3 電子儀器專論/3/3 Special Topic On Electronic Instrumentation/3/3 VLSI 電路測試/3/3 Vlsi Circuit Testing/3/3 光電工程/3/3 Optoelectronic Engineering/3/3 電子電路與系統/3/3 Electronic Circuit and Systems/3/3 元件物理/3/3 Physics of Semiconductor Devices/3/3 記憶體元件與製程/3/3 Introduction To Memory Device and Process/3/3 類比濾波器合成/3/3 Synthesys of Analog Filter/3/3 微機電概論/3/3 Introduction to MEMS/3/3 高頻電路及訊號量測/3/3 High-Frequency Circuits and Signal Measurements/3/3			類比濾波電路/3/3 Analog Filter Circuits/3/3 深次微米 MOS 元件理論/3/3 Deep Sub Micro MOS Devices/3/3 半導體工程原理/3/3 Principles of Semiconductor Engineering/3/3 發光二極體專論/3/3 Special Topic On Light Emitting Diodes/3/3 電子控制器之設計/3/3 Design of Electronic Controller/3/3 奈米工程概論/3/3 Introduction to Nano Engineering/3/3 幾何光學/3/3 Geometric optics/3/3 類比積體電路符號分析/3/3 Symbolic Analysis in Analog Integrated Circuit/3/3 新結構電子元件/3/3 New Structural Electronic Devices/3/3 雷射工程/3/3 Laser Engineering/3/3 類比積體電路設計與應用/3/3 Design and Application of Analog Integrated Circuits/3/3							

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			新材料 IC 元件/3/3 New Materials IC Devices/3/3											
	電信與系統組 Communication and System Group		隨機信號處理/3/3 Random Signal Processing/3/3 數位信號處理/3/3 Digital Signal Processing/3/3 通訊原理/3/3 Communication Theory/3/3			數位通訊/3/3 Digital Communications/3/3 數位濾波器/3/3 Digital Filter/3/3 小型天線設計/3/3 Small Antenna Design/3/3			適應性濾波器/3/3 Adaptive Wave Filters/3/3 高頻電路設計/3/3 Rf Circuit Design/3/3 欉集演算法/3/3 Clustering Algorithms/3/3			展頻通訊/3/3 Spread Spectrum Communications/3/3 統計訊號處理/3/3 Statistic Signal Process/3/3 衛星通訊/3/3 Satellite Communications/3/3		
			光纖通訊/3/3 Optical Fiber Communications/3/3 電磁理論/3/3 Electromagnetic Theory/3/3 微帶天線設計/3/3 Microstrip Antenna Design/3/3 模糊理論與應用/3/3 Fuzzy Theory and Applications/3/3 影像處理/3/3 Image Processing/3/3 電源與電池管理系統設計概論/3/3 Design and Introduction of Power and Battery Management/3/3 系統雛型與軟硬體整合設計/3/3 System Prototype and Integrated Hardware/Software Design/3/3			光學網路/3/3 Optical Network/3/3 類神經網路設計與應用/3/3 Neural Networks Design and Applications/3/3 無線通訊電路/3/3 Wireless Communication Circuit/3/3 光通訊積體電路設計/3/3 Design of Integrated Circuits for Optical Communications/3/3 物聯網系統安全/3/3 Internet of Things (IoT) Security/3/3 智慧電能監控系統/3/3 Intelligent Energy Monitor System/3/3 醫學工程/3/3 Medical Engineering/3/3 物聯網核心技術/3/3 Core Technology for Internet Of Things/3/3 醫學工程應用/3/3 Medical Engineering Application/3/3			大數據應用/3/3 Big Data Applications/3/3 物聯網系統與應用/3/3 Networking Systems and Applications/3/3 生物統計學/3/3 Biostatistics/3/3 全光式元件/3/3 All Optical Devices/3/3 非線性表面電漿元件/3/3 Nonlinear Plasma Surface Element/3/3 機器學習數學/3/3 Mathematics for Machine learning/3/3 物聯網安全與隱私/3/3 IoT security and privacy paradigm/3/3			非線性波導光學/3/3 Nonlinear Waveguide/3/3 左手物質/3/3 Left-Handed Material/3/3 智慧生醫感測技術/3/3 Smart biosensor technology/3/3 智慧生醫信號分析與影像分析/3/3 Bio-signal analysis/3/3 5G 數位通訊/3/3 5G Digital communications/3/3		

