國立彰化師範大學

機電工程學系學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 Bachelor'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
共同科目(至少62學分) **Common Topics(62 credits is least required)**			
工程圖學與電腦輔助繪圖 Engineering Graphics and Computer-Aided Drafting	2/4	1	1
計算機概論 Introduction to Computer Science	3/3	1	1
基本電學 Fundamental Electronics	3/3	1	1
普通物理 General Physics	3/3	1	1
微積分(一) Calculus I	3/3	1	1
可程式控制及應用 Application of Programmable Logic Controller	3/3	1	2
光機電系統概論 Fundamentals of Optomechatronics System	3/3	1	2
程式設計與應用 Programming	3/3	1	2
微積分(二) Calculus II	3/3	1	2
電子學(一) Electronics I	3/3	1	2
工程數學(一) Engineering Mathematics I	3/3	2	1
感測與訊號處理 Sensing and Signal Processing	3/3	2	1
電子學(二) Electronics II	3/3	2	1
電磁學(一) Electromagnetics I	3/3	2	1
工程數學(二) Engineering Mathematics II	3/3	2	2
嵌入式系統 Embedded System	3/3	2	2
數位邏輯 Digital Logic	3/3	2	2

自動控制 Automatic Control	3/3	3	1
深度學習 Deep Learning	3/3	3	1
影像與信號處理 Image and Signals Processing	3/3	3	1
光機電電腦輔助設計與分析 Opto-Mechatronics Computer Aided Design and Analysis	3/3	3	2
專題(至少6學分) **Independent Project(6 credits is least required)**			
光電元件與系統專題(一) Specialized Topics of Photonic Element and System I	3/6	3	2
電腦與控制專題(一) Specialized Topics of Computer and Control I	3/6	3	2
機電整合專題(一) Specialized Topics of Mechatronics I	3/6	3	2
光電元件與系統專題(二) Specialized Topics of Photonic Elements and Systems II	3/6	4	1
電腦與控制專題(二) Specialized Topics of Computer and Control II	3/6	4	1
機電整合專題(二) Specialized Topics of Mechatronics II	3/6	4	1

二.系選修課程

II.Department Elective Courses

課程名稱 Course Name	學分/學時 Credit(s)/ Hour(s)
系統控制(機電整合連線)應用技術 The Technology of Application of System Control(Mechatronics)	3/3
機電整合 Mechatronics Integration	3/3
電子學實驗(一) Experiments of Electronics I	2/4
靜力學 Statics	2/2
工程材料 Engineering Materials	3/3
工程統計學 Statisics for Engineering	3/3
動力學 Dynamics	3/3
微處理機 Microprocessor	3/3
電子學實驗(二) Experiments of Electronics II	2/4
機動學 Mechanism	3/3
機器人學 Robotics	3/3

RFID資訊平台實務專題 Special Topics of Implementation of RFID Information Platforms	3/3
光電工程 Optoelectronics Engineering	2/2
材料力學 Mechanics of Materials	3/3
系統動態 System Dynamics	3/3
量子與半導體科技 Quantum and Semiconductor Technology	3/3
電子電路學 Electronic Circuits	3/3
電磁學(二) Electromagnetics II	3/3
線性代數 Linear Algebra	3/3
半導體物理與元件 Semiconductor Physics and Device	3/3
光學原理與應用 Principles and Applications of Optics	3/3
產業實習 Industrial Practice	3/6
虛實整合 Cyber-Physical System	3/3
微波積體電路設計 Microwave Integrated Circuit Design	3/3
精密機械概論 Introduction to Precision Machinery	3/3
影像辨識與人工智慧 Image Recognition and Artificial Intelligence	3/3
數值分析 Numerical Analysis	3/3
熱流學 Thermo-Fluid Science	3/3
機械設計 Machinery Design	3/3
機電系統實務 Mechatronics System Workshop	2/4
類比與數位電路設計與應用 Analog and Digital Circuit Design and Applications	3/3
光機電系統設計 Opto-Electro Mechanical System Design	3/3
物聯網理論與實務 IoT Theory and Practice	3/3
振動學 Vibrations	3/3
強化學習控制 Reinforcement learning control	3/3
控制系統設計 The Design of Control System	3/3

