

**Graduate School of International Management
International University of Japan**

OPR6050/6060: Operations Management I & II (Winter & Spring Term)

Instructor

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Course Description

This course will introduce fundamental concepts and practices of operations management in service industries as well as manufacturing sectors. The primary objective of this course is to learn how to manage process flows between inputs and outputs. The topics include process management, operations strategy, inventory management, waiting line management, supply chain management, etc. Thus, the course is not only for operations managers but also for general managers who need to revamp business processes to establish competitive advantage.

The course consists of four main parts. In the first part (Session 1-2), we study core concepts in operations management. We define and investigate processes which transform inputs into outputs. In the second part (Session 3-6), we take a quantitative approach and analyze traditional problems in operations management (i.e., inventory management and queuing analysis). In the third part (Session 7-8), we explore how to manage process flow variability. The topics include quality management and supply chain management. In the last part (Session 9), we review the practice of operations management from the point of process views. As a course methodology, I will give lectures and conduct interactive case discussions.

It is recommended that students take Applied Statistics course (QIS1020) before enrolling in this course, though Applied Statistics is not a prerequisite for this course. Part of Session 2 will review basic statistics which is related to this course.

Course Materials**Textbooks:**

- 1) (MBPF) “Managing Business Process Flows: Principles of Operations Management (2nd Edition)”, by Ravi Anupindi, Sunil Chopra, Sudhakar D. Deshmukh, Jan. A. Van Mieghem, and Eitan Zemel (Pearson Prentice Hall, 2005).
 - 2) “The Goal: A Process of Ongoing Improvement (3rd Revised Edition)”, by Eliyahu M. Goldratt and Jeff Cox, (North River Press, 2004).
- “The Goal” is a popular novel which is often used for a MBA-level operations management course.

Cases:

- 1) Shouldice Hospital Limited (HBS Case: 9-683-068).
- 2) Marks & Spencer and Zara: Process Competition in the Textile Apparel Industry (INSEAD Case: 602-010-1).
- 3) Laurence & Ralph: The Basic Economics of Capacity and Inventory (INSEAD Case: 602-018-1).
- 4) LongXi Machinery Works – Quality Improvement (A) (Ivey Case: 9A98D001).
- 5) Bose Corporation: The JIT II Program (A) (HBS Case: 9-694-001).
- 6) Campbell Soup Company (HBS Case: 9-690-051).
- 7) Campbell Soup Company: A Leader in Continuous Replenishment Innovations (HBS Case: 9-195-124).

Reference Books:

These five books are for reference only, and not required for the course. The first two textbooks complement some topics in the operations management area. They are popularly used textbooks in many business schools. The third book is a required textbook for the Applied Statistics course. I will distribute necessary parts from the first textbook and the third book. The fourth book shows how the formulae in queueing theory are derived. The last book is a bestseller which argues strategic innovation management. This book complements the discussion in Session 4 as well as Session 9.

- 1) **(OMPVC)** “Operations Management: Process and Value Chains (8th Edition)”, by Lee J. Krajewski, Larry P. Ritzman, and Manoj K. Malhotra (Pearson Prentice Hall, 2007).
- 2) “Operations Management for Competitive Advantage (11th Edition)”, by Richard B. Chase, F. Robert Jacobs, and Nicholas J. Aquilano (McGraw-Hill, 2006).
- 3) **(SBE)** “Statistics for Business and Economics (6th Edition)”, by Paul Newbold, William L. Carlson, and Betty Thorne (Pearson Prentice Hall, 2006).
- 4) “Fundamentals of Queueing Theory (3rd Edition)”, by Donald Gross and Carl M. Harris (Wiley-Interscience, 1998).
- 5) “The Innovator’s Dilemma: The Revolutionary Book that Will Change the Way You Do Business”, by Clayton M. Christensen (HarperBusiness, 2003).

Articles (available in Business Source Premier):

Reading the following articles is optional, but they will be helpful for the case analyses.

- 1) “Disruptive Technologies: Catching the Wave”, by Joseph L. Bower and Clayton M. Christensen (Harvard Business Review, January-February 1995).
- 2) “Getting the Most out of Your Product Development Process”, by Paul S. Adler, Avi Mandelbaum, Viêt Nguyen, and Elizabeth Schwerer (Harvard Business Review, March-April 1996).

Lecture Notes:

Lecture notes will be available at [\\iuj-home\im_materials\2006-2007\E-biz\2007_Winter\Operations Management I](http://iuj-home\im_materials\2006-2007\E-biz\2007_Winter\Operations_Management_I) for Operations Management I (in Winter Term) and [\\iuj-home\im_materials\2006-2007\E-biz\2007_Spring\Operations Management II](http://iuj-home\im_materials\2006-2007\E-biz\2007_Spring\Operations_Management_II) for Operations Management II (in Spring Term). The lecture note for each class will be uploaded one or two days before the class. Since I do not distribute any material for this course, you need to print them out by yourself.

