**元智大學工業工程與管理學系　必選修科目表**

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

**List of Required Courses（110學年度入學新生適用）**

**(Applicable to Students Admitted in Academic Year of 2020)**

110.05.05 一○九學年度第五次教務會議通過

Passed by the 5th Academic Affairs Meeting, Academic Year 2020, on May 05, 2021

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 學年Academic Year  學期Semester  科目Subject | 第一學年1st Academic Year | | | | | 第二學年2nd Academic Year | | | | | | 第三學年3rd Academic Year | | | 第四學年4th Academic Year | | |
| 上Fall | | | 下Spring | | 上Fall | | | 下Spring | | | 上Fall | | 下Spring | 上Fall | | 下Spring |
| 共同必修科目University Compulsory  （21） | 國文（一）  Chinese (I)  （2） | | | 國文（二）  Chinese (II)  （2） | |  | | |  | | |  | |  |  | |  |
| 英語（一）  English (I)  （2） | | | 英語（二）  English (II)  （2） | |  | | |  | | |  | |  |  | |  |
| 程式語言共4學分，依各院修課規則辦理。(開課名稱：基礎程式設計)  Fundamental Computer Programming is a four-credit course. For those who would like to registered “Fundamental computer programming”, he/she has to meet the college requirement. (Course Name: Fundamental Computer Programming) | | | | | | | | | | | | | | | | |
| 外語課程應依「通識外語修課規定」修習，共計10學分。   1. 「英語（一）」及「英語（二）」為基礎課程，採能力分級上課，共計二學期四學分。 2. 除了「英語（一）」及「英語（二）」外，應修習主題式英語課程三學期5學分，畢業前需修畢三個不同英語課程，始取得畢業資格。大一英語能力後測TOEIC模擬測驗成績未達350分者，應修習「應試加強班」，修習「應試加強班」期間之期末TOEIC模擬測驗成績未達350分者，則該科成績將「不及格」，並應再次修習「應試加強班」，直到取得TOEIC模擬測驗分數達350分(含)始得修習其他主題式英語課程。 3. 另開設「英語檢定」計一學期1學分，「英語檢定」之修課限制與注意事項，請參照「英語檢定」修課規定，並由通識教學部公佈後施行。   外國學生改修華語須經國際語言文化中心審核通過始可改修華語課程10學分，其華語課程10學分應含「華語檢定」1學分，「華語檢定」修課限制與注事意項，請參照「英語檢定」修課規定。  凡本校大學部外國學生(不含交換生)修習「華語一」或「華語二」任一課程成績未達60分，不得修習「華語三」、「華語四」、「華語五」、「華語六」，若修習「華語三」、「華語四」任一課程成績未達60分，不得修習「華語五」或「華語檢定」。  The undergraduate students must complete 10 required credits of foreign language courses as follows:   * English (I), (II): 4 credits * English thematic course: 5 credits * English Test: 1 credit   English (I) and (II) are 4 credits elementary courses for the freshmen who are grouped on English competence-based to complete within two semesters.  English thematic courses are 5-credit of English courses; students are required to obtain  5 credits through 3 different thematic courses for graduation.  For the requirements of registering “English Testing”, please refer to "the Regulation for Registering English Test" announced and implemented by the College of General Education.  Foreign students need approval by ILCC for taking 10 credits of Mandarin Chinese courses as alternative courses of English.  The undergraduate foreign students, exchange students excluded, must score 60 points or higher to pass Mandarin Chinese (I) and (II) before taking Mandarin Chinese (III), (IV), (V), and (VI). Students must score 60 points or higher in Mandarin Chinese (III) and (IV) before taking Mandarin Chinese (V) and (VI).  英語檢定English Testing（1）、經典五十Fifty Canonized Books（2）、服務學習Service Learning（1） | | | | | | | | | | | | | | | | |
| 體育Physical Education（0） | | 體育Physical Education（0） | | | | 興趣選項體育optional physical education（0） | | | 興趣選項體育optional physical education（0） | |  | |  |  | |  |