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			物聯網核心應用/3/3 Internet of Things Core Applications/3/3 保健物理專論/3/3 Health Physics Monograph/3/3 信息理論與編解碼/3/3 Coding and Information Theory/3/3 醫學物理與資訊/3/3 Medical Physics and Informatics/3/3 矽光子/3/3 Silicon Photonics/3/3 光子超物質/3/3 Photonic Metamaterial/3/3 衛星通訊/3/3 Satellite Communications/3/3 精準醫學健康/3/3 Precision health and medicine/3/3 人工智慧於健康福祉應用 3/3 Application of Artificial Intelligence in Health and Welfare/3/3			醫用加速器專論/3/3 Monographs of Medical Accelerators/3/3 輻射度量與訊號處理/3/3 Radiation Measurement and Signal Processing/3/3 數值光波導/3/3 Numerical Analysis of Optical Waveguide/3/3 表面電漿子/3/3 Surface Plasmon/3/3 石墨烯表面電漿/3/3 Graphene Plasmonics/3/3 智慧城市設計/3/3 Smart City Design/3/3 工業物聯網資安威脅檢測與防護/3/3 Industrial IoT security threat detection and protection/3/3 人工智慧於臨床醫學照護實務/3/3 Artificial Intelligence In Clinical Application And Practice/3/3 低軌衛星系統/3/3 LEO satellite system/3/3 統計學習類神經網路/3/3 Statistical learning using neural network/3/3							
	資訊與數位 IC 設計組 Information and Digital IC Design Group		網路程式設計進階/3/3 Advanced Network Programming/3/3 通訊協定與模擬/3/3 Communication Protocol and Simulations/3/3			機器學習/3/3 Machine Learning/3/3 嵌入式系統設計與應用/3/3 Principle of Embedded Computing System Design/3/3 多媒體訊號處理/3/3 Multimedia Signal Processing/3/3			生物資訊學/3/3 Introduction To Computational Biology/3/3 智能計算/3/3 Intelligent Calculation/3/3 前瞻高科技系統發展/3/3			生物統計/3/3 Biological Statistics/3/3 智慧生活/3/3 Smart Living/3/3 巨量資料分析/3/3 Big Data Analysis/3/3		

課程類別 Course Category			一年級 1st Academic Year				二年級 2nd Academic Year			
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			資訊理論/3/3 Information Theory/3/3 車載嵌入式通訊與週邊設備應用程式設計/3/3 Programming for Communication and Peripherals of Embedded Systems/3/3 機器人學/3/3 Robotics/3/3 智慧型演算法/3/3 Intelligent Algorithms 機器人視覺/3/3 Robot Vision/3/3 生物資訊概論/3/3 Introduction to Bioinformatics/3/3 軟體工程/3/3 Software Engineering/3/3 人工智慧/3/3 Artificial Intelligence/3/3 影像和視訊處理/3/3 Image and Video Processing/3/3 大數據導論/3/3 Introduction to Big Data/3/3			智慧型資訊安全系統/3/3 Intelligent Information Security System/3/3 創新應用服務技術/3/3 Technolgy of Innovation Using Service System/3/3 智慧型機器人實務與應用/3/3 Intelligent Robot Application and Practice/3/3 創新服務應用系統開發/3/3 Development of Innovation Applications and Services/3/3 智慧型計算與應用/3/3 Intelligent Calculation and Application/3/3 啟發式最佳化方法/3/3 Heuristic Optimization Methods/3/3 雲端智慧生活設計/3/3 Design of Cloud Smart Living/3/3 高等生物資料庫系統/3/3 Advanced Biological Database/3/3 高等隨機程序/3/3 Higher Random Program/3/3 深度學習之電腦視覺應用/3/3 Deep Learning on Computer Vision Application/3/3 資料壓縮與應用/3/3 Data Compression and Application/3/3 機電整合/3/3 Mechatronics/3/3 數位晶片設計 3/3 Digital Chip Design/3/3 VLSI 設計實務/3/3 VLSI Design Practice/3/3			Future Development of High-tech Systems/3/3 演化式計算與應用/3/3 Evolutionary computation and application/3/3 資料探勘/3/3 Data Mining/3/3				