製造學 Manufacturing Processess	3/3
機器人視覺 Robotic Vision	3/3
積體電路設計與應用 Integrated Circuit Design and Applications	3/3
人工智慧晶片設計與應用 Artificial Intelligence Chip Design and Applications	3/3
工具機設計 Design of Machine Tool	3/3
半導體製程 Semiconductor Processes	3/3
可靠度工程導論 Fundamentals of Reliability Engineering and Applications	3/3
生成式人工智慧 Generative Artificial Intelligence	3/3
光電半導體工程 Optoelectronic Semiconductor Engineering	3/3
有限元素分析 Finite Element Analysis	3/3
資訊與網路安全 Information and Network Security	3/3
機電整合系統 Mechatronic Integrated Systems	3/3
C#程式設計 C# Programming	3/3
RFID 概論 Introduction to RFID	3/3
工程設計與分析 Engineering Design and Analysis	3/3
智慧製造實務 Intelligent Manufacturing Practice	3/3
微機電工程與應用 MEMS Engineering and Applications	3/3
電腦輔助立體設計與製圖 3D Computer-Aided Design and Drafting	3/3
電腦整合製造 Computer--Integrated Manufacturing	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

本表適用「113學年度入學學生」

1.畢業總學分數：130學分【不含教育學程、軍訓、體育。畢業總學分數至少需包含校必修28學分，系必修68學分，選修34學分】。

2.校必修科目請參閱學校通識、軍訓及體育課程架構，並請依規定修習。

3.系必修及系開設之選修課程：第一次修課同學（大四生以外）以本系開設之課程為限，重修者則以工學院各系或工教系之科目為原則，經審查同意後，方得以列入畢業學分。

4.凡選修本系開設課程、工學院開設或本校開設並由工學院規劃之學程課程(不限學期)，一律承認為本系畢業學分；修習系外開設科目，經審查同意後，採認至多9學分為本系畢業學分。

5.第三學年下學期專題(一)及第四學年上學期專題(二)之三項專題，得擇一修習；專題(一)與專題(二)之專題項目須一致。

6.學生除應修滿本系應修學分外，同時須達本系所定「資訊能力」之基本要求，詳細內容請見本校「資訊能力檢定畢業門檻實施辦法」及本系之規定辦理。身心障礙學生得免適用以上規定。

7.選修本系為輔系者應修畢本系專業必修課程至少21學分。

8.選修本系為雙主修者應修畢本系專業課程至少51學分，其中專業必修課程至少39學分。

1. Total graduation credits: 130 credits (excluding courses in education programs, military training, and physical education). The total graduation credits must include at least 28 required university credits, 68 required departmental credits, and 34 elective credits.

2. For required university courses, please refer to the general education, military training, and physical education course frameworks of the university, and comply with the regulations for course completion.

3. Required departmental courses and elective courses offered by the department: For first-time enrollees (excluding senior students), courses are limited to those offered by the department. For retakers, the principle is to take courses from various departments within the College of Engineering or the Department of Industrial Education, subject to approval, before they can be included in the graduation credits.

4. Courses offered by the department, the College of Engineering, or programs planned by the College of Engineering of the university (not limited to any semester) will be recognized as graduation credits for the department. For courses offered by other departments, up to 9 credits may be recognized as graduation credits for the department upon approval.

5. Among the three project courses in the second semester of the third academic year (Project I) and the first semester of the fourth academic year (Project II), students may choose one to complete; the project topics for Project I and Project II must be consistent.

6. In addition to completing the required credits for the department, students must also meet the basic 'Information Ability' requirements set by the department. For details, please refer to the ' Implementation Measures for the Graduation Threshold of Information Ability Certification ' and the department's regulations. Students with disabilities may be exempt from these requirements.

7. Students minoring in this department must complete at least 21 credits of required professional courses in the department.

8. Students double majoring in this department must complete at least 51 credits of professional courses in the department, of which at least 39 credits must be required professional courses.