

OPERATIONS MANAGEMENT

Grado en Administración de Empresas / Bachelor in Business Administration BBA SEP-2023 OM-NBA.2.M.A

Area Operations and Business Analytics

Number of sessions: 25

Academic year: 23-24

Degree course: SECOND

Number of credits: 5.0

Semester: 2º

Category: COMPULSORY

Language: English

Professor: **GAMALIEL MARTINEZ MUÑOZ**

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Professor Gamaliel Martínez has over 30 years of experience in teaching, research, management and consulting.

He has worked on the application of advanced information technology at production plant level, and has participated in projects of energy use improvement, waste management, reengineering and implementation of information systems in chemical, food and manufacturing companies.

He has teamed in pioneer researches on the use of simulation and artificial intelligence techniques in control and planning of processes in chemical and food industries. Among other relevant results, he patented a fuzzy control procedure for alcoholic fermentation in wineries.

He has been a member of the Technical Committee of Control in Agriculture of the IFAC (International Federation of Automatic Control) and has published in International Journals and Conferences.

Academic Background

- International Executive MBA, IE Business School, 2002-2003
- Ms.Sc, Industrial Engineering, Technical University of Madrid, 1984-1990

Professional Experience

- Adjunct Professor of Operations and Supply Chain Management - IE Business School (2004 -)
- Partner - AlcionTI (2015 -)
- Partner - Net4talent (2015 -)
- Academic Director - U-tad (2014 - 2015)
- Associate Director - Top Management Programs (2012 - 2014)
- Alumni Development Director (2011 - 2012)
- Executive Director - IE Brown Executive MBA - IE Business School (2010 - 2011)
- Managing Director - International Executive MBA - IE Business School (2005 - 2011)
- Consultant - Indra (2000-2005)
- Assistant Professor of Systems Engineering - State University of Navarra (1992 - 2000)

- Assistant Professor of Applied Mathematics - Technical University of Madrid (1990 - 1992)

Office Hours

Office hours will be on request. Please contact at:

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SUBJECT DESCRIPTION

Operations Management is an area that deals with the production of goods and services. It is concerned with managing the process that converts inputs, such as material, labor, and information (data), into outputs, such as products and services. Thus, it is an important function in every company. An effective and efficient operations management can help a company stay competitive. Successful companies achieve excellence in operations management, while companies struggling often trace their problems to poor management of their operations.

The field of Operations Management has seen many developments and changes over the decades. During this course, the student will study companies that owe their success to groundbreaking innovation in the practice of Operations Management. Through these examples, the student will learn how they can apply innovative Operational methods to achieve operational excellence.

An effective Operations Management interacts with various functions in a firm, such as Accounting, Marketing, and Information Technology. A well-run establishment requires that these functions are integrated and consistent with the overall strategy of the firm. This means that every manager, irrespective of their department or specialization, will benefit from being familiar with Operations Management. A sound understanding of Operations Management becomes even more important for the professional starting a new business or product line.

LEARNING OBJECTIVES

- Understand the strategic importance of OM and how it can provide firms a competitive advantage.
- Analyze the problems and challenges faced by managers that can be traced to ineffective OM.
- Learn various frameworks to articulate the tactical and strategic problems that arise in OM.
- Understand OM principles, concepts, tools, and techniques to diagnose, analyze and solve OM problems.
- Know the tools that companies use to control the value production process.
- Understand the interdependence between Operations and other functions in a company such as Marketing, Sales, Accounting/finance, and Human Resources.
- Analyze the impact of sustainability in Operations Management and learn the best sustainability practices and strategies in the manufacturing and service industries.

TEACHING METHODOLOGY

IE University teaching method is defined by its collaborative, active, and applied nature. Students actively participate in the whole process to build their knowledge and sharpen their skills. Professor's main role is to lead and guide students to achieve the learning objectives of the course. This is done by engaging in a diverse range of teaching techniques and different types of learning activities such as the following:

Learning Activity	Weighting	Estimated time a student should dedicate to prepare for and participate in
Lectures	40.0 %	50.0 hours
Discussions	20.0 %	25.0 hours
Exercises in class, Asynchronous sessions, Field Work	12.0 %	15.0 hours
Group work	20.0 %	25.0 hours
Individual studying	8.0 %	10.0 hours
TOTAL	100.0 %	125.0 hours

PROGRAM

PART I: INTRODUCTION TO OPERATIONS MANAGEMENT

In this first section, you will learn the foundation for understanding the field of operations and supply management. Operations management is about designing and operating processes or systems that create and deliver a firm's products and services in a manner that matches customer expectations. After you learn the key concepts in operations management in the first session, you will learn the strategic implications of operations management in session 2.

