

國立勤益科技大學 111 學年度電機工程系研究所碩士班學分計畫表  
Curriculum Planning of 2022 Master' s Degree in Department of Electrical Engineering

110.10.27 系課程委員會議及 110.11.11.系務會議審議通過  
110.11.24.院課程會議審議通過  
110.12.9.校課程委員會議及 110.12.16.教務會議審議通過  
112.11.02 系課程委員會及 112.11.08 系務會議通過  
112.11.23 院課程委員會議審議通過  
112.12.07.校課程委員會議及 112.12.21.臨時教務會議審議通過

| 科目   | Subjects  | 上學期 Fall Semester |            | 下學期 Spring Semester |            |
|--|---|-------------------|------------|---------------------|------------|
|  |   | 學分<br>Credits     | 學時<br>Hour | 學分<br>Credits       | 學時<br>Hour |
| 必修科目(10 學分) Required Courses (10credits hours)                   |   |                   |            |                     |            |
| 第一學年 First Year  |   |                   |            |                     |            |
| 專題討論 (一)   | Seminar ( I )   | 1                 | 2          |                     |            |
| 專題討論 (二)   | Seminar ( II )  |                   |            | 1                   | 2          |
| 第二學年 Second Year   |   |                   |            |                     |            |
| 專題討論 (三)   | Seminar ( III )                                       | 1                 | 2          |                     |            |
| 專題討論 (四)   | Seminar ( IV )  |                   |            | 1                   | 2          |
| 論文   | Papers  | 3                 | 3          | 3                   | 3          |
| 專業選修科目 Department Required Courses                               |   |                   |            |                     |            |
| 第一學年 First Year  |   |                   |            |                     |            |
| 共同選修科目 General Elective Courses                                  |   |                   |            |                     |            |
| 科技英文   | English for Science and Technology                    | 3                 | 3          |                     |            |
| 系統理論   | Linear System Theory                                  | 3                 | 3          |                     |            |
| 模糊控制   | Fuzzy Control   | 3                 | 3          |                     |            |
| 風能理論與案例分析  | Wind Energy Theory and Case Studies Analysis          | 3                 | 3          |                     |            |
| *工業 4.0 網路實務   | Industry 4.0 Network Practice                         | 3                 | 3          |                     |            |
| *即時著色  | Real-Time Rendering                                   | 3                 | 3          |                     |            |
| *JAVA 企業應用   | Java Enterprise Application                           | 3                 | 3          |                     |            |
| *智慧感測與行動計算   | Smart Sensing and Mobile Computing                    | 3                 | 3          |                     |            |
| *SLAM 同步定位與製圖  | Simultaneous Location and Mapping                     | 3                 | 3          |                     |            |
| 高等電機理論   | Advanced Electric Machinery                           |                   |            | 3                   | 3          |
| 類神經網路應用  | Neural Network and Application                        |                   |            | 3                   | 3          |
| 英文論文寫作   | English Thesis Writing                                |                   |            | 3                   | 3          |
| *感測與監控   | Sensor and Supervisory Control                        |                   |            | 3                   | 3          |
| *工業通訊技術  | Industrial Communication Technique                    |                   |            | 3                   | 3          |
| *數位影像處理  | Digital Image Processing                              |                   |            | 3                   | 3          |
| *高等同步定位與製圖   | Advanced Simultaneous Location and Mapping            |                   |            | 3                   | 3          |
| *進階電腦網路  | Advanced Computer Network                             |                   |            | 3                   | 3          |
| 電能科技組選修科目 Power & Energy Technology Field Elective Courses       |   |                   |            |                     |            |
| 永磁無刷馬達   | Brushless Permanent Magnet Motor                      | 3                 | 3          |                     |            |
| 電力品質專論   | Professional Discussion on Electric Power Quality     | 3                 | 3          |                     |            |
| 高等電力電子學  | Advanced Power Electronics                            | 3                 | 3          |                     |            |
| 太陽光電發電系統設計   | Practicality of photovoltaic power generation systems | 3                 | 3          |                     |            |
| 人工智慧   | Artificial Intelligence                               | 3                 | 3          |                     |            |
| 可拓理論   | Extension Method                                      |                   |            | 3                   | 3          |
| 先進電能儲存技術   | Advanced Energy Storage technologies                  |                   |            | 3                   | 3          |
| *氫能與燃料電池技術   | Hydrogen and Fuel Cell Technology                     |                   |            | 3                   | 3          |
| 電力系統分析與控制  | Electric Power Systems Analysis and Control           |                   |            | 3                   | 3          |
| 機電控制組選修科目 Mechanical & Electrical Control Field Elective Courses |   |                   |            |                     |            |
| 高等控制專論   | Advanced Control Seminar                              | 3                 | 3          |                     |            |
| 高等控制系統   | Advanced Control Systems                              | 3                 | 3          |                     |            |
| 高等數位信號處理   | Advanced Digital Signal Processing                    | 3                 | 3          |                     |            |
| *高等數位影像處理  | Advanced Digital Image Processing                     | 3                 | 3          |                     |            |
| *高等系統動態模擬  | Advanced Dynamic System Simulation                    | 3                 | 3          |                     |            |
| 數位控制   | Digital Control                                       |                   |            | 3                   | 3          |
| 高等電機控制   | Advanced Electrical Drives                            |                   |            | 3                   | 3          |
| 語音信號處理   | Speech Signal Processing                              |                   |            | 3                   | 3          |
| 類小腦神經網路應用  | CMAC neural network applications                      |                   |            | 3                   | 3          |
| 嵌入式作業系統設計  | Embedded Operating System Design                      |                   |            | 3                   | 3          |
| 非線性系統與控制   | Nonlinear System and Control                          |                   |            | 3                   | 3          |
| FPGA 於控制器設計  | FPGA-based Controller Design                          |                   |            | 3                   | 3          |
| 智慧電網   | Smart Grid  |                   |            | 3                   | 3          |
| 智慧型機器視覺系統應用專題  | Intelligent visual machine system application project |                   |            | 3                   | 4          |
| 深度學習實務應用   | Applications for Deep Learning                        |                   |            | 3                   | 3          |
| 電機驅動器設計實務  | Design and Implementation of Electric Drive           |                   |            | 3                   | 3          |
| 第二學年 Second Year   |   |                   |            |                     |            |

