

OPERATIONS MANAGEMENT

COURSE OUTLINE

1. Introduction

Operations Management is about finding better ways of doing things in a company to be able to deliver value to customers while achieving sustainable profits. In fact, creating better or new ways of operating has been central to some of the greatest business success stories: think of Wal-Mart's cross-docking distribution system, Dell's build-to-order model, or Zara's ultra-responsive replenishment system.

2. Objectives

We will explore the basic tools and concepts that will allow us to leverage operations as a major source of competitive advantage. In other words, we will try to broaden the strategic arsenal of the good executive with some additional and powerful operations weapons. In most organizations, improving upon existing operations is more crucial than ever and, fortunately, it usually is more reliable and cheaper than most other ways of generating a competitive advantage.

3. Learning Outcomes

- Understand the fundamental concepts of any business process: throughput, throughput time, work in process and the relationship between the three.
- Analyze a business process through capacity analysis.
- Identify the bottleneck of a system and the critical path of a project.
- Conduct input-output analysis for a business process with seasonality.
- Apply queuing theories to assess the performance of a business service.
- Understand the basic tradeoff in inventory management.
- Determine optimal inventory policy under uncertain demand.

4. Competences

This course builds and reinforces the following competences:

- Students should possess and understand knowledge that provides the basis or opportunity for originality in the development and/or application of ideas, often in a research context

- Students should know how to apply the knowledge acquired and their problem-solving capacity in new and little-known settings within broader (or multidisciplinary) contexts related to their area of study
- Students should be able to integrate knowledge and deal with the complexity of making judgements based on information that is incomplete or limited, but includes considerations of the social and ethical responsibilities linked to the application of the students' knowledge and judgements.
- Students should know how to communicate their conclusions and knowledge and the ultimate reasons that support them to specialized and unspecialized audiences in a clear, unambiguous way.
- Students should have the learning skills that enable them to continue studying in a largely self-directed, independent manner.
- Receiving and transmitting ideas effectively using the appropriate channel in the right moment and providing specific details to back up their observations and conclusions (Communication).
- Diagnosing, dealing with and resolving interpersonal conflicts quickly and deeply, without damaging personal relations (Conflict Management).
- Receiving the commitment of collaborators by inspiring their trust, giving meaning to their work and motivating them to achieve their goals (Motivation).
- Promoting an atmosphere of collaboration, communication and trust among team members (Teamwork).
- Analyzing the general structure and parts of operations. Designing optimized operations and logistics systems with special attention paid to processes, queues and inventory management.
- Learning to assess, select and development operations projects in different contexts.
- Implementing product-delivery strategies and services that include all the stakeholders in the production chain: suppliers, manufacturers, distributors and customers.

5. Content and Methodology

In this course, we will cover the following topics:

- Process analysis
- Input/Output curves
- Queuing analysis
- Inventory management

The course requires a significant amount of individual and group preparation, because of a number of reasons. As we will need to deal with and understand vague, complex, and diverse business scenarios, we will often rely on quantitative analysis because “what can’t be measured can’t be improved”. This is why the emphasis of the first sessions will be on getting familiar with the basic concepts of operations. These are not difficult, but they are as diverse as the nature of problems we will face: we will hence need to master the right tool for the right situation. Finally, as operations tools are designed to serve business, we will need to go beyond the numbers to value its impact on the organization and the strategic fit.

Finding a numerical answer to some of the questions often requires making some assumptions. The assignment questions will guide you on making reasonable assumptions, but it is impossible to foresee all the possibilities you can come up with. Therefore, do not feel disappointed if your numbers do not match exactly the ones used in class. I believe that the plenary sessions should be used to discuss the possible approaches to the case, the procedures to perform the needed calculations, and how to interpret the results in a managerial way. If you are able to understand these, you will also be able afterwards to review the computations using your assumptions. It would be a waste of everybody's time to discuss each student's assumptions in class.

The case method will be used throughout the course. During class sessions, I will ask one or more class members to start the session by addressing a specific question. Anyone who has prepared the case should be able to handle such assignment. After a few minutes, the discussion will be open to the rest of the class. You are expected to be an active participant and contribute to the quality of the discussion. You are not expected to have the right answer (such a thing does not even exist sometimes), but a thoughtful one.

Self-evaluation exercises will be available in Virtual Campus to practice the tools and concepts covered in class. These are intended to let you evaluate your own understanding of the new concepts and will not be discussed nor graded.

6. Evaluation

To reach the course objectives most effectively you will need to: prepare the cases and participate in class discussions, actively work with your group in preparing the group assignments, check your understanding of the tools and concepts through the self-evaluation problems, and take and pass the final exam.

There will be two major elements to formally evaluate your performance*:

- Class participation including "show&tell" (20%-40%)
- Final exam (60%-80%)

(*) The percentages are just a guideline.

SHOW-AND-TELL

This is a continuous, voluntary assignment throughout the course. The purpose is to keep a curious mind to identify the items in your daily life that may be relevant to operations. It consists of finding items relevant to the course material, and to explain why the item is relevant. The item could be one of the following:

- Every-day life situations you have been involved with
- Newspaper or magazine articles (not including technical magazines)
- TV shows, including news
- Interviews
- Movie clips
- Web pages of actual companies, or news referring to actual cases

- Books
- Song lyrics
- Gadgets
- Jokes

The above list is not exhaustive; you are expected to be very creative and stretch your imagination. When you have found an item that you think is relevant, shortly explain how the item is relevant to the course material. Please be specific, explaining whether the item illustrates a concept discussed in class, describes a situation that could be analysed using tools covered in class, or is relevant in some other way. The more obvious the relevance of the item, the shorter the explanation can be. You can submit 2 items at most during the course, so be selective with your contributions.

It does not count for grades, but Show-and-Tell contributions will be shared with the rest of the class during wrap-up lecture on the last day of the course and you will have 5 min to explain it.

Note: This activity is based on a similar one designed by Prof. Tarja Joro at University of Alberta and on ideas from Cinematic Ticklers by Brown, Hyer, Smith-Daniels and Sprague.