What is Process & Operations Management?

Businesses create value by supplying their products or services to satisfy customer demand. The inflexible nature of supply and demand often leads to mismatches between the available supply and the customer demand. This leads to severe economic consequences on account of unsatisfied customers or wasted resources. In Process and Operations Management (POM), we will study techniques that limit both the incidence and consequence of these supply-demand mismatches. Using examples from a wide range of industries, we will illustrate that firms that employ these techniques to better match supply with demand enjoy a significant competitive advantage.

Course Outline

The course content is divided into two parts. In the first part, Business Process Analysis and Improvement, we study tools and cases that allow us to analyze, improve and design internal firm activities. In the second part, Supply Chain Management, we turn our attention to external environment of the firm and examine the activities of sourcing raw materials and delivering goods to consumers. The components are detailed below:

**Part I: Business Process Analysis and Improvement.** We begin our study of business processes by first understanding the relationship between an organization’s strategic positioning and its internal business processes. Next, using the “Xenon” exercise, we learn to analyze the performance of a fundamental component of all processes— a resource that must repeatedly perform a set of activities. We then read the best-selling account of the operational turnaround of an organization in “The Goal”. The book is set in an organization on the verge of failure. The protagonist learns and applies principles of process analysis to save the day. In the next session, “Circored”, we examine the operational economics of an innovative processing facility. We apply our understanding of process analysis to value the facility and examine potential recommendations for the future of the plant. Next, we examine how increasing customer desire for customization affects the design of business processes. We use the context of the personal computer industry and examine “Compaq”. Finally, the quality of the final products of a
process is a key strategic weapon. We close our discussion of internal firm processes by learning process management techniques that systematically improve quality.

**Part II: Supply Chain Management:** In this section, we turn our attention to the interfaces between an organization and its external environment, more specifically, to the management of relationships with partners and customers. We begin with the *newsvendor model*, a key tool which helps capture the trade-offs in matching supply with demand. Then, we apply this tool to the retail industry and examine the rise of “Zara Fashion”, and use our insights from the newsvendor model to understand how Zara successfully broke the domination of well-established incumbents in the fashion industry. Next, we study the case of “Timbuk2” bags, an organization which is in the process of rethinking its production strategy. Finally, we turn our attention to managing relationships between firms and their suppliers. We study supplier management policies at “Bose Co.” and identify strategies to maximize benefits from these relationships.

**Course Materials**

**Required Materials**
The course pack contains all cases, technical notes, review sheets and two sample exams. An outline of sessions, preparation questions and a schedule of homework assignments are provided in the following sections of this outline.

For session 3, you are required to read part of the book, “The Goal” by E.M. Goldratt & J .Cox. The book is available at the INSEAD bookstore. It contains a parallel pedagogy for many issues from the first half of the course and is a highly recommended addition to any manager’s bookshelf.

**Optional Textbook**
The following textbook provides additional material and details on materials covered in the class. The book is highly recommended for the advanced student and for further study of the materials introduced in this class. Multiple copies of the book are available on course reserve in the library.


**Assignments, Exam and Course Grade**
The grade for the course has three components:

- Individual Class Preparation & Participation (25%)
- Homework Assignments (15%)
- Individual Final Exam (60%)
Individual Class Preparation & Participation (25%)  
Each session has an assigned reading and some preparation questions (listed at the end of this course outline). You are required to read the assigned reading and attempt to answer these preparation questions. Our class discussions will often start with these preparation questions. Based on contributions during the class discussion, participants will be graded on their familiarity with the assigned reading material and their efforts to work on the preparation questions. Constructive contributions that enhance the quality of the class discussion will be rewarded.

Homework Assignments (15%)  
There are three homework assignments for this course. Details of the assignments are provided at the end of this outline. You are free to work on these assignments as a group and only one submission per group is required.

