

國立虎尾科技大學
智慧產業科技研發博士學位學程課程科目表
【115 學年度入學適用】

Course List for the Doctoral Degree Program in Smart Industry Technology
Research and Development (2026)

115 年 4 月 20 日 114 學年度第 4 次智慧產業科技研發博士學位學程課程委員會會議通過
115 年 5 月 27 日 114 學年度第 3 次工程學院課程委員會會議通過
115 年 6 月 2 日 114 學年度第 6 次院務會議修正通過
115 年 6 月 18 日 114 學年度第 4 次教務會議修正通過

First Academic Year							
		First Semester			Second Semester		
		Course Name	Credit	Hour	Course Name	Credit	Hour
	Required Courses 必修	Technical Seminar 1 工程技術論文研討一	0	2	Technical Seminar 2 工程技術論文研討二	0	2
	Required Courses 必修	Mandarin (1) 華語教學(一) (Only for International Students)	0	4	Mandarin (2) 華語教學(二) (Only for International Students)	0	4
機電 領域 Electr omec hanic s	Elective Courses	高等人因工程 Advanced Human Factors Engineering	3	3	演化運算 Evolutionary Computation	3	3
	Elective Courses	數值方法 Numerical Methods	3	3	高等工程數學 Advanced Engineering Mathematics	3	3
	Elective Courses	智慧型機器人 Intelligent Robot	3	3	高等機構設計 Advanced Mechanism Design	3	3
	Elective Courses	機器學習 Machine Learning	3	3	機器視覺與影像處理 Machine Vision	3	3
	Elective Courses	科技英文論文寫作 Writing of Scientific English Paper	3	3	智慧型控制 Intelligent Control	3	3
	Elective Courses	彈性力學 Elasticity	3	3	科技英文 Scientific English	3	3
	Elective Courses	熱交換器設計 Heat Exchanger Design	3	3	高等工程分析 Advanced Engineering Analysis	3	3
	Elective Courses	數位訊號處理 Digital Signal Processing	3	3	數值熱傳 Numerical Heat Transfer	3	3

	First Academic Year						
		First Semester			Second Semester		
		Course Name	Credit	Hour	Course Name	Credit	Hour
電資 領域 Electrical Engineering and Computer Science	Elective Courses	半導體元件物理 Semiconductor Device Physics	3	3	直流轉換器原理 DC Converter Theory	3	3
	Elective Courses	積體光學 Integrated Optics	3	3	晶體光電元件工程 Crystal Electro-Optical Device Engineering	3	3
	Elective Courses	有機光電元件 Organic Optoelectronic Devices	3	3	薄膜製程技術與薄膜材料分析 Thin Film Fabrication Technology and Material Analysis	3	3
	Elective Courses	微光學導論 Introduction to Micro-Optics	3	3	高速半導體元件 High-Speed Semiconductor Device	3	3
	Elective Courses	高密度分波長多工技術 DWDM Technology	3	3	數位通訊技術 Digital Communication Technology	3	3
	Elective Courses	太陽能電池元件技術與分析 Solar Cell Devices Technology and Analysis	3	3	表面分析 Surface Analysis	3	3
	Elective Courses	光纖感測原理與應用 Principles and Applications of Fiber Optic Sensor	3	3			
	Elective Courses	半導體材料與元件特性 分析專論 Characterization of Semiconductor Materials and Devices	3	3			
	Elective Courses	光纖通信網路 Optical Communication Networks	3	3			
管理 領域 Management	Elective Courses	數量研究方法 Quantitative Research Methodology	3	3	智慧製造系統 Intelligent Manufacturing System	3	3
	Elective Courses	多屬性決策 Multiple Attributes Decision Making	3	3	模擬學 Simulation	3	3
	Elective Courses	生產管理與實務 Production Management and Practice	3	3	科技管理 Technology Management	3	3

