**Foreign Students Course Requirements and Qualifying Examination for the Doctor of Philosophy Degree**

**Industrial Engineering and Management Department, Yuan Ze University**

(Applicable for the students enrolled in the year 2017 fall)

106.04.26 一○五學年第五次教務會議通過

Passed by the 5th Academic Affairs Meeting, Academic Year 2017 on April 26, 2017

**◎Compulsory Course (3 Credits)**

「IE608 Technological English」3 Credits – The students whose English examination result reach the following criteria may apply for remittal.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| GEPT | IELTS | TOFEL | TOEIC | Equivalent Course Grade |
| 80 | 6.5 | 118 | 770 | 86 |

**◎Elective courses (24 Credit Hours) – equivalent to 8 courses**

1. 3 compulsory credits + 24 elective credits, 27 credits in total + Dissertation 6 credits, PhD students add/drop courses must acquire advisor’s consent.

2. Student can select up to 3 graduate courses from other departments at YZU to count towards his/her graduation (3 of the 8) course requirement w/ IEM approval.

3. 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.

4. The completion of course work must be satisfied before a student attempts the advanced examination.

**◎Mandatory Elective – Chinese (1 academic year)**

* **Fundamental Qualifying Examination**

1. Non-Industrial Engineering related graduates are required to complete four among the following five courses: Production Planning and Control (I), Quality Control, Engineering Statistics (II), Operation Research (I), and Facility Planning
2. Courses may be waived subject to the instructor’s consent through an interview/oral examination and the department head’s approval. The examination can not be substituted by any other course.
3. When above mentioned 5 undergraduate courses are not available in English, upon IEM Chairperson’s approval, student can take related courses in graduate level instead. Note, these courses cannot be counted toward the graduation requirement.

* **Advanced Examination**

In accordance with the specialty and requests of dissertation committee members, the examination may be conducted in the form of writing or report. Oral examination may also be adopted if necessary.

**◎Project Report**

Students are required to carry out a project report in English within the seminar course or an international conference at least once during the studying period.

**◎Qualifying Examination Timetable**

Students are required to complete the fundamental qualifying examination within two years of enrollment. The advanced examination has to be completed within two years after passing the fundamental qualifying examination.

Note: 1. Upon completion of the course works, Fundamental Qualifying Examination and Advanced Examination, the student becomes a PhD candidate.

2. After completing the Fundamental Examination, students are required to select an advisor and submit the advisor agreement form to the department.

**◎Dissertation Proposal Defense**

Upon passing the qualifying examination and course requirements, students should submit the application for the formation of a PhD Committee. The committee must be comprised of a minimum of five members which include the Ph.D. dissertation advisor.

The committee must also include at least one-half of members with assistant professor level or above from the department of IEM and the student's advanced examination committee to provide continuity. In addition, the committee must contain at least one-third of members with associate professor level or above.

Changes in the membership of the dissertation committee may be initiated by the student with concurrence of the dissertation advisor and the committee member by filing an application form to the department.

The committee members are responsible for conducting oral examination with respect to the proposal. A written examination of a specialized subject related to the proposed research may be required by the committee if necessary. PhD candidates must file the dissertation proposal oral examination application form and signed by the committee members prior to the proposal defense.

Note: The advanced examination and the proposal defense must be segregated for at least three months.

**◎PhD Qualification**

In addition to the completion of dissertation, all PhD candidates must pass the examinations regulated by the Ministry of Education and meet the following requirements prior to obtaining PhD degree:

1. Two or more articles published in renowned journals, at least one of them need to be in SSCI/SCI class journals or two of them are in EI class journals. The published articles must originate from the dissertation and must be at least accepted with proven acceptance letters.
2. One or more papers published in domestic or international conference proceedings.
3. PhD candidates must fulfill the Dissertation Oral Defense Examination form prior to applying for dissertation oral defense.

Note: The students need to be first author in the published articles, exceptional cases include:

* 1. Articles with author(s) who does(do) not serve as the student’s advisor can be counted as one-half publication only;
  2. Articles with authors of other students can be counted as one-half publication only; and
  3. Articles with both cases of (i) and (ii) can be counted as one-fourth publication only.

The dissertation oral defense and the proposal defense must be separated for at least three months.