Schedule of Submissions  
**HW # 1:** Due at the start of Session #3, 30th October (Friday)  
**HW # 2:** Due at the start of Session #4, 3rd November (Tuesday)  
**HW # 3:** Due at the start of Session #8, 24th November (Tuesday)

Review Sheets  
Two review sheets are included in the course pack. These review sheets contain problems that will help you familiarize yourself with the quantitative tools that we learn in the class. The questions included in these sheets are along the lines of the questions that will comprise the final exam. Working on these sheets will enhance your ability to apply the course material. While you are not required to submit written solutions, you are strongly encouraged to solve these questions. Detailed solutions to the review sheets are provided as part of the “Solutions” section of this course-pack.

Schedule of Tutorials  
**Tutorial # 1:** 17th November, (Tuesday); Review Sheet 1 on process analysis and improvement will be discussed. Concerns, questions on process analysis will also be addressed.  
**Tutorial # 2:** 30th November, (Monday); 
Review Sheet 2 on supply chain management will be discussed. Concerns, questions on the materials covered in class will also be addressed.

Final Exam (60%)  
The final exam (60%) is an open book, individual exam. Computers will not be allowed on the final exam. Calculators are permitted. Three past final exams are included in the course pack. Detailed solutions to the review sheets are provided as part of the “Solutions” section of this course-pack.

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1 The date is subject to change, please confirm with the MBA office.
Outline of Class Sessions

Session 1  Introduction: Operations Strategy  
26th Oct (Mo)  
Video case  Shouldice Hospital video (in class)  
Case  Shouldice Hospital Limited (Abridged) H.B.S. 9-805-002

Part I: Business Process Analysis & Improvement

Session 2  Managing Customer Experiences  
28th Oct (We)  
Exercise  Xenon’s Service Strategy

Session 3  Diagnosing Business Processes*  
30th Oct (Fr)  
Book  The Goal (book by E.M. Goldratt and J. Cox – reading up through page 161)

Session 4  Business Valuation: Operational Improvements*  
3rd Nov (Tu)  

Session 5  Mass Customization: Consequences for Process Design  
E1 & E2: 5th Nov (Th)  
E3 & E4: 6th Nov (Fr)  
Case  Process Control at Compaq® Computer Corp. (A): Understanding the Build-to-Order Decision, INSEAD 01/2006 -5317

Session 6  Quality Management with the Xpult  
9th Nov (Mo)  
Exercise  XPULT Exercise

Part II: Supply Chain Management

Session 7  Planning for Uncertainty: The Newsvendor Model-1  
19th Nov (Th)  
Exercise  Ludo Press (A) INSEAD case.
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<td>Exercise</td>
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<td>Supply Chain Innovation: Zara</td>
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<td>Case</td>
<td><em>Marks &amp; Spencer and Zara: Process Competition in the textile apparel industry, INSEAD 02/2002-4974</em></td>
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<td><em>Where in the world is Timbuk2? Wharton/Indiana Univ./INSEAD. Case.</em></td>
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*Attention! There is a homework assignment due at the start of this class.*
## Preparation Questions

### Session 1
**Introduction: Operations Strategy**

Reading: Shouldice Hospital Limited (Abridged) H.B.S. 9-805-002

1. Evaluate the service concept of Shouldice.
2. Explain how operational decisions implement the Shouldice service concept.
3. What are the costs, benefits and disadvantages of this service concept?

### Session 2
**Managing Customer Experiences**

Reading: Xenon’s Service Strategy

Preparation Questions:

1. In the setup described in the note, what are the key drivers of waiting time?
2. Think of 3 situations where the waiting-time setup applies. You may draw on your professional experiences or situations from daily life. Think about the likely coefficient of variation of the arrival and the service processes for these situations and explain your logic.

### Session 3
**Diagnosing Business Processes**

Reading: The Goal (book by E.M. Goldratt and J. Cox – reading up through page 161)

Preparation Questions:

1. How is the setup of the plant in the Goal different from the setup discussed in Xenon?
2. What are the key insights from the first half of the book?

### Session 4
**Business Valuation: Operational Improvements**


Preparation Questions:

Please submit your group’s best assessment for questions 2 and 3 in the assignment appended to the Circored case (see course pack). A one page printout of a spreadsheet, together with the basic formulas you used, is sufficient. This is also homework assignment #2.

