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

(113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 113 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(一) English for Science and Technology I	3/3
科技英文(二) English for Science and Technology II	3/3
中英文翻譯 Chinese-English translation	3/3
科技英文寫作 Technical English Writing	3/3
數值分析 Numerical Analysis	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
現代控制工程 Modern Control Engineering	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
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**	
CMOS 微機電系統設計與應用 Design and Application of CMOS MEMS	3/3
工具機系統設計分析 Machine Tool System Design and Analysis	3/3
工程設計與分析 Engineering Design and Analysis	3/3
互聯網系統設計 Internet System Design	3/3
可靠度工程(一) Reliability Engineering I	3/3
系統動態與控制 System Dynamics and Control	3/3
奈米結構製程(一) Nanostructure Fabrication I	3/3
控制IC設計 Control IC Design	3/3
影像辨識與人工智慧 Image Recognition and Artificial Intelligence	3/3
人工智慧物聯網系統設計 AIoT	3/3
可靠度工程(二) Reliability Engineering II	3/3
系統診測技術 System Diagnosis Technology	3/3
奈米結構製程(二) Nanostructure Fabrication II	3/3
奈米機電系統 Nano-Electro-Mechanical Systems	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
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
微位移與感測技術 Micro Positioning and Measurement	3/3
解析動態學 Analytical Dynamics	3/3
雷射加工系統設計 Design of the Laser Processing Systems	3/3
元件破壞分析方法與原理 Methodology and Theory of Component Failure Analysis	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
模糊控制理論與應用 Fuzzy Control Theory and Applications	3/3
線性振動學 Linear Vibration	3/3
壓電元件設計 Design of Piezoelectric Devices	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
平面顯示器導論(一) Introduction to Flat Panel Display (I)	3/3
奈微系統製程 Nano- and Microfabrication	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

物理光學 Physical Optics	3/3
數位影像處理 Digital Image Processing	3/3
薄膜製程與應用 The flim processes and appilications	3/3
顯示元件物理 Display Device Physics	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
半導體製程 Semiconductor Processes	3/3
平面顯示器技術 Flat Panel Display Technology	3/3
光電半導體元件 Optoelectronic Semiconductor Devices	3/3
光電半導體材料與物理 Optoelectronic Semiconductor Materials and Physics	3/3
光學微影與蝕刻 Photolithography and Etching	3/3
平面顯示器導論(二) Introduction to Flat Panel Display (II)	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
有機發光二極體簡介 Introduction to OLED	3/3
單晶片控制與應用 Single Chip CPU Control & Application	3/3
無線通訊系統 Wireless Communication Systems	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
微機電顯示技術 MEMS Display Technology	3/3
電子封裝 Electronic Encapsulation	3/3
軟性電子 Flexible Electronics	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
壓電材料製程及分析 Process and Analysis of Piezoelectric Materials	3/3
類比積體電路設計 Analog Integrated Circuit Design	3/3
觸控面板 Touch Panel	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.