

IEDA 4100: Integrated Production Systems

2023 Spring

Course Information

Instructor: Prof. Allen WU, allenwu@ust.hk

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Course Format

Classroom lecturing.

Course Description

This course covers fundamental concepts and principles of integrated production systems. Topics range from demand forecasting, aggregate planning, inventory control, production control, operation scheduling to project scheduling. Upon completion of the course, students are trained to use quantitative methods to address various problems that arise in production and manufacturing systems.

Learning Outcomes

1. Understand the basic concepts and principles in production systems and operations management.
2. Develop quantitative models to generate demand forecast for production firms.
3. Formulate and analyze inventory problems for manufacturing firms.
4. Use aggregate planning techniques to provide guidelines for production firms.
5. Recognize the driving force of MRP and JIT manufacturing systems; understand the pros and cons of each system.

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6. Employ quantitative methods to schedule the flow process of job shops; apply appropriate metrics to evaluate performance.

Course Outline by Major Topics

1. Forecasting (1.5 weeks)
2. Aggregating Planning (2 weeks)
3. Inventory Control (3.5 weeks)
4. Push and Pull Production Systems: MRP and JIT (1.5 weeks)
5. Operations Scheduling (2 weeks)
6. Project Scheduling (1.5 weeks)

Textbook

Steven Nahmias, *Production and Operations Analysis*, Mcgraw Hill International Edition, Seventh Edition, 2015.

Grading

- 10%: Homework.

Homework due before class. No late homework is accepted.

- 40%: Mid-term.
- 50%: Final.