**This regulation has been implemented with the approval of departmental meeting. Any amendment will also be implemented with the same process.**

**元智大學　工業工程與管理研究所博士班**

**Industrial Engineering and Management Department, Yuan Ze University**

**for the Doctor of Philosophy Degree**

**選修科目表**

**List of Elective Courses**

**（106學年度入學新生適用Academic Year 2017. Sept.~）**

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| --- | --- | --- | --- | --- |
| 類別 | 課號 | 中文課名 | 英文課名 | 學分數 |
| 企業電子化與全球運籌管理（一） | IE517 | 存貨系統與管制 | Inventory Systems and Control | 3 |
| IE537 | 高等設施規劃 | Advanced Facilities Planning | 3 |
| IE576 | 全球運籌管理 | Global Logistics Management | 3 |
| IE579 | 運輸管理 | Transportation Management | 3 |
| IE591 | 物流系統 | Analysis of Material Flows and Distribution System | 3 |
| IE602 | 產業電子化營運模式 | The Operational Models of E-Enterprise | 3 |
| IE604 | 企業資源規劃 | Enterprise Resources Planning | 3 |
| IE609 | 電子化企業之管理 | The Management of Enterprise Digitization | 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 |
| IE616 | 進階企業資源規劃 | Advanced Enterprise Resources Planning | 3 |
| IE618 | TFT-LCD產業分析與個案探討 | TFT-LCD Industry Analysis and Case Study | 3 |
| 智慧型系統與數位內容管理類（二） | IE502 | 自動視覺檢驗技術 | Automatic Visual Inspection | 3 |
| 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 |
| 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 |
| IE564 | 軟性計算之不確定分析 | Uncertainties in Soft Computing | 3 |
| IE574 | 資料視覺 | Data Visualization | 3 |
| IE585 | 類神經網路 | Neural Networks | 3 |
| IE590 | 機器視覺應用 | Machine Vision | 3 |
| IE599 | 資料探勘 | Data Mining | 3 |
| IE607 | 啟發式最佳化 | Heuristic Optimization | 3 |
| IE612 | 傅立葉與小波分析 | Fourier and Wavelet Analysis with Application | 3 |
| IE614 | 資料模式辨識與分類 | Data Pattern Recognition and Classification | 3 |
| IE617 | 產品生命週期管理 | Product Lifecycle Management | 3 |
| IE619 | 虛擬實境系統設計與建構 | Design and Construction of Virtual Reality Systems | 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** |

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|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 類別 | 課號 | 中文課名 | 英文課名 | 學分數 |
| 決策最佳化與系統管理類（三） | IE503 | 模擬學 | Simulation | 3 |
| IE505 | 隨機過程（一） | Stochastic Processes (I) | 3 |
| IE507 | 數學規劃（一） | Mathematical Programming (I) | 3 |
| IE518 | 時間序列分析 | Time Series Analysis and Forecasting | 3 |
| IE519 | 動態規劃 | Dynamic Programming | 3 |
| IE528 | 數學規劃（二） | Mathematical Programming (II) | 3 |
| IE533 | 機率分析 | Probabilistic Analysis | 3 |
| IE538 | 實驗設計 | Experimental Design and Applications | 3 |
| IE541 | 決策分析 | Decision Analysis | 3 |
| IE548 | 等候理論 | Queuing Theory | 3 |
| IE561 | 數據分析 | Statistical Methods and Data Analysis | 3 |
| IE577 | 數理統計（一） | Mathematical Statistics (I) | 3 |
| IE582 | 網路分析 | Network Analysis | 3 |
| IE605 | 多變量分析 | Multivariate Analysis | 3 |
| IE611 | 模糊系統之設計與最佳化 | Data-driven Fuzzy Systems Design and Optimization | 3 |
| IE615 | 模糊工程與資訊 | Fuzzy Engineering and Information | 3 |
| IE904 | 科學研究方法論 | Scientific Research Philosophy & Methodology | 3 |
| IE620 | 反應曲面法與製程最佳化 | Response Surface Methodology and Process Optimization System | 3 |
| EG501 | 統計實驗設計與應用 | Statistical Experimental Design and Application | 3 |
| 生產系統與服務業管理類（四） | IE520 | 田口式品質工程 | Taguchi Quality Engineering | 3 |
| IE531 | 高等品質管制 | Advanced Quality Control | 3 |
| IE534 | 生產排程 | Production Scheduling | 3 |
| IE540 | 電腦整合製造 | Computer Integrated Manufacturing | 3 |
| IE543 | 生產計劃 | Production Planning | 3 |
| IE549 | 行為決策分析 | Behavioral Analysis of Decision Making | 3 |
| IE555 | 群體決策分析 | Group Decision Making | 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 |
| IE581 | 服務系統設計 | Service System Design | 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 |
| IE603 | 進階生產排程 | Advanced Production Scheduling | 3 |
| IE606 | 進階企業診斷 | Advanced Enterprise Diagnostics | 3 |
| IE621 | 知識服務業管理 | Knowledge Service Industry Management | 3 |
| IE524 | 工程管理系統 | Engineering Management Systems | 3 |
| IE622 | 卓越經營管理 | Managing for Business Excellence | 3 |
| IE623 | 人因設計 | Ergonomic Design | 3 |
| IE624 | 優使性工程 | Usability Engineering | 3 |