

**國立暨南國際大學電機工程學系博士班必選修科目一覽表**  
**Doctoral Program Course Catalog of Department of Electrical Engineering,**  
**National Chi Nan University**

本表自(114)學年度起入學新生適用 Effective for students admitted in Fall, **2025**

最低畢業學分：**18**學分；本系學生通過資格考試前每學期必修專題討論，選修**18**學分（專業選修含資訊工程研究所、應用材料與光電工程研究所及本所所開授之專業選修課程）。

Doctoral candidates must earn a minimum of **18** required credits from elective courses and pass the qualifying examination. Prior to sitting for the qualifying examination, doctoral candidates must have taken the "seminar" courses over and above the **18** required credits. In addition to elective courses at the Dept. of Electrical Engineering, candidates may also elect specialized courses offered by the Dept. of Computer Science and Information Engineering and the Dept. of Applied Materials and Optoelectronics Engineering.

課程代號 Course Code	課程名稱(中文及英文) Course Name (Chinese and English)	學分數 Credits	修別 Course type (required/elective)	開課年級 Course availability	備註 Notes
239031	專題討論(一) Seminar (I)	1	必 required	一上 Doctorate 1st Semester	
239028	專題討論(二) Seminar (II)	1	必 required	一下 Doctorate 2nd Semester	
239180	專題討論(三) Seminar (III)	1	必 required	二上 Doctorate 3rd Semester	
239181	專題討論(四) Seminar (IV)	1	必 required	二下 Doctorate 4th Semester	

239182	專題討論(五) Seminar (V)	1	必 required	三上 Doctorate 5th Semester	
239001	類比VLSI電路設計 Analog VLSI Circuits Design	3	選 elective	一上 Doctorate 1st Semester	
239011	微波電路 Microwave Circuits	3	選 elective	一上 Doctorate 1st Semester	
239012	隨機程序 Stochastic Processes	3	選 elective	一上 Doctorate 1st Semester	
239014	線性系統 Linear System Theory	3	選 elective	一上 Doctorate 1st Semester	
239018	微波元件 Microwave Devices	3	選 elective	一上 Doctorate 1st Semester	
239019	半導體元件特性與量測 Semiconductor Devices Characterization and Measurement	3	選 elective	一下 Doctorate 2nd Semester	
239024	微波量測 Microwave Measurement	3	選 elective	一下 Doctorate 2nd Semester	
239026	系統最佳化 System Optimization	3	選 elective	一下 Doctorate 2nd Semester	
239033	數位影像處理 Digital Image Processing	3	選 elective	一上 Doctorate 1st Semester	
239038	數位VLSI電路設計 Digital VLSI Circuits Design	3	選 elective	一上 Doctorate 1st Semester	

239040	數位訊號處理 Digital Signal Processing	3	選 elective	一上 Doctorate 1st Semester	
239045	無線通訊 Wireless Communication	3	選 elective	一上 Doctorate 1st Semester	
239059	數位視訊技術 Digital Video Technology	3	選 elective	一上 Doctorate 1st Semester	
239062	半導體元件物理 Device Physics	Semiconductor 3	選 elective	一上 Doctorate 1st Semester	
239063	固態物理 Solid-State Physics	3	選 elective	一下 Doctorate 2nd Semester	
239064	半導體感測器 Semiconductor Sensors	3	選 elective	一上 Doctorate 1st Semester	
239066	類比積體電路系統設計及應用 Analog VLSI System Design Applications	3	選 elective	一下 Doctorate 2nd Semester	
239074	鎖相環迴路設計 Phase Lock Loop Design	3	選 elective	一下 Doctorate 2nd Semester	
239075	前瞻類比積體電路設計 Advanced analog integrated circuit design	3	選 elective	一下 Doctorate 2nd Semester	
239077	數位通訊 Digital Communications	3	選 elective	一上 Doctorate 1st Semester	
239078	圖型識別 Pattern Recognition	3	選 elective	一下 Doctorate 2nd Semester	
239083	射頻積體電路設計 RF Integrated Circuit Design	3	選 elective	一下 Doctorate 2nd Semester	

239084	積體電路製程技術(一) Integrated Circuits Fabrication Technology(I)	3	選 elective	一上 Doctorate 1st Semester	
239087	積體電路製程技術(二) Integrated Circuits Fabrication Technology(II)	3	選 elective	一下 Doctorate 2nd Semester	
239090	RFID晶片設計 RFID Chip Design	3	選 elective	一下 Doctorate 2nd Semester	
239095	無線接收器模擬與製作 Wireless Receiver Simulation and Implementation	3	選 elective	一下 Doctorate 2nd Semester	
239101	半導體元件模擬 Simulation of Semiconductor Devices	3	選 elective	一下 Doctorate 2nd Semester	
239102	奈米金氧半元件 Nano CMOS Devices	3	選 elective	一下 Doctorate 2nd Semester	
239103	數值電磁方法 Numerical Methods in Electromagnetics	3	選 elective	一下 Doctorate 2nd Semester	
239104	計算機網路 Computer Network	3	選 elective	一上 Doctorate 1st Semester	
239106	偵測與估計 Detection and Estimation	3	選 elective	一下 Doctorate 2nd Semester	
239111	軟體無線電 Software Radio	3	選 elective	一上 Doctorate 1st Semester	
239115	無線通訊系統 Wireless Communication Systems	3	選 elective	一下 Doctorate 2nd Semester	