SESSION 1 (LIVE IN-PERSON)

Sustainability Topics: Learn about introductory examples of sustainable operations management practices.

Introduction to Operations Management

Learning Objectives:

- Identify the elements of operations and supply chain management (OSCM).
- Know the potential career opportunities in OSCM.
- Recognize the major concepts that define the OSCM field.

Book Chapters: Operations and Supply Chain Management (Chapter 1: Introduction) (See Bibliography)

SESSION 2 (LIVE IN-PERSON)

Sustainability Topics: Understand how a company's sustainability business strategy is related to its operations management strategy.

Operations Strategy

Learning Objectives:

- Define operations and supply chain strategy.
- Understand how operations strategy is related to business strategy.
- Explain how operations and supply chain strategies are implemented.
- Understand why strategies have implications relative to business risk.
- Evaluate productivity in operations and supply chain management.
- Know what a sustainable business strategy is and how it relates to OSCM.

Book Chapters: Operations and Supply Chain Management (Chapter 2: Strategy) (See Bibliography)

PART II: FUNDAMENTALS OF OPERATIONS MANAGEMENT

The second section of this class focuses on the design and analysis of business processes. Having a great process is the key to the success of each business, whether with products and/or services. First, you will learn the fundamental knowledge related to manufacturing processes as well as service processes. Then, you will learn how to design an efficient process. Lastly, you will learn how a process can be analyzed to ensure the competitiveness of a firm. Additionally, you will also learn how to manage the waiting line more efficiently, which is one of the most important areas for successful service organizations. Additionally, you will learn the strategic importance of capacity management for more efficient operations.

SESSION 3 (LIVE IN-PERSON)

Sustainability Topics: Discuss how a company can operate its manufacturing process more sustainable.

Process Fundamentals and Manufacturing Processes**Learning Objectives:**

- Understand what a manufacturing process is.
- Explain how manufacturing processes are organized.
- Analyze simple manufacturing processes.

Book Chapters: Operations and Supply Chain Management (Chapter 7: Manufacturing Processes) (See Bibliography)

Book Chapters: Operations and Supply Chain Management (Chapter 11: Process Design and Analysis) (See Bibliography)

SESSION 4 (LIVE IN-PERSON)

Sustainability Topics: Study how a company can design a more sustainable manufacturing process and assess its environmental performance.

Process Design and Analysis**Learning Objectives:**

- Exemplify a typical business process and how it can be analyzed.
- Compare different types of processes.
- Explain how jobs are designed.
- Analyze processes to ensure the competitiveness of a firm.
- Understand the importance of flexibility and efficiency in a process.

Book Chapters: Operations and Supply Chain Management (Chapter 11: Process Design and Analysis) (See Bibliography)

SESSION 5 (LIVE IN-PERSON)

Operations Management Exercise I: Process Design & Analysis

Learning Objectives:

- Review and practice the important concepts in process design & analysis.

Multimedia Material: Process Analytics Tutorial (HBS 7208-HTM-ENG)

Practical Case: Kristen's Cookie Company (A) (HBS 686093-PDF-ENG)

SESSION 6 (LIVE IN-PERSON)

Sustainability Topics: Discuss how a company can operate its service process more sustainable.

Service Processes

Learning Objectives:

- Understand the characteristics of service processes.
- Explain how service systems are organized.
- Analyze simple service systems.
- Contrast different service designs.

Book Chapters: Operations and Supply Chain Management (Chapter 9: Service Processes) (See Bibliography)

SESSION 7 (LIVE IN-PERSON)

Sustainability Topics: Understand how waiting line management practices (for example, virtual waiting lines) can improve sustainability by minimizing its operational resources used.

Waiting Line Management

Learning Objectives:

- Understand what a waiting line problem is.
- Analyze waiting line problems.
- Understand why simulation models are useful to analyze complex waiting lines.

Book Chapters: Operations and Supply Chain Management (Chapter 10: Waiting Line Management) (See Bibliography)

SESSION 8 (LIVE IN-PERSON)

Sustainability Topics: Discuss why companies should consider sustainability objectives in capacity planning decisions.

Capacity Management

Learning Objectives:

- Explain what capacity management is and why it is strategically important.
- Exemplify how to plan capacity.
- Evaluate capacity alternatives using decision trees.
- Compare capacity planning in services to capacity planning in manufacturing.

