國立虎尾科技大學 工程學院 先進智慧載具國際碩士學位學程科目表(**114學年度入學適用**)

International Master's Degree Program in Advanced Intelligent Conveyance, National Formosa University (Academic Year 2025)

114年4月17日113學年度第2次課程委員會會議通過
114年5月13日113學年度第4次院課程會議通過
114年月日113學年度第次校課程會議通過
114年6月16日113學年度第4次教務會議通過

學年 Academic Year	第一學年(First Year)						第二學年(Second Year)						合計 Total
學期 Semester	上 Fall			下 Spring			上 Fall			下 Spring			
	科目Course	學分 Credits	時數 Hours	科目Course	學分 Credits	時數 Hours	科目Course	學分 Credits	時數 Hours	科目 Course	學分 Credits	時數 Hours	學分 Total Credits
必修科目 Required Courses	專題研討(一) Seminar(1)	0	2	專題研討(二) Seminar (2)	0	2	碩士論文(一) Master's Degree Thesis (1)	3	0	碩士論文(二) Master's Degree Thesis (2)	3	0	6
							專題研討(三) Seminar(3)	0	2	專題研討(四) Seminar(4)	0	2	
小計 Subtotal		0	2		0	2		3	2		3	2	
	自駕車感測器融合技術Autonomous Vehicle Sensor Fusion Technology	3	3	載具工業設計 Vehicle Industrial Design	3	3	氣動力係數與導數量測 Aerodynamic Coefficients and Derivative Measurement	3	3				
	運籌學Operation Research	3	3	航空器與飛行原理 Aircraft and Flight Principles	3	3							
	半導體物理與光電子元件 Semiconduct Physics and Devices for Optoelectronics	3	3	航空氣象學與飛航安全Aviation Meteorology and Flight Safety	3	3							
	半導體材料與電晶體Semiconductor Materials and Transistors	3	3	飛機性能分析與設計Aircraft Performance Analysis and Design	3	3							
	人工智慧與應用 Artificial Intelligence and Applications	3	3	齒輪原理及實務 Gear Principles and Practices	3	3							
	載具感測器原理與實驗Vehicle Sensor Principles and Experiments	3	3	複合材料力學 Mechanics of Composite Materials	3	3							
	產品設計 Product Design	3	3	產品輔助齒輪設計Computer-Aided Gear Design	3	3							
	高等空氣動力學 Advanced Aerodynamics	3	3	結構動力學 Structural Dynamics	3	3							
	無人機飛航管理系統UAV Flight Management System	3	3	機械零件選用與設計Selection and Design of Mechanical Components	3	3							

	結構設計與工程分析Structural Design and Engineering Analysis	3	3	金屬成形特論 Special Topics on Metal Forming	3	3							
	風洞實驗測量技術與數據分析Wind Tunnel Experimentation and Data Analysis	3	3	動力系統設計與性能量測Power System Design and Performance Measurement	3	3							
	金屬材料特論 Special Topics on Metallic Materials	3	3	電腦輔助設計與複合材製作實習 Computer-Aided Design and Composite Fabrication	3	3							
	磨潤原理 Tribology	3	3	無人機系統建模與飛行控制模擬 UAV System Modeling and Flight Control Simulation	3	3							
	機器動力學 Machine Dynamics	3	3	載具群航系統設計與模擬Swarm Navigation System Design and Simulation	3	3							
	載具電能系統設計與模擬Vehicle Energy System Design and Simulation	3	3	電動車驅動與傳動系統Electric Vehicle Drive and Transmission System	3	3							
	無人機動態分析與控制UAV Dynamic Analysis and Control	3	3	太陽能飛機節能飛行設計與模擬 Solar-Powered Aircraft Energy-Efficient Flight Design and Simulation	3	3							
	即時嵌入式系統設計與實習Real-Time Embedded System Design and Practice	3	3	目標追蹤載具控制系統設計與模擬Target Tracking Vehicle Control System Design and Simulation	3	3							
	先進駕駛輔助系統 Advanced Driver Assistance System（ADAS）	3	3	先進機器人技術 Advanced Robotics Technology	3	3							
	載具綠能技術 Vehicle Green Energy Technology	3	3	AI模型嵌入式系統實務AI Model Embedded System Applications	3	3							