239129	醫學電子學 Biomedical Electronics	3	選 elective	一下 Doctorate 2nd Semester	
239132	生物感測器與換能器 Bio-Sensors and Transducers	3	選 elective	一上 Doctorate 1st Semester	
239133	數位通訊應用 Digital Communication Theory and Technology	3	選 elective	一下 Doctorate 2nd Semester	
239137	積體電路元件 Semiconductor Devices for Integrated Circuits	3	選 elective	一上 Doctorate 1st Semester	
239138	微波被動電路 Microwave Passive Circuits	3	選 elective	一上 Doctorate 1st Semester	
239142	半導體記憶體 Semiconductor Memories	3	選 elective	一下 Doctorate 2nd Semester	
239143	硬體描述語言與FPGA雛型 Hardware Description Language and FPGA Prototyping	3	選 elective	一下 Doctorate 2nd Semester	
239145	平面天線設計 Planar Antenna Design	3	選 elective	一上 Doctorate 1st Semester	
239148	電磁相容 Electromagnetic Compatibility	3	選 elective	一上 Doctorate 1st Semester	
239149	太陽能電池 Solar Cells	3	選 elective	一下 Doctorate 2nd Semester	
239152	人工智慧與模糊類神經網路 Artificial intelligence and fuzzy neural network	3	選 elective	一下 Doctorate 2nd Semester	
239153	科技簡報 Technical Presentation	2	選 elective	一上 Doctorate 1st Semester	

239156	非接觸式行動裝置充電導論 Introduction to Wireless Power Transfer (WPT) for Mobile Devices	3	選 elective	一上 Doctorate 1st Semester	
239157	天線陣列設計 Antenna Array Design	3	選 elective	一下 Doctorate 2nd Semester	
239159	MATLAB程式語言於電機工程之應用 Application of MATLAB in Electrical Engineering	3	選 elective	一上 Doctorate 1st Semester	
239160	新世代無線通訊技術 New-Generation Wireless Communication Techniques	3	選 elective	一下 Doctorate 2nd Semester	
239162	人工智慧與類神經網路 Artificial Intelligence and Neural Network	3	選 elective	一下 Doctorate 2nd Semester	
239163	深度學習與語音識別 Deep Learning and Speech Recognition	3	選 elective	一下 Doctorate 2nd Semester	
239164	MATLAB機器學習應用程式設計 MATLAB Programming in Machine Learning	3	選 elective	一上 Doctorate 1st Semester	
239165	智慧機器人原理與控制 Intelligent Robotics-Principles and Control	3	選 elective	一上 Doctorate 1st Semester	
239166	深度學習與圖型識別之TensorFlow程式設計與實作 Programming and Implementations of Deep Learning and Pattern Recognition with Tensorflow	3	選 elective	一下 Doctorate 2nd Semester	
239167	軟硬體協同設計 Hardware/Software Codesign	3	選 elective	一上 Doctorate 1st Semester	
239168	第五代無線通訊系統簡介 Introduction to 5G Wireless Communication Systems	3	選 elective	一上 Doctorate 1st Semester	

239169	固態電子學 Physics for Solid-State Electronics	3	選 elective	一下 Doctorate 2nd Semester	
239170	深度機器學習 Special Topics on Deep Machine Learning	3	選 elective	一下 Doctorate 2nd Semester	
239171	微波工程 Microwave Engineering	3	選 elective	一下 Doctorate 2nd Semester	
239174	物聯網系統設計與實作 System Design and Development of Internet of Things	3	選 elective	一下 Doctorate 2nd Semester	
239175	行動網路系統 Mobile Network Systems	3	選 elective	一下 Doctorate 2nd Semester	
239176	智慧型與適應性控制 Intelligent and Adaptive Control	3	選 elective	一上 Doctorate 1st Semester	
239177	機器人程式設計 Advanced Programming in Robotic Navigation	3	選 elective	一下 Doctorate 2nd Semester	
239178	科技英文 Technical English	1	選 elective	一上 Master 1st Semester	
239179	機器學習之數學方法 Mathematical Methods for Machine Learning	3	選 elective	一下 Master 2nd Semester	
239183	高頻電路分析 High Frequency Circuits Analysis	3	選 elective	一下 Master 2nd Semester	