Book Chapters: Operations and Supply Chain Management (Chapter 5: Strategic Capacity Management) (See Bibliography)

PART III: MANAGING AND IMPROVING OPERATIONS

In this section, you will learn various topics to efficiently manage and improve the operations of a firm. In sessions 9-10, you will learn how to ensure that your product/service has good quality from the perspectives of Total Quality Management, Six Sigma, and Statistical Quality Control. In sessions 13, you will learn various forecasting methods to predict demands accurately, which is crucial for an efficient operations & supply chain planning. In sessions 14-15, you will study inventory models to make efficient inventory decisions to minimize the cost and prevent stockouts. Lastly, you will learn how to apply lean principles in both manufacturing and service contexts in Sessions 16-17.

SESSION 9 (LIVE IN-PERSON)

Sustainability Topics: Understand how quality improvement is related to the sustainability performance of a company (for example, reduced scraps and wastes).

Quality Management

Learning Objectives:

- Explain the scope of total quality management in a firm.
- Understand the Six Sigma approach to improve quality and productivity.
- Illustrate globally recognized quality benchmarks.
- Illustrate process variation and explain how to measure it.
- Analyze process quality using statistics.
- Analyze the quality of batches of items using statistics.
- Understand the importance of KPI in the continuous improvement process.

SESSION 10 (LIVE IN-PERSON)

Sustainability Topics: Understand how quality improvement is related to the sustainability performance of a company (for example, reduced scraps and wastes).

Quality Management

Learning Objectives:

- Explain the scope of total quality management in a firm.
- Understand the Six Sigma approach to improve quality and productivity.
- Illustrate globally recognized quality benchmarks.
- Illustrate process variation and explain how to measure it.
- Analyze process quality using statistics.
- Analyze the quality of batches of items using statistics.
- Understand the importance of KPI in the continuous improvement process.

SESSION 11 (LIVE IN-PERSON)

Operations Management Exercise II: Quality Management

Learning Objectives:

- Review and practice the important concepts and tools in quality management.

SESSION 12 (LIVE IN-PERSON)

Mid-Term Exam

SESSION 13 (LIVE IN-PERSON)

Sustainability Topics: Understand how sustainability trends affect a company's forecasting decisions.

Forecasting

Learning Objectives:

- Understand how forecasting is essential to supply chain planning.
- Learn qualitative and quantitative techniques to forecast demand.
- Learn the collaborative planning and forecasting process.

SESSION 14 (LIVE IN-PERSON)

Sustainability Topics: Discuss how inefficient inventory decisions (having too much inventory) negatively influence sustainability.

Inventory Management

Learning Objectives:

- Explain how inventory is used and understand what it costs.
- Analyze how different inventory control systems work.
- Analyze inventory using the ABC classification model.
- Understand the importance of inventory turnover.

*Book Chapters: Operations and Supply Chain Management (Chapter 20: Inventory Management)
(See Bibliography)*

SESSION 15 (LIVE IN-PERSON)

Sustainability Topics: Discuss how inefficient inventory decisions (having too much inventory) negatively influence sustainability.

Inventory Management

Learning Objectives:

- Explain how inventory is used and understand what it costs.
- Analyze how different inventory control systems work.
- Analyze inventory using the ABC classification model.
- Understand the importance of inventory turnover.

Same materials as Session 14

SESSION 16 (LIVE IN-PERSON)

Operations Management Exercise III: Inventory Management

Learning Objectives:

- Review and practice the important concepts and tools in inventory management.

Multimedia Material: Operations Management Simulation: Inventory Basics (HBS 4388-HTM-ENG)

SESSION 17 (LIVE IN-PERSON)

Sustainability Topics: Study how lean concepts and principles can be applied to improve sustainability.

Lean Operations

Learning Objectives:

- Explain what lean production is.
- Illustrate how lean concepts can be applied to supply chain processes.
- Analyze supply chain processes using value stream mapping.
- Explain lean design principles.
- Apply lean concepts to service processes.

Book Chapters: Operations and Supply Chain Management (Chapter 14: Lean Supply Chain) (See Bibliography)

SESSION 18 (LIVE IN-PERSON)

Sustainability Topics: Study how lean concepts and principles can be applied to improve sustainability.

Lean Operations**Learning Objectives:**

- Explain what lean production is.
- Illustrate how lean concepts can be applied to supply chain processes.
- Analyze supply chain processes using value stream mapping.
- Explain lean design principles.
- Apply lean concepts to service processes.

