**Course Flow Chart for 2019 Fall and 2020 Spring Semester
Academic Year:** 108 (Aug 2019~ Jul 2020)

**Department:** Department of Industrial Engineering and Management

**Academic Degree:** Doctor of Philosophy (Ph. D)

**(108.10.02 108學年度第一次系課程會議通過 Approved by the First Department Curriculum Committee on Oct 2nd,2019)**學分組合:講授時數-實習時數-學分數Credit Format: Lecture Hours - Labs Hours - Total Credits

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| **第一學年First academic year** | **第二學年Second academic year** |
| **Fall Semester** | **Spring Semester** | **Fall Semester** | **Spring Semester** |
| **專業必修Department Required Courses ( 8 credits)** |
| 書報討論(一)Seminar ( I )0-2-1 | 書報討論(二)Seminar ( II )0-2-1 | 博士論文Doctoral Dissertation3-0-3 | 博士論文Doctoral Dissertation3-0-3 |
| 0-2-1 | 0-2-1 | 3-0-3 | 3-0-3 |
| **專業選修Elective Courses: (at least 25 credits)** |
| **First Year** | **Second Year** |
| **1st semester** | **2nd semester** | **1st semester** | **2nd semester** |
| Special Topics on Industrial Engineering and Management ( I )3-0-3 | Special Topics on Industrial Engineering and Management ( II )3-0-3 | Special Topics on Industrial Engineering and Management ( III )3-0-3 | Special Topics on Industrial Engineering and Management ( IV )3-0-3 |
| Introduction to Industrial Engineering and Management3-0-3 | English Communication and Technical Writing3-0-3 | Seminar ( III )0-2-1 | Seminar ( IV )0-2-1 |
| Research Method3-0-3 | Decision Theory3-0-3 | Dynamic Programming3-0-3 | Quality Engineering3-0-3 |
| Operations Research3-0-3 | Artificial Intelligence3-0-3 | Network Flows3-0-3 | Total Quality Management3-0-3 |
| Linear Programming3-0-3 | Optimization and Heuristics3-0-3 | Prediction and Regression Model3-0-3 | Lean Production Management3-0-3 |
| Stochastic Processes3-0-3 | Nonlinear Programming3-0-3 | Computer Integrated Manufacturing3-0-3 | Advanced Enterprise Resource Planning3-0-3 |
| Fuzzy Theory and Application3-0-3 | Reliability Engineering3-0-3 | Inventory Theory3-0-3 | E-business Special Topics3-0-3 |
| System Simulation3-0-3 | Multivariate Data Analysis3-0-3 | Computer Aided Detection and Diagnosis3-0-3 | System Analysis of Overall Logistics Support3-0-3 |
| Stochastic models in Production systems3-0-3 | Experimental Design & Analysis3-0-3 | Performance Evaluation of Information Technology3-0-3 |  |
| Mathematical Statistics3-0-3 | User Interface3-0-3 |  |  |
| Advanced Quality Control3-0-3 | Cognitive Psychology3-0-3 |  |  |
| Human Factor Engineering3-0-3 | Advanced Facility Planning3-0-3 |  |  |
| Industrial Environment and Safety3-0-3 | System Modeling3-0-3 |  |  |
| Computer-Aided Management and Control of Manufacturing Systems3-0-3 | Production Scheduling3-0-3 |  |  |
| Advanced Production Management3-0-3 | Object Oriented Systems Analysis and Design3-0-3 |  |  |
| Logistics management3-0-3 | Object-Oriented Simulation3-0-3 |  |  |
| Hospital Management Engineering3-0-3 | Global Supply Chain Management3-0-3 |  |  |
| Big Data Analysis and Machine Learning3-0-3 | Global Logistics Information System3-0-3 |  |  |
|  | Global Transportation Planning3-0-3 |  |  |
|  | Knowledge Management 3-0-3 |  |  |
|  | Introduction of Medical System3-0-3 |  |  |
|  | Supply Chain Model and Analysis3-0-3 |  |  |
| **外籍生專業必修-全英授課For international student required course-Courses taught in English (**12 Credits) |
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| --- | --- | --- | --- |
| Advanced Operations Research3-0-3 | Intelligent Manufacturing Systems3-0-3 | Statistical Quality Control3-0-3 | Advanced Ergonomics3-0-3 |
| Applications of Big Data Analytics in Industries3-0-3 | Supply Chain Model3-0-3 |  |  |

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| **外籍生專業選修-全英授課For international student elective course-Courses taught in English** (7 Credits) |
| Independent Study(Ⅰ)1-0-1 | Independent Study(Ⅱ)1-0-1 | Independent Study(Ⅲ)1-0-1 | Independent Study(Ⅳ)1-0-1 |
|  |  | Special Topics3-0-3 |  |

**Total: The minimum credits: 33 credits ( Including thesis 6 credits )**

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| 本系博士班最低畢業學分數為33學分(含論文6學分) |