| 大學部必須修習4學期體育課程；其中2學期為大一體育課程原班級上課，另2學期為興趣選項體育課程，另需通過「游泳能力檢定」及「心肺適能檢定」等二項檢測，列為畢業門檻。  The undergraduate students must attend the physical education course for 4 semesters; 2 semesters for the freshman physical education  courses, the other two semesters for the optional physical education courses, students must pass both swimming and cardiopulmonary function tests. | | | | | | | | | | | | | | | | |
| 通識教育科目General Education  （10） | 通識課程分為人文藝術、自然科學、社會科學及生命科學四大類。學生須於四大領域中各選修2學分課程，共計8學分。General Education program comprises four categories：Humanities, Natural Science, Social Science and Life Science. Students are required to take a 2-credit course from each category to get 8 credits before graduation.  通識跨域課程General Education Interdisciplinary Course：此2學分學生可自由於通識講座課程、微課自主學習或在地多元文化課群中選課。惟外籍生與工程學院英語學士班、資訊學院英語學士班、人文社會學院英語學士班、電機通訊學院英語學士班學生仍須於四大領域中選課，依各院修課規定辦理。Students can select the 2 credits from a General Education Lecture course, Micro Credit courses, Self-Study courses, or Local-Multicultural courses. Only foreign students and undergraduates of International Programs in the Colleges of Engineering, Informatics, Humanities and Social Sciences, as well as Electrical and Communication Engineering are required to take a 2-credit course from the four categories according to each college’s policy before graduation. | | | | | | | | | | | | | | | | |
| 人格特質**(6)** | 問題創意思解  Creative Problem Solving  IE232  (2) |  | | |  | | | 工程溝通  Engineering Communications IE231  (2) | | |  | | 研究方法  Research Methodology  IE233  (2) | |  |  | |
| 系必修科目Department Compulsory  (64) | 微積分（一）  Calculus(I)  IE109  (3) | 微積分（二）  Calculus(II)  IE110  (3) | | | 工程統計  Engineering Statistics  IE203  (3) | | | 工程統計（二）  Engineering Statistics(II)  IE204  (3) | | | 作業研究  Operations Research  IE303  (3) | | 作業研究（二）  Operations Research(II)  IE329  (3) | | 畢業專題  Graduation Project IE440  (2) | 工業工程實務專題  Practical Operations of Industrial Engineering IE426  (1) | |
| 工業工程概論  Introduction to Industrial Engineering  IE101  (3) | 工程圖學  Engineering Graphics  IE114  (3) | | | 製造程序  Manufacturing Processes  IE209  (3) | | | 網路資訊應用  Network Information Application IE212 (3) | | | 生產計劃與管制（一）  Production Planning and Control(I)  IE335  (3) | | 生產計劃與管制 (含實驗) （二）  Production Planning and Control(II) IE348  (3) | |  |  | |
| 資訊概論  Basic Concepts of Information Technology  IE117  (2) | 線性代數  （含演習）  Linear Algebra  IE217  (4) | | | 資料庫管理系統  Database Management Systems  IE406 (3) | | | 工業會計  Industrial Accounting  IE301  (3) | | | 品質管制 （含實驗）  Quality Control (Lab) IE350  (3) | | 設施規劃 （含實驗）  Facilities Planning IE349  (3) | |  |  | |
| 資訊概論實務  Basic Concepts of Information Technology : Lab  IE118  (1) |  | | | 人因工程（一）  Human Factors(I)  IE220  (3) | | |  | | | 工程經濟  Engineering Economics IE308  (3) | |  | |  |  | |
| 學期學分小計Credit each semester | 11 | 10 | | | 12 | | | 11 | | | 12 | | 11 | | 2 | 1 | |