Grading Scheme

The course grade will be based on a weighted evaluation as follows:

Class Participation	15 points
Group Case Write-up	10 points
Midterm Exam (Covering Session 1 to 4)	35 points
Final Exam (Covering Session 1 to 9)	40 points
Total	100 points

Class Participation

You are expected to contribute to class discussions. The evaluation is based on the quality of your class participation rather than its quantity. I will NOT practice cold calling, but you should be well prepared for class participation. Otherwise, you will not have fun in this course.

Group Case Write-up

You are to form your own working group which consists of 4 or 5 students. Please inform me of your group composition by **Session 2**. Each group is required to submit a write-up for the case “Laurence & Ralph: The Basic Economics of Capacity and Inventory”. Specified questions are provided in the case study. The first two questions are compulsory, and the last question is optional. However, you should try to solve the optional question. The case write-up must be handed in by email **at the beginning of Session 4**. The report will be graded on a group basis. The working process for the case write-up in a group will help you prepare for the in-class midterm exam in Session 5. For this reason, the evaluation

of the group case write-up is based on how you derived the answers rather than whether your answers are correct or not.

Examinations

The midterm exam covering Session 1 to 4 is scheduled in **Session 5**. The midterm exam contains multiple-choice questions only. The duration of the mid-term exam will be 90 minutes. The final exam covering Session 1 to 9 is scheduled in **Session 10**. The duration of the final exam will be 150 minutes. **Both exams are open-book/notes, and a calculator/dictionary is permitted.** However, a notebook PC, a mobile phone, or any other electronic/communication device is not allowed. In other words, sharing/discussing answers during the exam are strictly prohibited. Sharing your belongings (*e.g.*, notes or books) during the exam is also prohibited.

Guest Speaker

The guest speaker has not been confirmed yet. The detailed information about the guest speaker will be provided later.

Class Schedule

(Operations Management I: WINTER TERM)

Part I: Basic Concepts

Session 1 (Jan 15; 14:40-17:50)

Topic: Process Management and Operations Strategy

- *Course Overview*
- *Products and Processes*
- *Foundation of Operations Strategy*

Readings: (MBPF) Chapter 1 and 2

Case: Shouldice Hospital Limited

Session 2 (Jan 29; 14:40-17:50)

Topic: Process Flow Analysis

- *Little's Law*
- *Capacity Analysis*
- *Theory of Constraints (Bottlenecks)*

Readings: (MBPF) Chapter 3 and 5

(The Goal) pp. 1-161 <until the end of Chapter 19>

Part II: Quantitative Analysis

Session 3 (Feb 12; 14:40-17:50)

Topic: Inventory Management I

- *EOQ (Economic Order Quantity)*
- *Reorder Point Policy*
- *Safety Inventory and Service Level*

Readings: (MBPF) Chapter 6 and 7

(SBE) pp. 188-210

Session 4 (Feb 26; 14:40-17:50)

Topic: Inventory Management II

- *Pooling Inventory*
- *Newsvendor Model*
- *Review of Inventory Models*

Readings: (MBPF) Chapter 6 and 7 <Same as Session 3>

(HBR Article) Disruptive Technologies: Catching the Wave

Case: Marks & Spencer and Zara

Laurence & Ralph (**Case Write-up Due**)

Session 5 (Mar 12; 14:40-17:50)

Topic: Midterm Exam and Guest Speaker's Talk

- *Midterm Exam*
- *Guest Speaker's Talk (subject to his/her schedule)*

(Operations Management II: SPRING TERM)

Session 6

Topic: Queuing Analysis

- *Waiting Line Management*
- *Single-Server Model*
- *Multiple-Server Model*

Readings: (MBPF) Chapter 8

(OMPVC) Supplement C, pp. 276-295

Part III: Qualitative Analysis

Session 7

Topic: Quality Management

- *TQM (Total Quality Management)*
- *Statistical Process Control*
- *Six-Sigma*

Readings: (MBPF) Chapter 9

Case: LongXi Machinery Works

Session 8

Topic: Supply Chain Collaboration

- *Supply Chain Coordination Programs*
- *Bullwhip Effect*
- *(Supply) Push vs. (Demand) Pull*

Readings: (MBPF) Chapter 10

Case: Bose Corporation

Part IV: Reviews

Session 9

Topic: Process View

- *Product Development*
- *Product and Process Innovation*
- *Course Review*

Readings: (HBR Article) Getting the Most out of Your Product Development Process

Case: Campbell Soup Company

Campbell Soup Company: A Leader in Continuous Replenishment Innovations

Session 10

Topic: Final Exam

- *Final Exam*