**EXECUTIVE MASTER IN SUPPLY CHAIN MANAGEMENT AND OPERATIONS MANAGEMENT**

# TOTAL PRODUCTION MANAGEMENT TEACHING GUIDE 2022 - 2023

# GENERAL DETAILS

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| **Name of module:** | Total Production Management |
| **Academic Year:** | 2022 - 2023 |
| **Degree:** | Executive Master in Supply Chain Management and Operations Management |
| **Number of credits (ECTS):** | 5 |
| **Date of latest revision:** | November 2022 |
| **Lecturers in Charge:** | Marius Gil Mendoza |

# 1. GENERAL DESCRIPTION

This module develops specific aspects in operations management, going deeper into the management areas within an industrial environment. Such areas include: production management; quality and environment management; labour relations and continuous improvement. In addition, it also provides an innovative vision on the opportunities of digitalisation in the industry and the technologies that are consolidating themselves in this field.

The content is structured into four units:

- The first unit is fully devoted to the management of a **production** plant. We look in greater depth into the *capacity management, production costs* and the organisational, structural and control elements, which are essential in manufacturing management.
- The second unit is dedicated to **continuous improvement**. In it the basic Kaizen concepts will be developed, the most used tools and techniques in an industrial environment to ensure the company's competitiveness and profitability.
- The third unit will bring students closer to **Industry 4.0**, by showing the most used technologies within the industrial environment (*additive manufacturing, digital twins, AGVs, ioT…*), and analysing the opportunities that digital solutions bring to the area.
- Finally, the fourth unit will introduce students to **Agile Management,** and will explore the principles of the Agile Manifesto, activities, tools and mechanisms for their implementation in productive environments.

All sessions seek maximum interaction with the student, so that the contents can be adapted to the professional needs of each in a pragmatic way.

## 2. OBJECTIVES

- Offer students a global perspective of the key elements in production management and administration
- Teach techniques and tools for capacity management in an industrial environment
- Acknowledge the added value of continuous improvement in the industrial area
- Become familiar with the latest technologies o industry 4.0
- Dominate daily production planning by means of tools that allow the levelling of resources.

## 3. CONTENTS

UNIT 1. Production management

UNIT 2. Lean methodologies

UNIT 3. Industry 4.0: Technologies

UNIT 4. Agile Project Management

## UNIT 1. Managing resources in services and outsourcing

### Learning outcome

After going through the content developed in this unit, students should be able to:
- Link plant management to operations strategy
- Understand the productive processes of an industrial plant
- Identify bottlenecks and solve capacity problems
- Understand basic cost structure
- Elaborate and interpret the plant's dashboard

### Contents
1. Vision of industrial management
2. Organisation of production
3. Capacity management
4. Production costs
5. Dashboard and plant management

## UNIT 2. Lean methodologies

### Learning outcome

Through the development of the contents of this unit, students should be able to:

- Identify the opportunities generated with the application of the continuous improvement
- Get to know different improvement tools
- Value the impact of continuous improvement on results

### Contents

1. Principles of continuous improvement: concepts and techniques
2. Continuous improvement tools
3. Practical cases

## UNIT 3. Industry 4.0: Technologies

### Learning outcome

Through the contents of this unit and the practical cases, students should be able to:

- Get to know the different technologies around Industry 4.0
- Identify needs and opportunities in the use of digital solutions
- Value the implementation of digital solutions in industrial environments

### Contents

1. Industry 4.0: digital solutions for industry
2. Practical cases

## UNIT 4. Agile Management

### Learning outcome

Through the development of the contents of this unit, students should be able to:

- Understand the difference between efficacy and efficiency
- Learn to use the tools oriented to improve efficacy in factories
- Learn to use the management routines in uncertain environments

### Contents

1. Agile Manifesto
2. Predictive approach vs adapted approach
3. SCRUM: activities, mechanisms and tools

## 4. TEACHING AND LEARNING METHODOLOGY

The teaching and learning methodology is developed from brief theoretical explanations that introduce examples and cases that facilitate the immediate application of the contents covered in each unit to the job position. The deployment of the Learning by doing model, based on experiential training, enables participants to obtain action-oriented learning.

The subject is organized in such a way that the student can obtain knowledge of the different topics, manage to put them into practice, and develop a participatory, proactive and critical attitude towards them. For this reason, classroom sessions are divided into theory and practice, and learning activities are presented as an opportunity to complement the knowledge acquired and assimilate it in greater depth.

## 5. ASSESSMENT

The Executive Modular Education programs are based on a competency assessment model, in which the progress of the students in achieving the objectives set out in the study program is assessed.

The evaluation system for this module aims to guarantee both the understanding of the contents and the student's ability to put them into practice, assessing progress and continued effort. Teaching staff will ensure the assimilation of the contents through the evaluable activities and the tutored project in the classroom.

## 6. BIBLIOGRAPHY

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- Womack, J. & Jones, D. *Lean Thinking*, Free Press, 2003.

## 7. WEBGRAPHY

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