| 備註Remarks | \*\* 最低畢業學分：必修：101學分；選修：27學分。  \*\* Minimum graduation requirement: complete both 101 credits for required courses and 27 credits for elective courses.   1. 一年級之「工業工程概論」為基礎課程，除轉學生補修之同學需在入學第一年內修得此學分，其他同學必需在一年級內修完。Introduction to Intelligent Production IE101 must be completed within the 1st year enrolled in IEM major, which includes both freshman & transferred student. 2. 「工業工程實務專題」須於大四下學期修習，但成績優異符合提前畢業者可另案申請。Practical Operations of Industrial Engineering IE426 must be taken in the 2nd semester of senior year. However, student with top grade or exceptional performance can apply for early completing. 3. 擋修科目：prerequisite   微積分（一）Calculus (I) （須達及格60分） → 微積分（二）Calculus (II)、  微積分（二）Calculus (II) （須達及格60分） → 工程統計Engineering Statistics、  工程統計 Engineering Statistics （須達及格50分）→工程統計（二）Engineering Statistics (II)、  工程統計Engineering Statistics（須達及格60分） → 品質管制(含實驗) Quality Control (Lab)   1. 擋修科目若不及格，必須連續重修（不准隔年重修）；違反規定者，不給成績。Not satisfying prerequisite, student must re-take the course immediately (skipping is not allowed); grades will not be issued for any one not following the regulation. 2. 獲准五年一貫的學生在大學部修習研究所課程之學分，若計入大學畢業學分數內，不得於研究所採認。Any graduate level courses taken during the undergrad and counted toward undergrad graduation requirement, which cannot be counted into the 5-year Master’s Program. 3. 有關共同必修及通識教育科目之詳細規定，另依據「元智大學共同必修科目表」之規定辦理。   Please refer to Yuan Ze University Common Required Course List for General Education courses information and regulations.   1. 通識教育科目學分只採計至多10學分，超修之學分將不列入畢業學分。   The maximum credits for general education courses is 10, the exceeding credits will not be counted.   1. 「IE440畢業專題」為終端學習課。IE440 Graduation Project serves as the terminal learning course. 2. 課程「IE220人因工程（一）」及「IE232問題創意思解」為本系必修「議題導向實作專題課程」   Course code IE220,Course code IE232 are compulsory courses of "Topic and Implementation-oriented courses"   1. 畢業前須修習通過至少2門「數位應用相關課程」，可至本系或外系修習。本系「數位應用相關課程｣ 包含基礎物聯網應用與實作(IE122)、網路資訊應用(IE212)、系統模擬與應用(IE247)、3D互動數位內容製作(IE351)、資料庫管理系統(IE406)、多媒體應用(IE427)、深度學習神經網路概論與實作(IE438)、資料視覺(IE574)、虛擬實境系統設計與建構 (IE619)、物聯網概論與實務(IE626)、巨量資料分析(一) (IE628)及巨量資料分析(二) (IE629)等課程。   Students require taking passing at least two 'digital application courses'. Fundamental Applications and Practices of Internet of Things(IE122), Network Information Application (IE212), System Simulation and Applications(IE247), Implementation of 3D Interactive Digital Content (IE351), Database Management Systems (IE406), Multimedia Application (IE427), Introduction and Practices to Deep Learning Neural Networks(IE438), Data Visualization(IE574), Design and Construction of Virtual Reality Systems(IE625), Introduction and Practice of Internet of Things (IoT)( IE626), Big Data Analytics(I)(IE628), Big Data Analytics(II)(IE629) are courses of 'digital application courses'. (Student may take 'digital application courses' from another department.)   1. 本系同學總共必須修滿128學分方可畢業，包括共同必修及通識課程共31學分、本系必修70學分，選修27學分（外系選修至多承認17學分，與他系合作之學程，依學程規定承認最高學分）。   Student of Dept. of Ad must take 128 credits in total for graduation, include Required Common Courses and General Education courses (31), Department Compulsory courses (70), and Department Elective courses (27). (Outside the Department of elective up to recognize the (17) credits, and the cooperation courses with other departments, according to the provisions of the highest recognition of credit)   1. 畢業前需完成一個學程，包含本系學程、本系參與之跨院系學程。   Must complete a program prior graduation, including IEM program and related cross departmental program. | | | | | | | | | | | | | | | | |

