**Course Flow Chart for 2020 Fall and 2021 Spring Semester  
Academic Year:** 108 (Aug 2020~ Jul 2021)

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

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

**(109.10.07 109學年度第一次系課程會議通過 Approved by the First Department Curriculum Committee on Oct 2nd,2020)**學分組合:講授時數-實習時數-學分數Credit Format: Lecture Hours - Labs Hours - Total Credits

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **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 Dissertation  3-0-3 | | 博士論文 Doctoral Dissertation  3-0-3 | |
| 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 Management  3-0-3 | | English Communication and Technical Writing  3-0-3 | | Seminar ( III )  0-2-1 | | Seminar ( IV )  0-2-1 | |
| Research Method  3-0-3 | | Decision Theory  3-0-3 | | Dynamic Programming  3-0-3 | | Quality Engineering  3-0-3 | |
| Operations Research  3-0-3 | | Artificial Intelligence  3-0-3 | | Network Flows  3-0-3 | | Total Quality Management  3-0-3 | |
| Linear Programming  3-0-3 | | Optimization and Heuristics  3-0-3 | | Prediction and Regression Model  3-0-3 | | Lean Production Management  3-0-3 | |
| Stochastic Processes  3-0-3 | | Nonlinear Programming  3-0-3 | | Computer Integrated Manufacturing  3-0-3 | | Advanced Enterprise Resource Planning  3-0-3 | |
| Fuzzy Theory and Application  3-0-3 | | Reliability Engineering  3-0-3 | | Inventory Theory  3-0-3 | | E-business Special Topics  3-0-3 | |
| System Simulation  3-0-3 | | Multivariate Data Analysis  3-0-3 | | Computer Aided Detection and Diagnosis  3-0-3 | | System Analysis of Overall Logistics Support  3-0-3 | |
| Stochastic models in Production systems  3-0-3 | | Experimental Design & Analysis  3-0-3 | | Performance Evaluation of Information Technology  3-0-3 | |  | |
| Mathematical Statistics  3-0-3 | | User Interface  3-0-3 | |  | |  | |
| Advanced Quality Control  3-0-3 | | Cognitive Psychology  3-0-3 | |  | |  | |
| Human Factor Engineering  3-0-3 | | Advanced Facility Planning  3-0-3 | |  | |  | |
| Industrial Environment and Safety  3-0-3 | | System Modeling  3-0-3 | |  | |  | |
| Computer-Aided Management and Control of Manufacturing Systems  3-0-3 | | Production Scheduling  3-0-3 | |  | |  | |
| Advanced Production Management  3-0-3 | | Object Oriented Systems Analysis and Design  3-0-3 | |  | |  | |
| Logistics management  3-0-3 | | Object-Oriented Simulation  3-0-3 | |  | |  | |
| Hospital Management Engineering  3-0-3 | | Global Supply Chain Management  3-0-3 | |  | |  | |
| Big Data Analysis and Machine Learning  3-0-3 | | Global Logistics Information System  3-0-3 | |  | |  | |
|  | | Global Transportation Planning  3-0-3 | |  | |  | |
|  | | Knowledge Management 3-0-3 | |  | |  | |
|  | | Introduction of Medical System  3-0-3 | |  | |  | |
|  | | Supply Chain Model and Analysis  3-0-3 | |  | |  | |
| **外籍生專業必修-全英授課For international student required course-Courses taught in English (**12 Credits) | | | | | | | |
| |  |  |  |  | | --- | --- | --- | --- | | Advanced Operations Research  3-0-3 | Intelligent Manufacturing Systems  3-0-3 | Statistical Quality Control  3-0-3 | Advanced Ergonomics  3-0-3 | | Applications of Big Data Analytics in Industries  3-0-3 | Supply Chain Model  3-0-3 |  |  | | | | | | | | |
| **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 Topics  3-0-3 |  | |

**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) |