選修科目(Elective Courses)	無人機系統操作與飛行紀錄分析UAV System Operation and Flight Record Analysis	3	3	載具視覺與目標定位技術Vehicle Vision and Target Positioning Technology	3	3							專業選修至少24學分Professional Electives - Minimum 24 Credits
	機器人學Robotics	3	3	載具航行智慧聯網技術Intelligent Connected Vehicle Navigation Technology	3	3							
	無線通訊Wireless Communication	3	3	機器人作業系統Robot Operating System (ROS)	3	3							
	自動航行系統設計與模擬Autonomous Navigation System Design and Simulation	3	3	智慧機器人應用Intelligent Robotics Applications	3	3							
	高等人工智慧Advanced Artificial Intelligence	3	3	地面導控站軟體設計Ground Control Station Software Design	3	3							
	深度學習Deep Learning	3	3	電動車控制系統整合實務Electric Vehicle Control System Integration and Practice	3	3							
	自駕車智慧訊息處理與決策Autonomous Vehicle Intelligent Information Processing and Decision Making	3	3	電腦輔助齒輪設計Computer-Aided Gear Design	3	3							
	智慧型機器人Intelligent Robotics	3	3	機器導航與探索Robot Navigation and Exploration	3	3							
	地圖與號誌辨識輔助行駛技術Map and Traffic Sign Recognition Assisted Driving Technology	3	3	揚聲器設計Loudspeaker Design	3	3							

	深度學習應用於自駕車之感知與決策 Deep Learning Applications for Autonomous Vehicle Perception and Decision-Making	3	3	可靠度工程實務 Reliability Engineering Practices	3	3							
	大數據資料分析 Big Data Analysis	3	3	高分子物理 Polymer Physics	3	3							
	資訊安全與管理 Information Security and Management	3	3	高分子化學 Polymer Chemistry	3	3							
	自主航行之避障與導航Autonomous Navigation Obstacle Avoidance and Navigation	3	3	最佳化技術 Optimisation Techniques	3	3							
	自動駕駛技術與情境Autonomous Driving Technology and Scenarios	3	3	最佳化演算法及應用 Optimisation Algorithms and Applications	3	3							
	自主航行人工智慧原理Principles of AI for Autonomous Navigation	3	3										
	航空影像應用分析 Aviation Image Processing and Analysis	3	3										
	電子元件和電路 Electronic devices and circuits	3	3										
小計		108	108		99	99		3	3		0	0	
合計		108	110		99	101		6	5		3	2	

1.畢業最低學分數30學分(含碩士論文6學分)，選修至少修滿24學分，並須通過碩士學位考試。
The minimum graduation credit requirement is 30 credits, including 6 credits for the Master's thesis. 24 credits at least must be completed, and students must pass the Master's degree examination.

2.經指導教授同意得修習其他系所之開授課程，其學分得承認列入畢業學分計算。
With the approval of the advisor, students may take courses offered by other departments, and these credits can be counted as graduation requirements.

3.合開課程之學分承認為本所課程畢業學分。
Credits from co-offered courses with other department are recognized as graduation credits for this program.

4.每學期研究生修課，需經由指導教授確認簽名。
Each semester, graduate students must have their course selections approved and signed by their advisor.

5.學術研究倫理課程(必修0學分，需取得6小時修業證明)。
The Academic Research Ethics course is a required course with 0 credits. Students must obtain a certificate of completion for 6 hours of study.

備註	6.本碩士學位學程承認機械與電腦輔助工程系碩士班、自動化工程系碩士班、材料科學與工程系材料科學與綠色能源工程碩士班、動力機械工程系機械與機電工程碩士班、機械設計工程系碩士班、車輛工程系碩士班及飛機工程系航空與電子科技碩士班開設課程為本系碩士班課程畢業學分。 This master's degree program recognizes the courses offered by the Master's Program in Mechanical and Computer-Aided Engineering, the Master's Program in Automation Engineering, the Master's Program in Materials Science and Engineering (Materials Science and Green Energy Engineering), the Master's Program in Power Mechanical Engineering (Mechanical and Electro-Mechanical Engineering), the Master's Program in Mechanical Design Engineering, the Master's Program in Vehicle Engineering, and the Master's Program in Aeronautical Engineering (Aeronautical and Electronic Engineering) as graduation credits for this department's master's program. 7.外國學生必修「華語教學(一)」及「華語教學(二)」，相關規定詳「外國學生修讀華語課程實施要點。 International Students of NFU are required to take "Mandarin (1)" and " Mandarin (2)" courses,for more details please refer to "Mandarin Course Requirements for NFU International Students". 8.外國學生修習華語教學課程得免修專題研討課程。 International students may waive Seminar courses if they have passed Chinese Language Training courses. 9.修習材料科學與工程系材料科學與綠色能源工程碩士班所開設之書報討論（一）（二）（三）（四）可抵免專題研討（一）（二）（三）（四）。 The courses "Seminar (1)", "Seminar (2)", "Seminar (3)", and "Seminar (4)" offered by the Master's Program in Materials Science and Green Energy Engineering, Department of Materials Science and Engineering may be used to waive "Seminar (1)", "Seminar (2)", "Seminar (3)", and "Seminar (4)" from our International Master's Degree Program in Advanced Intelligent Conveyance. 10.本表列選修課程僅供參考用，依實際狀況調整。 The elective courses listed in this table are for reference only and may be adjusted based on actual conditions. 11.本國籍研究生須修習五門以上碩士班雙語授課課程，方能畢業。 Domestic graduate students must complete at least five bilingual-taught Master' s courses for graduation.