**元智大學工業工程與管理學系　選修科目表**

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

**List of Elective Courses （110學年度入學新生適用）**

**(Applicable to Students Admitted in Academic Year of 2019**

110.05.05 一○九學年度第五次教務會議通過

Passed by the 5th Academic Affairs Meeting, Academic Year 2020, on May 05, 2021

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 學年Academic Year  學期Semester  科目Subject | 類  組  class | 第一學年1st Academic Year | | 第二學年2nd Academic Year | | 第三學年3rd Academic Year | | 第四學年4th Academic Year | |
| 上Fall | 下Spring | 上Fall | 下Spring | 上Fall | 下Spring | 上 | 下 |
| **系**  **選**  **修**  **Department Elective**  **(27)** | 必選required |  | 工作研究  Work Study  IE211  (3) |  | 工程倫理  Engineering Ethics  IE222  (2) |  |  |  |  |
|  | 工業組織與管理  Industrial Organization and Management  IE230  (3) | 工業組織與管理  Industrial Organization and Management  IE230  (3) | 工業自動化概論  Introduction to Industrial Automation  IE302  (3) | 資訊安全與規範  Information Security and Policy  IE235  (3) | 應用電子商務  Practical Electronic Commerce  IE337  (3) | 應用電子商務  Practical Electronic Commerce  IE337  (3) | 系統工程  Systems Engineering  IE410  (3) | 多媒體應用  Multimedia Application  IE427  (3) |
|  | 工業設計  Introduction to Industrial Design  IE121  (3) | 系統分析與設計  System Analysis and Design  IE226  (3) | 服務科學導論  Introduction to Service Sciences  IE244  (3) | 服務工程  Service Engineering  IE245  (3) | 管理資訊系統  IE408  Management Information Systems  (3) | 服務經濟  Service Economics  IE443  (3) | 資料分析  Data Analysis IE428  (3) |
|  | 基礎物聯網應用與實作  Fundamental Applications and Practices of Internet of Things  IE122  (3) | 服務業管理概論  Introduction to Service Management  IE423  (3) | 人因工程（二） Human Factors(II)IE313 (3) | 3D互動數位內容製作  Implementation of 3D Interactive Digital Content  IE351  (3) | RFID資訊系統  IE353  RFID Information System  (3) | 3D視覺模擬和虛擬實境  3D Visual Simulation and Virtual Reality  IE562  (3) | 全面品質管理  Total Quality Management  IE407  (3) |
|  |  | 產品設計思維  Product Design  IE243  (3) | 行動應用程式設計與開發  Design and Development of Mobile Application  IE356  (3) | 採購管理  Procurement Management  IE342  (3) | 物流管理 Logistics Management IE312 (3) | 行動電子商務  Mobile Commerce  IE610  (3) | 行銷學  Marketing  IE435  (3) |
|  |  | RFID概論  Introduction to RFID  IE120  (3) | 智慧生產概論  Introduction to Intelligent Production  EG201  (3) | 國際物流管理  Internationl Logistics Management  IE352  (3) | 應用統計分析  Applied Statistical Analysis IE304 (3) | 高等設施規劃  Advanced Facilities Planning  IE537  (3) | 物料管理  Material Management  IE322  (3) |
|  |  | 工作衡量與實驗  Work Measurement IE229 (3) | 服務設計與創新  Service Design and Innovation  IE246  (3) | 統計建模與電腦化實作  Statistical Modeling and Computerized Implementations  IE237  (3) | 工業安全  Industrial Safety  IE326  (3) | 企業資源規劃  Enterprise Resources Planning  IE604  (3) | 深度學習神經網路概論與實作  Introduction and Practices to Deep Learning Neural Networks  IE438  (3) |
|  |  |  | 系統模擬與應用  System Simulation and Applications  IE247  (3) | 近代網路應用  Networks and Contemporary Applications  IE392  (3) | 電路板基礎工程  General Printed Circuit Board Technology  IE346  (3) | 實驗設計  Experimental Design and Applications  IE538  (3) | 優使性工程  Usability Engineering  IE624  (3) |
|  |  |  |  | 可靠度工程  Reliability Engineering  IE315  (3) | 品質保證理論與實務  Principles and Practices of Quality Assurance  IE391  (3) | 及時生產系統  Just-in-Time Production Systems  IE592  (3) | 虛擬實境系統設計與建構  Design and Construction of Virtual Reality Systems IE619(3) |
|  |  |  |  | 模糊理論概論  Introduction to Fuzzy Theory  IE323 (3) | 服務作業管理  Service Operations Management  IE316  (3) | 電腦繪圖  Computer Graphics IE510 (3) | 生產排程  Production Scheduling  IE534  (3) |
|  |  |  |  | 半導體製造工程  IE347  Introduction to Semiconductor Manufacturing Technology  (3) | 雲端科技與服務  Cloud Computing Technology and Services  IE354  (3) | 模擬學  Simulation IE503 (3) | 資料視覺  Data Visualization  IE574  (3) |
|  |  |  |  |  | 科技報告演練  Technical Writings and Oral Presentation  IE422  (3) | 服務系統設計  Service Systems Design  IE581  (3) | 時間序列分析  Time Series Analysis and Forecasting  IE518  (3) |
|  |  |  |  |  | 專案管理  Project Management  IE375  (3) |  | 電腦輔助設計與製造I Computer-Aided Design and Manufacturing(I)  IE544  (3) |
|  |  |  |  |  | 醫療品質管理Quality Management in Healthcare  IE376  (3) |  | 物件導向策略與程式設計  Object-Oriented Planning and Programming  IE516  (3) |
|  |  |  |  |  |  |  | 物聯網概論與實務Introduction and Practice of Internet of Things (IoT)  IE626  (3) |
|  |  |  |  |  |  |  | 巨量資料分析(一)  Big Data  Analytics(I)  IE628  (3) |
|  |  |  |  |  |  |  |  |  | 巨量資料分析(二)  Big Data  Analytics(II)  IE629  (3) |
| 備註 | | 1. 系選修共計**27**學分，其中**17**學分可修習外系所開放之課程。修習IE414專業實習（一）(2) 課程者可計入系選修學分。There are **27** credits for the department electives, within which **17** credits can be from other departments. Graduation Project IE440(2) can be counted toward department electives. 2. 凡修畢本系規定學程之課程者，將由本系授與各學程證書。   IEM will issue Program completion certificate upon completing IEM required study program. | | | | | | | |