Same materials as Session 17

PART IV: INNOVATIONS AND TRENDS IN OPERATIONS MANAGEMENT

In this last section, you will learn important innovations and trends from the perspective of operations management. First, in sessions 19-20, you will learn the issues related to the new product and service design development as designing new products and services and getting them to market quickly is a critical part of innovation and business success. Then in session 21, we will discuss the importance of sustainable operations management, and you will also learn the best sustainability practices and strategies in this field.

SESSION 19 (LIVE IN-PERSON)

Sustainability Topics: Discuss how companies develop new products and services in a more sustainable way.

Learning Objectives:

- Know the issues associated with product design processes used by companies.
- Illustrate how different criteria can impact the design of a product.
- Contrast how services can have different design criteria compared to manufactured products.
- Evaluate the economic impact of a new product on a company.
- Illustrate how product development is measured in a company.

Book Chapters: Operations and Supply Chain Management (Chapter 3: Design of Products and Services) (See Bibliography)

SESSION 20 (LIVE IN-PERSON)

Sustainability Topics: Discuss how companies develop new products and services in a more sustainable way.

Learning Objectives:

- Know the issues associated with product design processes used by companies.
- Illustrate how different criteria can impact the design of a product.
- Contrast how services can have different design criteria compared to manufactured products.
- Evaluate the economic impact of a new product on a company.
- Illustrate how product development is measured in a company.

SESSION 21 (LIVE IN-PERSON)

Sustainability Topics: Study the latest practices of sustainable operations management.

Sustainability in Operations Management

Learning Objectives:

- Analyze the impact of sustainability in Operations Management.
- Learn the best sustainability industry practices and strategies.

SESSION 22 (LIVE IN-PERSON)

Sustainability Topics: Practice important concepts of sustainable operations by an online simulation activity.

Operations Management Exercise IV: Sustainable Operations

Learning Objectives:

- Review and practice the important concepts related to sustainable operations management.

Multimedia Material: Sustainability Management Simulation: Net Zero (HBS FO0007-HTM-ENG)

SESSIONS 23 - 24 (LIVE IN-PERSON)

Final Group Presentation

SESSION 25 (LIVE IN-PERSON)

Final Exam

EVALUATION CRITERIA

Your final grade in the course will be based on two exams, individual and group work of different characteristics that will be weighted in the following way:

criteria	percentage	Learning Objectives	Comments
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Final Exam	30 %	<ul style="list-style-type: none"> - Understand the strategic importance of OM and how it can provide firms a competitive advantage. - Analyze the problems and challenges faced by managers that can be traced to ineffective OM. - Learn various frameworks to articulate the tactical and strategic problems that arise in OM. - Understand OM principles, concepts, tools, and techniques to diagnose, analyze and solve OM problems. - Know the tools that companies use to control the value production process. - Understand the interdependence between Operations and other functions in a company such as Marketing, Sales, Accounting/finance , and Human Resources. - Analyze the impact of sustainability in Operations 	Minimum 4.0
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		Management and learn the best sustainability practices and strategies in the manufacturing and service industries.	
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Group Work	20 %	<ul style="list-style-type: none"> - Understand the strategic importance of OM and how it can provide firms a competitive advantage. - Analyze the problems and challenges faced by managers that can be traced to ineffective OM. - Learn various frameworks to articulate the tactical and strategic problems that arise in OM. - Understand OM principles, concepts, tools, and techniques to diagnose, analyze and solve OM problems. - Know the tools that companies use to control the value production process. - Understand the interdependence between Operations and other functions in a company such as Marketing, Sales, Accounting/finance , and Human Resources. - Analyze the impact of sustainability in Operations 	Deliverables and Presentations
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		Management and learn the best sustainability practices and strategies in the manufacturing and service industries.	
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Class Participation	20 %	<ul style="list-style-type: none"> - Understand the strategic importance of OM and how it can provide firms a competitive advantage. - Analyze the problems and challenges faced by managers that can be traced to ineffective OM. - Learn various frameworks to articulate the tactical and strategic problems that arise in OM. - Understand OM principles, concepts, tools, and techniques to diagnose, analyze and solve OM problems. - Know the tools that companies use to control the value production process. - Understand the interdependence between Operations and other functions in a company such as Marketing, Sales, Accounting/finance , and Human Resources. - Analyze the impact of sustainability in Operations 	
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		Management and learn the best sustainability practices and strategies in the manufacturing and service industries.	
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Intermediate tests	15 %	<ul style="list-style-type: none"> - Understand the strategic importance of OM and how it can provide firms a competitive advantage. - Analyze the problems and challenges faced by managers that can be traced to ineffective OM. - Learn various frameworks to articulate the tactical and strategic problems that arise in OM. - Understand OM principles, concepts, tools, and techniques to diagnose, analyze and solve OM problems. - Know the tools that companies use to control the value production process. - Understand the interdependence between Operations and other functions in a company such as Marketing, Sales, Accounting/finance , and Human Resources. - Analyze the impact of sustainability in Operations 	One midterm
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		Management and learn the best sustainability practices and strategies in the manufacturing and service industries.	
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Other	15 %	<ul style="list-style-type: none"> - Understand the strategic importance of OM and how it can provide firms a competitive advantage. - Analyze the problems and challenges faced by managers that can be traced to ineffective OM. - Learn various frameworks to articulate the tactical and strategic problems that arise in OM. - Understand OM principles, concepts, tools, and techniques to diagnose, analyze and solve OM problems. - Know the tools that companies use to control the value production process. - Understand the interdependence between Operations and other functions in a company such as Marketing, Sales, Accounting/finance , and Human Resources. - Analyze the impact of sustainability in Operations 	Individual or group assignments
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		Management and learn the best sustainability practices and strategies in the manufacturing and service industries.	
Group Presentation	0 %		
Individual work	0 %		
Individual presentation	0 %		

