

Syllabus of Record



Program: CET Shanghai

Course Code / Title: (SH/ITEC 355) Operations Management

Total Hours: 45

Recommended Credits: 3

Primary Discipline / Suggested Cross Listings: Information Systems and Technology / Business Administration and Management

Language of Instruction: English

Prerequisites/Requirements: Managerial Accounting, Economics for Business or Microeconomics, Introductory Information Technology, Introduction to Business Statistics, Business Analytics

Description

Operations management (OM) refers to the management of all activities and processes that transform inputs such as materials, people, capital, and other resources, into outputs in the form of goods and services. This course introduces the basic elements of OM with applications in supply chains and services. It covers capacity management and planning, process analysis and improvement, managing delays, inventory management, and quality management. Considerable emphasis is placed on use of operational data, quantitative models, and analytical tools to improve decision making in supply chain management and service operations. Topics also include using queuing models to determine the wait times and delays for services; using inventory control policies including EOQ, (r,Q) , and newsvendor models to determine optimal inventory levels or resources needed to match capacity with demand in supply chains; developing linear programming models to determine optimal capacity allocations, including transshipment quantities in supply chains, and using Excel Solver in OM practices.

Objectives

After completing this course, a student should be able to:

- Describe, analyze, and synthesize processes that transform inputs into outputs in the operational and supply chain processes.
- Define and explain operations and supply chain management, and operations as a business function with a focus on supply chains and services.
- Measure operational performance using metrics such as productivity, utilization, and efficiency.
- Explain how companies in different industries achieve operational excellence and provide examples of best practices.
- Develop models and use quantitative tools to make decisions or support decision making in an operations context.
- Analyze data using methods and tools such as X-bar charts to improve operations and decision making in an organization.
- Practice and refine quantitative skills, such as translating real-world questions or intellectual inquiries into quantitative frameworks, applying appropriate quantitative methods or reasoning, and explaining quantitative reasoning and insights using appropriate forms of representation so that findings can be replicated.

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Course Requirements

The learning outcomes of this course are not possible without participating in active discussion and learning experiences in the classroom. Students are expected to attend each class as outlined in the CET Attendance Policy. This is a quantitative class that uses statistical analysis tools and other functions in Microsoft Excel. Excel Solver, which is a standard add-in to Excel, is used for linear programming and optimization. Students are informed in advance when it is necessary to bring computers to class for exercises and should not use computers in the classroom for any other reason. Additional details are provided in class for graded assignments, which are:

- Team challenges — These assignments vary from case analysis to quantitative problem solving. They involve group work and use of software.
- Midterm tests — There are two in-class tests.
- Class participation — Participation is evaluated based on your contribution to class discussions.
- Essay — One short essay is required.
- In-class exercises — Several assignments are completed in-class as pop quizzes or problem sets and exercises as homework.
- Course project — This team project consists of a proposal, presentation, and written report. Acting as “operations consultants,” the team chooses a particular operation within a specific organization. It determines appropriate measures of operational performance, analyzes the operations process, and identifies potential areas for improvement. The team provides recommendations to improve the operations and quantifies expected improvements. Students receive detailed information about the project in class.
- Final — The final exam is cumulative.

Grading

The final grade is based on the following weighting:

11%	2 team challenges at 5.5% each
4%	Class participation
2%	1 essay
3%	In-class exercises and assignments with weights from 0.5% to 1% each
30%	2 Midterm tests at 15% each
20%	Course project at 2% proposal + 4% presentation + 14% report
30%	Final exam

Readings

Aydin, Itir Karaesmen. *Production Operations Management*. McGraw-Hill Create, 2014.

Bordoloi, Sanjeev K., James A. Fitzsimmons, and Mona J. Fitzsimmons. *Service Management: Operations, Strategy, Information Technology*. 9th ed. New York, NY: McGraw Hill Higher Education, 2019.

Cachon, Gerard, and Christian Terwiesch. *Matching Supply with Demand: An Introduction to Operations Management*. 4th ed. New York, NY: McGraw Hill Higher Education, 2018.

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Jacobs, F. Robert, and Richard Chase. *Operations and Supply Chain Management: The Core*. 5th ed. New York, NY: McGraw-Hill Education, 2019.

_____. *Operations and Supply Management*. 15th ed. New York, NY: McGraw Hill Higher Education, 2017.

Outline of Course Content

Module 1: Introduction

- Introduction to the course and operations management
- Operations strategy
- Measuring operational performance

Module 2: Capacity Planning and Management

- Capacity management
- Capacity planning
- Linear Programming

Module 3: Process Analysis and Little's Law

Module 4: Managing and Estimating Delays

- Waiting line models

Module 5: Supply Chain Management

- Inventory management and newsvendor models
- EOQ and (r, Q) inventory models
- Beer distribution game debrief

Module 6: Quality Management and Control

- Service quality
- Six sigma: Process control

Module 7: Project Management

- Project management tools