**元智大學工業工程與管理學系 學程修業規定**

**110學年度入學新生適用**

**for Admission in Academic Year 2021: Fall 2021 & Spring 2022**

109.11.11 一○九學年度第二次教務會議修訂通過

Amended by the 2nd Academic Affairs Meeting, Academic Year 2019, on November 11, 2020

本系規劃之學程課程**限定在本系選修，**不開放外系課程抵免。若一門課同時有二個學程以上，只能擇一學程計算（資訊類課程除外）。IEM Program courses must be completed as listed. No substitution courses from outside of IEM department will be allowed. If the course is available in more than one Programs, it can only be counted once (except information/computer related courses).

1. 服務科學與資訊學程Service Science & Information Technology Program：

資訊類課程：11門選2門-6學分

Information Technology courses: Select 2 out of 10, total 6 credits

|  |  |  |
| --- | --- | --- |
| 課號  course code | 課程名稱course name | 學分credits |
| IE120 | RFID概論 Introduction to RFID | 3 |
| IE226 | 系統分析與設計System Analysis and Design | 3 |
| IE235 | 資訊安全與規範Information Security and Policy | 3 |
| IE247 | 系統模擬與應用System Simulation and Applications | 3 |
| IE337 | 應用電子商務Practical Electronic Commerce | 3 |
| IE351 | 3D互動數位內容製作  Implementation of 3D Interactive Digital Content | 3 |
| IE356 | 行動應用程式設計與開發  Design and Development of Mobile Application | 3 |
| IE392 | 近代網路應用Networks and Contemporary Applications | 3 |
| IE408 | 管理資訊系統Management Information Systems | 3 |
| IE427 | 多媒體應用Multimedia Application | 3 |
| IE428 | 資料分析Data Analysis | 3 |
| IE438 | 深度學習神經網路概論與實作  Introduction and Practices to Deep Learning Neural Networks | 3 |

服務類課程：9門選3門-9學分(IE244服務科學導論為必修課程)

Service courses: Select 3 out of 8, total 9 credits (IE244 is required)

|  |  |  |
| --- | --- | --- |
| 課號  course code | 課程名稱course name | 學分  credits |
| IE237  IE304 | 應用統計分析 Applied Statistical Analysis  統計建模與電腦化實作Statistical Modeling and Computerized Implementations (擇一) | 3 |
| IE244 | 服務科學導論  Introduction to Service Sciences | 3 |
| IE245 | 服務工程  Service Engineering | 3 |
| IE246  IE243 | 服務設計與創新  Service Design and Innovation  產品設計思維Product Design 　 (擇一) | **3** |
| IE313 | 人因工程（二）  Human Factors(II) | 3 |
| IE354 | 雲端科技與服務  Cloud Computing Technology and Services | 3 |
| IE375 | 專案管理  Project Management | 3 |
| IE376 | 醫療品質管理  Quality Management in Healthcare | 3 |
| IE423 | 服務業管理概論  Introduction to Service Management | 3 |
| IE443 | 服務經濟  Service Economics | 3 |

學程證書授與標準：凡取得以上資訊類課程2門及服務類課程3門之學分者，授與「服務與資訊學程」證書。Program Certificate requirement: 2 courses of Information & 3 courses of Service programs will issue certificate of “Service Science & Information Technology Program”.

1. 品質與資訊學程Quality Management & Information Technology Program：

資訊類課程：11門選2門-6學分

Information Technology courses: Select 2 out of 10, total 6 credits

|  |  |  |
| --- | --- | --- |
| 課號  course code | 課程名稱course name | 學分credits |
| IE120 | RFID概論  Introduction to RFID | 3 |
| IE226 | 系統分析與設計  System Analysis and Design | 3 |
| IE235 | 資訊安全與規範  Information Security and Policy | 3 |
| IE247 | 系統模擬與應用  System Simulation and Applications | 3 |
| IE337 | 應用電子商務  Practical Electronic Commerce | 3 |
| IE351 | 3D互動數位內容製作  Implementation of 3D Interactive Digital Content | 3 |
| IE356 | 行動應用程式設計與開發  Design and Development of Mobile Application | 3 |
| IE392 | 近代網路應用  Networks and Contemporary Applications | 3 |
| IE408 | 管理資訊系統  Management Information Systems | 3 |
| IE427 | 多媒體應用  Multimedia Application | 3 |
| IE428 | 資料分析  Data Analysis | 3 |
| IE438 | 深度學習神經網路概論與實作  Introduction and Practices to Deep Learning Neural Networks | 3 |