	First Academic Year						
		First Semester			Second Semester		
		Course Name	Credit	Hour	Course Name	Credit	Hour
	Elective Courses	資料探勘 Data Mining	3	3	大數據資料處理 Big Data Processing	3	3
	Elective Courses	量化研究與統計分析 Quantitative Research and Statistical Analysis	3	3	資訊管理 Information Management	3	3
	Elective Courses	企業資料分析 Business Data Analysis	3	3	策略管理 Strategy Management	3	3
	Elective Courses	大數據彙整與建模 Big Data and Modeling	3	3			
	Elective Courses	深度學習 Deep Learning	3	3			
	Elective Courses	休閒產業與永續發展 Sustainable Development & Leisure Industry	3	3	高等統計學 Advanced Statistics	3	3
文理領域 Liberal Arts and Science	Elective Courses	永續觀光(全英授課) Sustainable Tourism	3	3	文化創意產業研究 Creative Industries in Cultural Research	3	3
	Elective Courses	遊憩景觀特論 Landscape and Recreation	3	3	觀光遊憩氣候變遷特論 Climate Change of Tourism and Recreation	3	3
	Elective Courses	分生技術與原理 Principles and Technology of Molecular Biology	3	3	文化景觀與休閒遊憩 Cultural Landscape and Leisure Recreation	3	3
	Elective Courses	天然產物萃取技術 Extraction Technology of Natural Products	3	3	休閒觀光行銷管理研究 Leisure Marketing Management	3	3
	Elective Courses	天然物免疫功能分析 Immune Function Evaluation of Natural Compound	3	3	公園遊憩行銷與管理(全英授課) Park, Recreation Marketing and Management	3	3
	Elective Courses	企業永續報告與實務 Corporate Sustainability Reports and Practices	3	3	生醫檢測技術 Biomedical Diagnostic Technology	3	3
	Elective Courses				生物製劑與實習 Practice of Biopesticides	3	3
	Elective Courses				作物病蟲害診斷與應用 Application of Crop Diseases and Pests Diagnosis	3	3

	First Academic Year						
		First Semester			Second Semester		
		Course Name	Credit	Hour	Course Name	Credit	Hour
	Elective Courses				溫室氣體盤查暨碳足跡計算 Greenhouse Gas Inventory and Carbon Footprint Calculation	3	3

	Second Academic Year						
		First Semester			Second Semester		
		Course Name	Credit	Hour	Course Name	Credit	Hour
	Required Courses	Dissertation 1 博士論文	6	0	Dissertation 2 博士論文	6	0
管理 領域 Mana geme nt	Elective Courses	創業管理 Entrepreneurial Management	3	3	最佳化導論 Optimization Theory	3	3
文理 領域 Liber al Arts and Scien ce	Elective Courses	環境農業資源再利用 Recycling and Utilization of Environmental and Agricultural Resource	3	3			

備註(Note)：

1.最低畢業學分：30 學分。

含必修學分：12 學分 (博士論文、工程技術論文研討)；選修學分：18 學分；並通過學術研究倫理教育課程(必修 0 學分，需取得 6 小時修業證明)。

1. The minimum credits for graduation requirement are 30 credits which are required courses and elective courses. The required courses are Dissertation and Technical Seminar. Students should take a 6-hour course on Academic Research Ethics to meet graduation requirements.

2. 研究生經指導教授同意，得選修本校及他校博士班課程並計入畢業學分。赴他校修習者，其畢業學分採計至多九學分。

With the approval of their advisor, graduate students may enroll in doctoral courses offered by any department of the University. For doctoral courses taken at other universities through inter-university enrollment, a maximum of 9 credits may be counted toward graduation requirements.

3.各領域與產博合開之「專題研討(一)」或「專題討論(一)」課程可抵免「工程技術論文研討一」課程，「專題研討(二)」或「專題討論(二)」課程可抵免「工程技術論文研討二」課程。

The credits of Seminar (I) or Seminar (II) which are jointly developed by each area of study and the Doctoral Degree Program in Smart Industry Technology Research and Development can exempt credits from Technical Seminar 1 or Technical Seminar 2.

4 外國學生須於畢業前修畢「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 and pass "Mandarin (1)" and "Mandarin (2)" courses before graduation. For more details, please refer to "Mandarin Course Requirements for NFU International Students".