國立彰化師範大學

機電工程學系碩士班畢業條件表暨課程架構表

(114學年度入學學生適用)

National Changhua University of Education

Graduation Requirements and Course Structure for Master's Program of Mechatronics Engineering

(Applicable for students in 114 academic year)

列印日期(Print Date:2025/11/10)

一.系必修課程

I.Department Required Courses

課程名稱 Course Name	學分/學時 Credit(s)/ Hour(s)	年級 Grade	學期 Semester
書報討論(一) Seminar I	1/2	1	1
書報討論(二) Seminar II	1/2	1	2
論文指導(一) Thesis Supervision I	3/3	2	1
論文 Thesis	0/0	2	2
論文指導(二) Thesis Supervision II	3/3	2	2

二.系選修課程

II.Department Elective Courses

課程名稱 Course Name	學分/學時 Credit(s)/ Hour(s)
共同選修 **Common Elective**	
光機電工程與應用 Opto-Mechatronic Engineering and Applications	3/3
科技英文 English for Science and Technology	3/3
中英文翻譯 Chinese-English translation	3/3
科技英文寫作 Technical English Writing	3/3
應用數值演算法 Applied Numerical Algorithms	3/3
機電控制核心選修(至少3學分) **Mechatronics Control Core Electives(3 credits is least required)**	
人工智慧 Artificial Intelligence	3/3
有限元素分析 Finite Element Analysis	3/3
系統設計與動態分析 System Design and Dynamic Analysis	3/3

智慧型控制系統設計 Intelligent Control System Design	3/3
無人機飛行原理 Principles of UAV Flight	3/3
機械振動學 Mechanical Vibration	3/3
結構動態與控制 Structure Dynamics & Control	3/3
電腦、通訊與控制 Computer, Communication, and Control	3/3
精密機械 Precision Machinery	3/3
現代控制工程 Modern Control Engineering	3/3
實驗設計與工程分析 Experimental Design and Engineering Analysis	3/3
機電系統整合設計 Mechatronics System Integration Design	3/3
機電控制專業選修 **Mechatronics Control Specialized Electives**	
人工智慧晶片設計與應用 Artificial Intelligence Chip Design and Applications	3/3
工程設計與分析 Engineering Design and Analysis	3/3
可靠度工程(一) Reliability Engineering I	3/3
物聯網理論與實務 IoT Theory and Practice	3/3
微機電工程與應用 MEMS Engineering and Applications	3/3
影像辨識與人工智慧 Image Recognition and Artificial Intelligence	3/3
複合材料力學 Mechanics of Composite Materials	3/3
人工智慧物聯網系統設計 AIoT	3/3
工具機系統設計分析 Machine Tool System Design and Analysis	3/3
可靠度工程(二) Reliability Engineering II	3/3
生成式人工智慧 Generative Artificial Intelligence	3/3
系統動態與控制 System Dynamics and Control	3/3
奈微機電系統 Nano & Microelectromechanic System	3/3
高等動力學 Theoretical Dynamics	3/3
工程設計最佳化 Engineering Design Optimization	3/3

互聯網系統設計 Internet System Design	3/3
強健控制系統 Robust Control System	3/3
智慧型監控系統設計 Smart Monitor System Design	3/3
解析動態學 Analytical Dynamics	3/3
資訊與網路安全 Information and Network Security	3/3
雷射加工系統設計 Design of the Laser Processing Systems	3/3
C#程式設計 C# Programming	3/3
散熱模組設計與應用 Thermal Module Design and Application	3/3
結構力學 Structural Mechanics	3/3
微機器學習與感測應用 Applications of Tiny Machine Learning and Sensing	3/3
精密工具機技術專題 Research Topoic on Precision Machine Tools	3/3
精密運動控制 Precise Motion Control	3/3
數位控制 Digital Control	3/3
線性振動學 Linear Vibration	3/3
光電應用核心選修(至少3學分) **Optoelectronics Application Core Electives(3 credits is least required)**	
太陽電池原理與製程 Principle and Process of Solar Cells	3/3
半導體製程 Semiconductor Processes	3/3
光電系統設計與應用 Application and Design of Optical Electronic System	3/3
應用電子學 Applied Electronics	3/3
光機電系統設計 Opto-Electro Mechanical System Design	3/3
數位影像處理 Digital Image Processing	3/3
半導體元件物理 Physics of Semiconductor Devices	3/3
薄膜製程與應用 The flim processes and appilications	3/3
光電應用專業選修 **Optoelectronics Application Specialized Electives**	
ＰＣＩ介面電路設計 PCI Interface Circuitry Design	3/3

平面顯示器導論 Introduction to Flat Panel Display	3/3
光電半導體元件 Optoelectronic Semiconductor Devices	3/3
光學微影與蝕刻 Photolithography and Etching	3/3
奈微系統製程 Nano- and Microfabrication	3/3
生醫光電 Biophotonics	3/3
生醫微機電系統 Biomedical microelectromechanical systems	3/3
光電工程實務 Practical Electro-Optic Engineering	3/3
光學系統設計 Optical system design	3/3
積體電路設計與應用 Integrated Circuit Design and Applications	3/3
單晶片控制與應用 Single Chip CPU Control & Application	3/3
微波電路設計與量測 Microwave Circuit Design and Measurement	3/3
微波積體電路設計 Microwave Integrated Circuit Design	3/3
微感測技術與應用 Design and Applications of Microsensors	3/3
電子封裝 Electronic Encapsulation	3/3
物理光學 Physical Optics	3/3
無線通訊系統 Wireless Communication Systems	3/3
感測器與介面電路設計與應用 Design and Application of Sensors Interface Circuits	3/3
電子商務自動化專題 E-commerce Automation	3/3
類比積體電路設計 Analog Integrated Circuit Design	3/3

三.先修科目

III.Prerequisite Courses

先修課程 Prerequisite Course	後修課程 Subsequent Course

四.畢業條件

IV.Graduation Requirements

1.最低畢業學分數：24學分（不含教育學程、論文、論文指導、書報討論）。
2.畢業學分須含機電控制核心選修課程與光電應用核心選修課程至少各3學分。
3.修課經指導教授同意可選修外系或外校研究所開設科目（不限學期），至多6學分。
（選課前送教授同意表至系辦備查）。
4.凡選修本系研究所開設科目（不限學期），一律承認為本系畢業學分。
5.學生除須修滿應修學分外，同時須符合本系碩士班研究生畢業規定，方具備畢業資格。
6.【研究生應於申請學位考試前修習通過於「臺灣學術倫理教育資源中心」(https://ethics.nctu.edu.tw/)網路教學平台之「學術研究倫理教育」課程】等相關規定。

1. Minimum graduation credits: 24 credits (excluding education programs, thesis, thesis supervision, and seminars).
2. Graduation credits must include at least 3 credits each in mechatronic control core elective courses and optoelectronic application core elective courses.
3. With the approval of the advisor, students may take up to 6 credits of courses offered by other departments or universities (regardless of the semester). (A consent form must be submitted to the department office for record before enrolling in the courses.)
4. Any courses taken from this department's graduate programs (regardless of the semester) will be recognized as part of the department's graduation credits.
5. Besides fulfilling the required credits, students must also meet the graduation requirements of the master's program of this department to qualify for graduation.
6. Graduate students must complete and pass the "Academic Research Ethics Education" course provided by the "Taiwan Academic Ethics Education Resource Center" (https://ethics.nctu.edu.tw/) on its online teaching platform, among other related requirements, before applying for the degree examination.