品質類課程：7門選3門-9學分

Quality Management courses: Select 3 out of 7, total 9 credits

|  |  |  |
| --- | --- | --- |
| 課號  course code | 課程名稱course name | 學分credits |
| IE230 | 工業組織與管理  Industrial Organization and Management | 3 |
| IE237 | 統計建模與電腦化實作  Statistical Modeling and Computerized Implementations | 3 |
| IE304 | 應用統計分析Applied Statistical Analysis | 3 |
| IE315 | 可靠度工程Reliability Engineering | 3 |
| IE326 | 工業安全Industrial Safety | 3 |
| IE391 | 品質保證理論與實務Principles and Practices of Quality Assurance | 3 |
| IE376 | 醫療品質管理Quality Management in Healthcare | 3 |
| IE407 | 全面品質管理Total Quality Management | 3 |

學程證書授與標準：凡取得以上資訊類課程2門及品質類課程3門之學分者，授與「品質與資訊學程」證書。Program Certificate requirement: 2 courses of Information & 3 courses of Quality related programs will issue certificate of “Quality Management & Information Technology Program”.

1. 製造與資訊學程Production Management & Information Technology Program：

資訊類課程：11門選2門-6學分

Information Technology courses: Select 2 out of 10, total 6 credits

|  |  |  |
| --- | --- | --- |
| 課號  course code | 課程名稱course name | 學分credits |
| IE120 | RFID概論  Introduction to RFID | 3 |
| IE226 | 系統分析與設計  System Analysis and Design | 3 |
| IE235 | 資訊安全與規範  Information Security and Policy | 3 |
| IE247 | 系統模擬與應用  System Simulation and Applications | 3 |
| IE337 | 應用電子商務  Practical Electronic Commerce | 3 |
| IE351 | 3D互動數位內容製作  Implementation of 3D Interactive Digital Content | 3 |
| IE356 | 行動應用程式設計與開發  Design and Development of Mobile Application | 3 |
| IE392 | 近代網路應用  Networks and Contemporary Applications | 3 |
| IE408 | 管理資訊系統  Management Information Systems | 3 |
| IE427 | 多媒體應用  Multimedia Application | 3 |
| IE428 | 資料分析  Data Analysis | 3 |
| IE438 | 深度學習神經網路概論與實作  Introduction and Practices to Deep Learning Neural Networks | 3 |

製造類課程：8門選3門-9學分

Production Management courses: Select 3 out of 7, total 9 credits

|  |  |  |
| --- | --- | --- |
| 課號  course code | 課程名稱course name | 學分credits |
| IE122 | 基礎物聯網應用與實作  Fundamental Applications and Practices of Internet of Things | 3 |
| IE229 | 工作衡量與實驗  Work Measurement | 3 |
| IE302 | 工業自動化概論  Introduction to Industrial Automation | 3 |
| IE313 | 人因工程（二）  Human Factors(II) | 3 |
| IE322 | 物料管理  Material Management | 3 |
| IE346 | 電路板基礎工程  General Printed Circuit Board Technology | 3 |
| IE347 | 半導體製造工程  Introduction to Semiconductor Manufacturing Technology | 3 |
| IE410 | 系統工程  Systems Engineering | 3 |

學程證書授與標準：凡取得以上資訊類課程2門及製造類課程3門之學分者，授與「製造與資訊學程」證書。Program Certificate requirement: 2 courses of Information & 3 courses of Production related programs will issue certificate of “Production Management & Information Technology Program”.

**人因工程與設計學程**

**Human Factors and Design Program**

**110學年度入學新生適用**

**for Admission in Academic Year 2020: Fall 2020 & Spring 2021**

108.01.02 一○七學年度第四次教務會議修訂通過

Amended by the 4th Academic Affairs Meeting, Academic Year 2018, on January 02, 2019

**課程規劃Study Plan**

必修課程：4門選2門 (6學分) + 人因工程與設計專題（2學分）

Required Courses：Select 2 out of 4 + Human Factors and Design Project, as a total of 8 credits

|  |  |  |  |
| --- | --- | --- | --- |
| 課號  course code | 課程名稱course name | 必/選修  require/ elective | 學分credits |
| IE121 | 工業設計  Introduction to Industrial Design | 選修 | 3 |
| IE220 | 人因工程（一）  Human Factors(I) | 系必修 | 3 |
| IE243  AD115 | 產品設計思維Product Design  設計創作Design Studio(I) （擇一） | 選修  系必修 | 3  3 |
| IE313 | 人因工程（二）  Human Factors(II) | 選修 | 3 |
|  | 人因工程與設計相關專題\* |  | 2 |

\*「人因工程與設計相關專題」可以各系與人因工程與設計相關之「畢業專題」相關課程抵免。

\*「Human Factors and Design related project」can be substituted by the graduation project of any department as long as the project content is related to Human Factors and Design.