| 共同選修科目 General Elective Courses                                  |  |   |   |   |   |
|--|--|---|---|---|---|
| *數位 IC 設計  | Digital IC Design  | 3 | 3 |   |   |
| *高頻電路設計  | RF Circuit Design  | 3 | 3 |   |   |
| *自動機原理   | Automata Theory  | 3 | 3 |   |   |
| 生醫電子與訊號處理應用  | Biomedical Electronics and Signal Processing Application         |   |   | 3 | 3 |
| *電力電子技術與實務   | Power Electronics Technology and Practice                        |   |   | 3 | 3 |
| *實用天線設計  | Practical Antenna Design   |   |   | 3 | 3 |
| *機器學習  | Machine Learning   |   |   | 3 | 3 |
| 電能科技組選修科目 Power & Energy Technology Field Elective Courses       |  |   |   |   |   |
| *電池管理系統  | Battery Management System  | 3 | 3 |   |   |
| 高等實驗設計   | Advanced Experiment Design                                       | 3 | 3 |   |   |
| 電力系統穩定度  | Power System Stability   | 3 | 3 |   |   |
| *局部放電檢測技術  | Partial Discharge Detection Techniques                           | 3 | 3 |   |   |
| 分散式發電系統動態分析  | Dynamic Analysis of Distributed Generation System                |   |   | 3 | 3 |
| *新暨再生能源發電效益評估  | Appraisal Criteria for New and Renewable Energy Power Generation |   |   | 3 | 3 |
| 機電控制組選修科目 Mechanical & Electrical Control Field Elective Courses |  |   |   |   |   |
| 適應控制   | Adaptive Control   | 3 | 3 |   |   |
| 小波轉換及應用  | Wavelet Transform and Application                                | 3 | 3 |   |   |
| DSP 於驅動器應用專論   | Professional Discussion on DSP in Driver Applications            | 3 | 3 |   |   |
| 高科技專利取得與攻防   | High Tech Patent Application & Protection                        | 3 | 3 |   |   |
| 高等控制工程   | Advanced Control Engineering                                     | 3 | 3 |   |   |
| 資料分析實務   | Programming in Data Analytics                                    |   |   | 3 | 3 |
| 最佳控制   | Optimal Controls   |   |   | 3 | 3 |
| 強健控制理論及應用  | Application and Theory of Robust Control                         |   |   | 3 | 3 |
| 切換式電源供應器設計   | Analysis and Design of Switching Power Supply                    |   |   | 3 | 3 |
| 智慧整合感控系統   | Theory and Practice for Cyber-Physical Systems                   |   |   | 3 | 3 |
| 智慧型軌道運輸系統  | Railway Intelligent Transportation System                        |   |   | 3 | 3 |

備註 Note :

1. 畢業至少應修 34 學分：必修 10 學分(含論文 6 學分、專題討論 4 學分)，選修 24 學分 (**系內專業選修不得低於 18 學分**)。

Students should complete at least 34 credits before graduation including 10 required credits (containing six credits for thesis and four credits for seminar) and 24 elective credits (at least 24 professional elective credits).

2. 學生應於申請學位考試前至「教育部臺灣學術倫理教育資源中心」網路平臺完成學術研究倫理教育課程，至少 6 小時課程。

Students need to complete the academic research ethics education course for at least 6 hours before the final defence application.

3. 研究生必須通過碩士班論文口試，方准予畢業。畢業時，依法授予工學碩士學位。

In order to meet graduation requirements, graduate students must complete thesis oral defense for the Master of Science in engineering degree.

4. 課程名稱加註「\*」為經學院所屬系課程委員會審議通過之全英文課程，凡院所屬外籍學生皆可選讀，修習及格可認定為所屬系之專業選修課程。

Courses with an asterisk (\*) in their titles have been reviewed and approved by the Course Committee of the college as fully English-taught courses. These courses are open to all international students affiliated with the college, and successful completion will be recognized as fulfilling the requirements for professional elective courses within their respective departments.

5. 實際開課狀況需依當學期、依各科目授課進度與老師可配合授課情形安排，本系歷年開課，請至本校「校務行政網路系統-學生篇」查詢。

The actual commencement of classes will be arranged based on the current semester situation, the progress of each subject's curriculum, and the availability of teachers for instruction. Information about courses offered in previous years for this department can be found by checking the 'Student Information Management System' on our school's website.