RE-SIT / RE-TAKE POLICY

Each student has four (4) chances to pass any given course distributed over two (2) consecutive academic years. Each academic year consists of two calls: one (1) ordinary call (during the semester when the course is taking place); and one (1) extraordinary call (or “re-sit”) in June/July.

Students who do not comply with the 80% attendance requirement in each subject during the semester will automatically fail both calls (ordinary and extraordinary) for that Academic Year and have to re-take the course (i.e., re-enroll) during the next Academic Year.

The Extraordinary Call Evaluation criteria will be subject to the following rules:

- Students failing the course in the ordinary call (during the semester) will have to re-sit evaluation for the course in June / July (except those students who do not comply with the attendance rule, and therefore will not have that opportunity, since they will fail both calls and must directly re-enroll in the course during the next Academic Year).
- It is not permitted to change the format nor the date of the extraordinary call exams or deadlines under any circumstance. All extraordinary call evaluation dates will be announced in advance and must be taken into consideration before planning the summer (e. g. internships, trips, holidays, etc.)
- The June/July re-sit will consist of a comprehensive evaluation of the course. Your final grade for the course will depend on the performance in this exam or evaluation only. I.e., continuous evaluation over the semester (e. g. participation, quizzes, projects and/or other grade components over the semester) will not be taken into consideration on the extraordinary call. Students will have to achieve the minimum passing grade of 5 and the maximum grade will be capped at 8.0 (out of 10.0) – i.e., “notable” in the extraordinary call.
- Re-takers: Students who failed the subject on a previous Academic Year and are now re-enrolled as re-takers in a course will need to check the syllabus of the assigned professor, as well as contact the professor individually, regarding the specific evaluation criteria for them as re-takers in the course during that semester (ordinary call of that Academic Year). The maximum grade that may be obtained as a retaker during the ordinary call (i.e., the 3rd call) is 10.0 (out of 10.0).

After exams and other assessments are graded by the professor (on either the ordinary or extraordinary call), students will have a possibility to attend a review session (whether it be a final exam, a final project, or the final overall grade in a given course). Please be available to attend the session in order to clarify any concerns you might have regarding your grade. Your professor will inform you about the time and place of the review session.

- Students **failing more than 18 ECTS credits** after the June/July re-sits will be asked to leave the Program. Please, make sure to prepare yourself well for the exams in order to pass your failed subjects.
- In case you decide to skip the opportunity to re-sit for an exam or evaluation during the June/July extraordinary call, you will need to enroll in that course again for the next Academic Year as a re-taker, and pay the corresponding tuition fees. As you know, students have a total of four (4) allowed calls to pass a given subject or course, in order to remain in the program.

BIBLIOGRAPHY

Compulsory

- Jacobs, F. Robert & Chase, Richard B. *Operations and Supply Chain Management*. 16th. McGraw Hill. ISBN 1259666107 (Digital)
<https://www.ie.edu/ieliquidpages/operations-supply-chain-management/>

BEHAVIOR RULES

Please, check the University's Code of Conduct [here](#). The Program Director may provide further indications.

ATTENDANCE POLICY

Please, check the University's Attendance Policy [here](#). The Program Director may provide further indications.

ETHICAL POLICY

Please, check the University's Ethics Code [here](#). The Program Director may provide further indications.