選修課程：13門選3門（9學分）

Elective Courses: Select 3 out of 13, as a total of 9 credits

|  |  |  |  |
| --- | --- | --- | --- |
| 課號 | 課程名稱 | 開課學系 | 學分 |
| IE122 | 基礎物聯網應用與實作  Fundamental Applications and Practices of Internet of Things | 工管IEM | 3 |
| IE237 | 統計建模與電腦化實作  Statistical Modeling and Computerized mplementations | 工管IEM | 3 |
| IE245 | 服務工程Service Engineering | 工管IEM | 3 |
| IE304 | 應用統計分析Applied Statistical Analysis | 工管IEM | 3 |
| IE351 | 3D互動數位內容製作  Implementation of 3D Interactive Digital Content | 工管IEM | 3 |
| IE356 | 行動應用程式設計與開發  Design and Development of Mobile Application | 工管IEM | 3 |
| IE375 | 專案管理  Project Management | 工管IEM | 3 |
| AD269 | 電腦輔助設計與製造  Computer-aided Design and Manufacture | 藝設系AD | 3 |
| ME388/AD313 | 藝術與設計創作（一）  Art & Design Studio(I) | 藝設系AD | 3 |
| AD314 | 藝術與設計創作（二）  Art & Design Studio(II) | 藝設系AD | 3 |
| AD446 | 互動科技裝置：實務與應用  Interactive Media Installation : Practice & Application | 藝設系AD | 3 |
| EE479 | 人機互動概論  Human-Computer Interaction | 電機系EE | 3 |
| EE492 | 工程應用生理學  Bioengineering Physiology | 電機系EE | 3 |

學程證書授與標準：

凡修畢學程課程十五學分(至少含必修課程六學分)與人因工程與設計相關專題兩學分，經學程負責單位審查無誤後，由工學院授與「人因工程與設計學程」學程證明書。

Program Certificate standard of issue: must compelete 15 credits of the program courses (with at least 6 credits of required courses) and 2 credits of Human Factors and Design related project; once approved by the authorized department, College of Engineering will issue the “Human Factors and Design Program” program certificate.

**電子化供應鏈學程**

**E-Supply Chain Management Program**

**110學年度入學新生適用**

**for Admission in Academic Year 2020: Fall 2020 & Spring 2021**

110.05.05 一○九學年度第五次教務會議通過

Passed by the 5th Academic Affairs Meeting, Academic Year 2020, on May 05, 2021

**課程規劃Study Plan**

必修課程：共11學分 Required : Total 11 credits

|  |  |  |  |
| --- | --- | --- | --- |
| **課號**course code | **課程名稱**course name | **開課學系**Department | **學分數**credits |
| IE120 | RFID概論  Introduction to RFID | 工管IEM | 3 |
| IE312  IM424  CM302  CM240 | 物流管理  Logistics Management  供應鏈管理導論  Introduction to Supply Chain Management  供應鏈管理  Supply Chain Management  全球電商與物流  E-Commerce and Logistics | 工管IEM  資管IM  管院CM  管院CM | 3 |
| IE352  CM350 | 國際物流管理  Internationl Logistics Management  全球運籌管理  Global Logistics Management | 工管IEM  管院CM | 3 |
|  | 全球運籌實務專題\* | 各系 | 2 |

\* 可以各系至少兩學分之「畢業專題」相關課程抵免，但專題內容須與全球運籌管理、供應鏈管理、物流等議題相關。

\* can be substituted by the Graduation Project of your own department, but it must be related to Global Logistics Management, Supply Chain Management, Logistics Management, etc.