### Session 5
**Mass Customization: Consequences for Process Design**

Reading: Process Control at Compaq® Computer Corp. (A): Understanding the Build-to-Order Decision, INSEAD 01/2006 -5317
Preparation Questions

1. What is Compaq’s current process design with respect to a) Carrying Finished Goods Inventory b) Carrying Work in Progress inventory?
2. What are benefits and costs of such a strategy?

Session 6
Quality Management with the Xpult

Reading
XPULT Exercise

Preparation Questions
A few days before this session, each group will receive a catapult. Read through the XPULT case exercise, and work through the questions on page 5 and 6 of the exercise. This will require that some experiments be done with the catapult. Please do not experiment for more than 15 minutes with the catapult, and take care of it so that it can be used in future sessions. Please return the catapult at the beginning of the class session.

Session 7
Planning for Uncertainty: The Newsvendor Model-1

Reading
Ludo Press (A) INSEAD case.

Preparation Questions
Read part (A) of the case and think through the tradeoff between the costs of underage and overage for Ludo Press. List aspects of the case which are not captured by the newsvendor approach. In particular, think about other factors that may affect costs of underage and overage, and whether they would increase or decrease them relative to the proposed estimation in the case. What other objectives (instead of expected profit maximization) might a company like Ludo Press have?

Session 8
Planning for Uncertainty: The Newsvendor Model-1

Reading
Ludo Press (B) INSEAD case.

Preparation Questions
Please submit your group’s solutions for questions 1 and 2 in the assignment appended to the case (see course pack). A one-page printout of a spreadsheet, together with the basic formulas you used, is sufficient. This is also homework assignment #3.

Session 9
Supply Chain Innovation: Zara

Reading
Marks & Spencer and Zara: Process Competition in the textile apparel industry, INSEAD 02/2002-4974

Preparation Questions
1. How does the newsvendor model apply to Zara?
2. How does Zara differ from Marks and Spencer?
### Session 10

**Reading**

**Outsourcing, Off-shoring and Mass Customization**

*Where in the world is Timbuk2? Wharton/INSEAD/Indiana Univ. Case.*

1. **What channels does Timbuk2 sell through and which one is the most profitable?**

2. **How should Timbuk2 go about deciding which mass-customization options to offer customers?** Brennan talks about a very vague process based on management intuition. What analysis might supplement or heighten this intuition? For example, discuss the analysis for a decision by Timbuk2 on whether to allow customers to choose a different buckle? Timbuk2 currently offers a choice of colors for the three panels -- how do you think costs would change if customers also were allowed to choose the dimensions of the panels?

3. **What are the costs and benefits of moving production to China?** Should Timbuk2 produce in more than one location (e.g., San Francisco and China at the same time)? If so, what are the issues? In particular, think about utilization of San Francisco factory before and after outsourcing as well as about inventory needs.

### Session 11

**Reading**

**Managing Supply Chain Relationships**

*Bose Corporation: The JIT II Program (A), H.B.S. 9-694-001*

1. **List the available sourcing options for Bose**

2. **What are the costs and benefits of each of the sourcing strategies?**
Homework Assignments

Homework # 1, Due at start of Session #3, 30th October, Friday

Please submit your group’s best assessment for questions 1 and 2 for the Xenon exercise. A printout of a spreadsheet, together with the basic formulas you used, is sufficient.

Homework # 2, Due at start of Session #4, 3rd November, Tuesday

Please submit your group’s best assessment for questions 2 and 3 in the assignment appended to the Circored case (see course pack). A one page printout of a spreadsheet, together with the basic formulas you used, is sufficient.

Homework # 3, Due at start of Session # 8, 24th November, Tuesday

Please submit your group’s solutions for questions 1 and 2 in the assignment appended to the Ludo (B) case (see course pack). A one-page printout of a spreadsheet, together with the basic formulas you used, is sufficient.