**元智大學工業工程與管理學系博士班 必選修科目表**

**（112學年度入學新生適用）**

**List of Required and Elective Courses for** **Doctoral Program of**

**Industrial Engineering and Management at Yuan Ze University**

**（Applicable to Students Admitted for the Academic year of 2023-2024）**

112.04.19 一一一學年度第六次教務會議通過

Passed by the 6th Academic Affairs Meeting, Academic Year 2022, on April 19, 2023

112.11.22 一一二學年度第五次教務會議修訂通過

Amended by the 5th Academic Affairs Meeting, Academic Year 2023, on November 22, 2023

113.05.01 一一二學年度第八次教務會議修訂通過

Amended by the 8th Academic Affairs Meeting, Academic Year 2023, on May 01, 2024

113.11.20 一一三學年度第二次教務會議修訂通過

Amended by the 2nd Academic Affairs Meeting, Academic Year 2024, on November 20, 2024

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| **選修類別：決策最佳化與全球運籌管理**  Category: Optimization and Global Logistics Management | | | |
| 課號 | 中文課名 | 英文課名 | 學分數 |
| IE503 | 模擬學★ | Simulation | 3 |
| IE507 | 數學規劃（一）★ | Mathematical Programming (I) | 3 |
| IE518 | 時間序列分析★ | Time Series Analysis and Forecasting | 3 |
| IE520 | 田口式品質工程 | Taguchi Quality Engineering | 3 |
| IE533 | 機率分析★ | Probabilistic Analysis | 3 |
| IE537 | 高等設施規劃 | Advanced Facilities Planning | 3 |
| IE538 | 實驗設計★ | Experimental Design and Applications | 3 |
| IE541 | 決策分析 | Decision Analysis | 3 |
| IE576 | 全球運籌管理 | Global Logistics Management | 3 |
| IE579 | 運輸管理★ | Transportation Management | 3 |
| IE581 | 服務系統設計★ | Service System Design | 3 |
| IE591 | 物流系統 | Analysis of Material Flows and Distribution System | 3 |
| IE600 | 系統工程 | System Engineering | 3 |
| IE605 | 多變量分析 | Multivariate Analysis | 3 |
| IE607 | 啟發式最佳化★ | Heuristic Optimization | 3 |
| IE610 | 行動電子商務 | Mobile Commerce | 3 |
| IE613 | 供應鏈管理專題★ | Topics in Supply Chain Management | 3 |
| IE615 | 模糊工程與資訊 | Fuzzy Engineering and Information | 3 |
| IE618 | TFT-LCD產業分析與個案探討 | TFT-LCD Industry Analysis and Case Study | 3 |
| IE622 | 卓越經營管理★ | Managing for Business Excellence | 3 |
| IE630 | 進階專案管理★ | Advanced Project Management | 3 |
| IE631 | 永續發展 | Sustainable Development | 3 |
| **選修類別：智慧型生產與大數據分析**  Category: Intelligent Manufacturing and Big Data Analysis | | | |
| 課號 | 中文課名 | 英文課名 | 學分數 |
| IE508 | 人工智慧與專家系統專題 | Artificial Intelligence and Expert System Topics | 3 |
| IE510 | 電腦繪圖 | Computer Graphics | 3 |
| IE517 | 存貨系統與管制★ | Inventory Systems and Control | 3 |
| IE524 | 工程管理系統 | Engineering Management Systems | 3 |
| IE531 | 高等品質管制★ | Advanced Quality Control | 3 |
| IE534 | 生產排程★ | Production Scheduling | 3 |
| IE543 | 生產計劃 | Production Planning | 3 |
| IE544 | 電腦輔助設計與製造（一） | Computer-Aided Design and Manufacturing (I) | 3 |
| IE562 | 3D視覺模擬和虛擬實境★ | 3D Visual Simulation and Virtual Reality | 3 |
| IE565 | 人因工程 | Human Factors | 3 |
| IE566 | 可靠度工程 | Reliability Engineering | 3 |
| IE571 | 高等工程經濟 | Advanced Engineering Economics | 3 |
| IE574 | 資料視覺★ | Data Visualization | 3 |
| IE590 | 機器視覺應用★ | Machine Vision | 3 |
| IE592 | 及時生產系統 | Just-in-Time Production System | 3 |
| IE593 | 高等生產管制 | Advanced Production Control | 3 |
| IE599 | 資料探勘★ | Data Mining | 3 |
| IE614 | 資料模式辨識與分類★ | Data Pattern Recognition and Classification | 3 |
| IE619 | 虛擬實境系統設計與建構★ | Design and Construction of Virtual Reality Systems | 3 |
| IE623 | 人因設計 | Ergonomic Design | 3 |
| IE624 | 優使性工程★ | Usability Engineering | 3 |
| IE625 | 巨量資料分析 | Big Data Analytics | 3 |
| IE626 | 物聯網概論與實務★ | Introduction and Practice of Internet of Things (IoT) | 3 |
| IE627 | 區塊鏈原理與實務★ | Blockchain Principles and Practices | 3 |
| IE628 | 巨量資料分析(一) | Big Data Analytics (I) | 3 |
| IE629 | 巨量資料分析(二) | Big Data Analytics (II) | 3 |
| IE632 | 智慧製造 | Smart Manufacturing | 3 |
| IE633 | 生成式AI與大語言模型 | Generative AI and Large Language Model | 3 |
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| **選修類別：基礎共同** Category: Common Courses | | | |
| 課號 | 中文課名 | 英文課名 | 學分數 |
| IE608 | 科技英文★ | Technical Writing | 3 |
| IE999 | 研究方法論 | Research Methodology | 3 |

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| 註：「★」表示可能以英語授課 Note: ★ indicates the course might be offered in English  備註  Remarks | 1. 修業規定 (Regulations for Course Selection)：本所博士班最低畢業總學分數必須滿足選修課程27學分與論文6學分，共計33學分。The minimum total credits required for graduation for the Doctoral Program is 30 credits, including 27credits of elective courses, and 6 credits of the dissertation. 2. 博士班學生選修碩士在職專班之課程，不列入畢業學分，須填寫「元智大學課程跨學制申請表」。PhD students taking In-service graduate courses are not allowed to be counted as graduation credits. Students who would like to apply for Cross-System Courses need to fill in the "Application for Cross-System Courses" form. 3. 選修非本系之課程，需先經指導教授及所長同意，且以9學分為上限。Students must obtain the consent of their advisor and the department chair before taking elective courses from other departments, with a maximum of 9 credits. 4. 入學研究生須依本校學術研究倫理教育課程實施要點規定，於入學第一學期結束前完成學術研究倫理教育課程，最遲須於申請學位口試前補修完成，未完成本課程，不得申請學位口試。For those graduate students who shall complete Academic Research Ethics Education Course before the end of their first academic semester, they must follow the regulations of Yuan Ze University Academic Research Ethics Education Course Implementation Highlights. The latest deadline for them shall be their course completions and then their applications towards the degree’s oral exam. 5. 其他未盡事宜，請參閱本系「博士班修讀辦法」。Students should refer to the "Regulations for PhD's Students" in the department for additional information. |

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