

IEDA2010 Introduction of Industrial Engineering and Decision Analytics

Spring 2023-24
Fri. 3:00 – 5:50pm
LTJ

Instructor

Xuan QIU
Contact information: Room 5549; xuanqiu@ust.hk
Office hours: by appointment

Teaching Assistants

Mr. WANG Xiaojie
Email: xwangdx@connect.ust.hk

Mr. WANG Tianshi
Email: twangcf@connect.ust.hk

Ms. LI Xueqi
Email: xliia@connect.ust.hk

Course Description

In today's competitive world, how well a company manages its resources to provide goods or service plays a critical role in the company's success. To manage the critical performance dimensions of companies—cost, quality, speed, and flexibility, and to identify key trade-offs, it is essential for industrial engineers and managers to understand the physical and information processes that are essential in producing and delivering goods and services to customers. This course is designed to develop both tactical skills and high-level insights needed by every industrial engineer and general manager. It consists of two parts. The first part introduces basic industrial engineering analytical tools, such as optimization and probability. The second part introduces the practical concepts of industrial engineering, such as project management, inventory management, and forecasting.

Course Outcomes

- Obtain a basic ability to apply mathematics and engineering knowledge to formulate and optimize an operation of a business.
- Obtain a basic knowledge of industrial engineering, production, logistics and supply chain management and the related contemporary issues.
- Understand the impact of engineering solutions in a global and societal context and on a broad range of issues, including environmental and social responsibilities.

Reference books

- Introduction to Operations Research, Hillier and Lieberman, McGraw Hill
- Matching Supply with Demand, Cachon and Terwiesch, McGraw Hill
- Operations Management, William J. Stevenson and Sum Chee Chuong, McGraw Hill Education (Asia).

Tutorials

T1: Mon. 12:30 – 13:20 (Room 2304)

T2: Thur. 17:00 – 17:50 (LTD)

Assessment and Grades

Homework	10%
Project	15%
Midterm Exam	30%
Final Exam	45%

- No late homework is accepted. Please submit through canvas.
- The best 3 grades out of 4 assignments will be used for the final homework grade.
- Both midterm and final exams are closed book, closed notes.

Academic Honesty

As a member of the HKUST community, you are expected to meet the highest standards of academic behavior. Please review the university academic integrity site at <https://registry.hkust.edu.hk/resource-library/academic-standards>. If any violation of academic standards is found, related university policies will be strictly enforced.

Course Outline and Tentative Schedule

The schedule is subject to change at the instructor's discretion. Students are advised to check the course website regularly for updated information.

	Topic
1	Introduction
2	Optimization
3	Probability Basics
4	Project Management
5	Location Analysis
6	Inventory Management
7	Supply Chain Management
8	Forecasting
9	Revenue Management