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	人工智慧與資訊安全組 Artificial Intelligence and Information Security Group	人工智慧/3/3 Artificial Intelligence/3/3 模糊理論與應用/3/3 Fuzzy Theory and Applications/3/3 機器人學/3/3 Robotics/3/3 影像壓縮/3/3 Image Compression/3/3 應用程式設計/3/3 Applied Program Design/3/3 機器人視覺/3/3 Robot Vision/3/3 生物資訊概論/3/3 Introduction to Bioinformatics/3/3 信息理論與編解碼/3/3 Coding and Information Theory/3/3 軟體工程/3/3 Software Engineering/3/3 資訊安全進階/3/3 Advanced Information Security/3/3 植基於機器學習之分散式阻斷服務攻擊偵測/3/3 Distributed DoS Attack Detection based on Machine Learning/3/3 資安風險評估/3/3 Risk Assessment of Information Security/3/3 大數據導論/3/3 Introduction to Big Data/3/3			人工智慧晶片設計實務/3/3 AI Chip Design Practice/3/3 機器學習/3/3 Machine Learning/3/3 類神經網路設計與應用/3/3 Neural Networks Design and Applications/3/3 物聯網核心技術/3/3 Core Technology for Internet Of Things/3/3 智慧型機器人實務與應用/3/3 Intelligent Robot Application and Practice/3/3 智慧型計算與應用/3/3 Intelligent Calculation and Application/3/3 啟發式最佳化方法/3/3 Heuristic Optimization Methods/3/3 雲端智慧生活設計/3/3 Design of Cloud Smart Living/3/3 高等隨機程序/3/3 Higher Random Program/3/3 網路攻防實務/3/3 The Practice of Network Attack and Defense/3/3 物聯網系統與應用/3/3 Networking Systems and Applications/3/3 智慧型資訊安全系統/3/3 Intelligent Information Security System/3/3 物聯網系統安全/3/3 Internet of Things (IoT) Security/3/3			生醫晶片設計/3/3 Biomedical Chip Design/3/3 智慧型演算法/3/3 Intelligent Algorithms/3/3 物聯網系統與應用/3/3 Networking Systems and Applications/3/3 深度學習/3/3 Deep Learning/3/3 智能計算/3/3 Computational Intelligence/3/3 電腦網路入侵偵測與防護/3/3 Intrusion Detection and Protection of Computer Networks/3/3 網路安全/3/3 Network Security/3/3 系統安全防禦實務/3/3 System Security and Defense Practice/3/3 記憶體於人工智慧之應用/3/3 Application of Memory on Artificial Intelligence/3/3 演化式計算與應用/3/3 Evolved Type Computation and Application/3/3 資料探勘/3/3 Data Mining/3/3			智慧城市設計/3/3 Smart City Design/3/3 統計訊號處理/3/3 Statistic Signal Process/3/3 生物統計/3/3 Biostatistics/3/3 大數據應用/3/3 Big Data Applications/3/3 區塊鏈技術理論與實作/3/3 Block Chain: Theory and Practice/3/3 開源碼架構之系統安全實務/3/3 Security Practice of Open-Source System/3/3 智慧生活/3/3 Smart Living/3/3 巨量資料分析/3/3 Big Data Analysis/3/3		

