Objectives

Operations Management is a key functional area of every firm that deals with the production of goods or provision of services. It is concerned with managing the processes that transform inputs (materials, labour, customers, etc.) into outputs (goods, services). The main goal of the course is to provide students with the concepts, techniques, and tools that will enable them to analyse, improve, or re-design the core operational capabilities of a firm. It presents business cases from a variety of industries, such as high-tech, health care, brick and mortar and online retailing, online services, automotive and apparel manufacturing. Special emphasis is given to the effect of uncertainty in managerial decision-making.

Description

"Operations Management" is a third-term course in the MSc in Management, at the UPF Barcelona School of Management. It comprises twenty 90-minute lectures, serving as a core course for students specializing in Business Analytics and Entrepreneurship, and as an elective course for students specializing in Marketing.

Contents

Module 1: Process Analysis
1. Process Performance, Little’s Law, Inventory Turns and Costs
2. Capacity Analysis, Bottlenecks, Build-up Diagrams

Module 2: Service Management
1. Service Time Variability, Average Waiting Time
2. Scheduling, Staffing, Reducing Variability
3. Customer Impatience, Throughput Loss

Module 3: Inventory Management
1. Set-up Costs, EOQ Model, Order Batching
2. Demand Variability, Newsvendor Model, Safety Stock, Fill Rate
3. Assemble-to-order, Reactive Capacity

Module 4: Supply Chain Management
1. Lead Times in Supply Chains, Order-up-to Model
2. Supply Chain Coordination, Bullwhip Effect, Supply Chain Contracts
3. Vertical and Virtual Integration

Module 5: Risk Pooling Strategies
1. Location Pooling
2. Product Pooling
3. Flexible Manufacturing/Service Capacity

Note: This document is only informational, detailed contents and faculty may change.
Module 6: Business Model Innovation

1. Demand, Supply, and Risk-Driven Business Model Innovation

Methodology

The course follows closely the book by Gerard Cachon and Christian Terwiesch: “Matching Supply with Demand: an Introduction to Operations Management,” 3rd Edition, McGraw-Hill, 2012 [CT12]. Students are strongly encouraged to buy or borrow the book from the library, and complement the material delivered in class by reading the related chapters. The course includes theory lectures, discussion of case studies, presentations, guest lectures, as well as team assignments and a final project. The deliverable of each team assignment is a PowerPoint presentation, which summarizes the approach followed and the results obtained.

Evaluation criteria

Case study-based team assignments, a final project, and class participation. There are no problem sets or exams.

Bio of the professor

Mihalis G. Markakis is an Assistant Professor in the Department of Economics and Business, at Pompeu Fabra University. He obtained his PhD from the Laboratory for Information and Decision Systems at MIT. His research interests are in modelling, analysis, and optimization of stochastic systems and their applications to Operations Research and Management Science. He is also affiliated with the Barcelona School of Management and the Barcelona Graduate School of Economics, where he regularly teaches graduate courses on the wider field of Operations.