**選修課程：至少選兩門課程，共6學分**

**Elective : At least 2 courses, 6 credits**

|  |  |  |  |
| --- | --- | --- | --- |
| **課號**course code | **課程名稱**course name | **開課學系**Department | **學分數**credits |
| IE322 | 物料管理Material Management | 工管IEM | 3 |
| IE342 | 採購管理Procurement Management | 工管IEM | 3 |
| IM 425  CM402 | 顧客關係管理  Customer Relationship Management  顧客關係管理  Customer Relationship Management | 資管IM  管院CM | 3 |
| IE435  IM320  CM408 | 行銷學Marketing  網路行銷Internet Marketing  網路行銷Internet Marketing | 工管IEM  資管IM  管院CM | 3 |
| IM322  CM208 | 企業資源規劃導論  Introduction to Enterprise Resources Planning  企業資源規劃  Enterprise Resource Planning | 資管IM  管院CM | 3 |
| IE353  CM207  IM426 | RFID資訊系統  RFID Information System  管理資訊系統  Management Information Systems  管理資訊系統（二）  Management Information Systems(II) | 工管IEM  管院CM  資管IM | 3 |
| IE235  IM409 | 資訊安全與規範  Information Security and Policy  資訊與法律  Information and Law | 工管IEM  資管IM | 3 |
| IE226  IM303 | 系統分析與設計  System Analysis and Design  系統分析與設計  System Analysis and Design | 工管IEM  資管IM | 3 |
| IE337  IM410  CM209 | 應用電子商務Practical Electronic Commerce  電子商務Electronic Commerce  電子商務Electronic Commerce | 工管IEM  資管IM  管院CM | 3 |

**學程證書授與標準：**

凡修畢十一學分的必修課程、及至少兩門的選修課程，共十七學分，經學程負責單位審查無誤後，由工學院授與「電子化供應鏈」學程證明書。

Program Certificate standard of issue: must complete 11 credits of required courses and at least 2 elective courses (total of 17 credits); once approved by the authorized department, College of Engineering will issue “E-Supply Chain Management Program”Program Certificate.

**工業4.0－智慧生產學程**

**Industry 4.0－Intelligent Production**

**110學年度入學新生適用**

111. 01.05 一一○學年度第三次教務會議通過

Amended by the 3rd Academic Affairs Meeting, Academic Year 2021, on January 05, 2022

**必修課程：共3學分Required：Total 3 credits**

|  |  |  |  |
| --- | --- | --- | --- |
| **課號**  course code | **課程名稱**  course name | **開課學系**  Department | **學分數**credits |
| EG201 | 智慧生產概論  Introduction to Intelligent Production | 工程學院  College of Engineering | 3 |

**選修課程：至少選四門課 Elective: At least 4 courses**

|  |  |  |  |
| --- | --- | --- | --- |
| **課號**  course code | **課程名稱**course name | **開課學系**Department | **學分數**  credits |
| IE120 | RFID概論Introduction to RFID | 工管IEM | 3 |
| IE122 | 基礎物聯網應用與實作  Fundamental Applications and Practices of Internet of Things | 工管IEM | 3 |
| IE247 | 系統模擬與應用  System Simulation and Applications | 工管IEM | 3 |
| IE237  IE304 | 統計建模與電腦化實作  Statistical Modeling and Computerized Implementations  應用統計分析Applied Statistical Analysis （擇一） | 工管IEM | 3 |
| IE392 | 近代網路應用  Networks and Contemporary Applications | 工管IEM | 3 |
| IE428 | 資料分析Data Analysis | 工管IEM | 3 |
| IE302  ME335 | 工業自動化概論  Introduction to Industrial Automation  自動控制Automatic Control　 （擇一） | 工管IEM  機械ME | 3 |
| IE346  CH340 | 電路板基礎工程  General Printed Circuit Board Technology  印刷電路板製程  Printed Circuit Board Processing　 （擇一） | 工管IEM  化材CH | 3 |
| IE347  CH334 | 半導體製造工程  Introduction to Semiconductor Manufacturing Technology  半導體製程Semiconductor Processing （擇一） | 工管IEM  化材CH | 3 |
| ME384 | 人工智慧概論Introduction to Artificial Intelligence | 機械ME | 3 |
| ME385 | 感測器原理與應用Sensor Principles and Applications | 機械ME | 3 |
| ME411 | 機電整合Mechatronics Integration | 機械ME | 3 |
| ME415 | 可程式控制Sequential Programmable Control | 機械ME | 3 |
| ME441 | 自動化機械設計Machinery Design Practice(I) | 機械ME | 3 |

**學程證書授與標準：**凡修畢本學程必修課程一門、及至少四門的選修課程，共十五學分，經學程負責單位審查無誤後，由工學院授與「工業 4.0－智慧生產」學程證明書。Program Certificate standard of issue: must complete program required courses and at least 4 elective courses (total of 15 credits); once approved by the authorized department, College of Engineering will issue”Industry 4.0－Intelligent Production” Program Certificate.