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							工業物聯網資安威脅檢測與防護/3/3 Industrial IoT security threat detection and protection/3/3 人工智慧於臨床醫學照護實務/3/3 Artificial Intelligence In Clinical Application And Practice/3/3					
		其他 Others		科技英文寫作/2/2 Technical English Writing/2/2 科技英文 (一) /3/3 Technology English (1)/3/3 工程英文 (一) /3/3 Engineering English (1)/3/3 英文閱讀與寫作/2/2 English Reading and Writing/2/2 國際學生指引(一) /1/1 International Student Guidance (1)/1/1 光電元件/3/3 Optoelectronic Devices/3/3 材料科學與應用(一) /3/3 Materials Science and Applications (1)/3/3 傅氏光學/3/3 Fourier Optics/3/3 教學實習微學分/1/1 Micro Credits Course for Teaching Practice/1/1 固態電子電路設計/3/3 Solid-state electronic circuit design/3/3			進階科技英文寫作/2/2 科技英文(二) /3/3 工程英文 (二) /3/3 英文科技論文寫作/2/2 國際學生指引(二)/1/1 薄膜技術/3/3 材料科學及應用(二) /3/3 高等工程統計學/3/3 解剖及生理學導論/3/3 人工智慧/3/3 醫療資料分析/3/3 高階醫用數學/3/3 資訊科技專題研討/2/2 影像處理晶片設計專論/3/3			研究與實習/3/3 Research and Internship/3/3 醫療資料分析實務/3/3 medical data analysis practices/3/3		

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				數值光子晶體/3/3 Numerical Photonic Crystal/3/3 醫學物理與資訊/3/3 Medical Physics and Informatics/3/3 醫電專論/3/3 Topics on Bioelectronics and Bioinformatics/3/3 生物統計學/3/3 Biostatistics/3/3 MATLAB 圖形使用者介面應用於生醫訊號分析/3/3 MATLAB Graphic User Interface for Biomedical Signal Analysis/3/3 電子領域專題研討/2/2 Seminar on Electronics/2/2 線性類比電路分析與合成/3/3 Analysis and Synthesis of Linear Analog Circuit/3/3											

備註：

一、畢業總學分數為 38 學分。

二、必修 14 學分，選修 24 學分。

三、學生修讀所屬學院之「學院共同課程」應認列為本系專業課程學分；修讀所屬學院之「學院跨領域課程」或其他學院開課之課程，則認列為外系課程學分。

四、系所訂定條件（學程、檢定、證照、承認外系學分及其他）：

(一)人工智慧與資訊安全組研究生必須選修『人工智慧』、『機器學習』或『資訊安全進階』三門中之任一門課始得畢業。

(二)本系專業課程選修至少 15 學分。

(三)「電子領域專題研討」課程及「資訊科技專題研討」課程，僅限 111 學年度(含)以前修畢「專題研討」課程之預研生修讀。

(四)日間部碩士班 2 年級上下學期開設之論文學分，僅須擇一修讀。

(五)外籍生修讀非本系開設之英語授課課程(含線上課程), 經指導教授同意或系主任同意修讀後，可認列為畢業學分且不受承認外系學分數上限限制。

Notes:

1. Minimum credits required to graduate: 38 credits
2. Required courses: 14 credits; elective courses: 24 credits
3. Credits earned by students from the common courses offered by their respective colleges shall be accepted as their affiliated departments' professional courses. However, credits earned from interdisciplinary courses offered either by their colleges or by other colleges will be accepted as credits earned from departments outside their own.
4. College requirements:
   A. Postgraduate students in the Artificial Intelligence and Information Security Section are required to take one of the three courses "Artificial Intelligence", "Machine Learning" or "Advanced Information Security" in order to graduate.
   B. A minimum of 15 credits must be completed from professional elective courses.
   C. The "Seminar in the Field of Electronics" and "Seminar on Information Technology" are only available to pre-graduate students who have completed the "Seminar" course before the academic year 111 (inclusive).
   D. Only one of the dissertation credits offered in the second semester of the second year of the day master's program is required.
   E. Foreign students who take English-taught courses (including online courses) that are not offered by the department can be recognized as graduation credits with the consent of the supervisor or the head of the department, and are not subject to the upper limit of the number of credits recognized by the department.