

# Course guide

## 205106 - 205106 - Production and Logistics

**Last modified:** 02/04/2024

**Unit in charge:** Terrassa School of Industrial, Aerospace and Audiovisual Engineering  
**Teaching unit:** 732 - OE - Department of Management.

**Degree:** MASTER'S DEGREE IN TECHNOLOGY AND ENGINEERING MANAGEMENT (Syllabus 2016). (Compulsory subject).

**Academic year:** 2024    **ECTS Credits:** 7.5    **Languages:** English

### LECTURER

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**Coordinating lecturer:** Sunyer Torrents, Albert

**Others:**

### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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**Specific:**

CE04-MEM. The ability to apply theoretical and fundamental principles of technology and engineering business management in conditions of uncertainty.

CE05-MEM. The ability to analyse the need for physical and financial resources in process and project management in technological settings.

CE06-MEM. The ability to optimally assign physical and financial resources in process and project management in technological settings.

CE07-MEM. The ability to manage processes and projects in technological settings subject to levels of uncertainty.

**Transversal:**

CT1a. ENTREPRENEURSHIP AND INNOVATION: Being aware of and understanding how companies are organised and the principles that govern their activity, and being able to understand employment regulations and the relationships between planning, industrial and commercial strategies, quality and profit.

CT2. SUSTAINABILITY AND SOCIAL COMMITMENT: Being aware of and understanding the complexity of the economic and social phenomena typical of a welfare society, and being able to relate social welfare to globalisation and sustainability and to use technique, technology, economics and sustainability in a balanced and compatible manner.

CT3. TEAMWORK: Being able to work in an interdisciplinary team, whether as a member or as a leader, with the aim of contributing to projects pragmatically and responsibly and making commitments in view of the resources that are available.

CT5. FOREIGN LANGUAGE: Achieving a level of spoken and written proficiency in a foreign language, preferably English, that meets the needs of the profession and the labour market.

## TEACHING METHODOLOGY

Lectures: Lecturers will introduce the theoretical concepts, methods and techniques, with the active participation of students.

Case study discussions: Students analyze cases data and suggest improvements to the current situation into small groups. Lecturers will guide students in applying theoretical concepts and techniques to solve problems, always using critical reasoning. Analyses and new proposals are discussed in class among students and lecturers.

Project Based learning: Students examine complex contexts by gathering data from real companies, analyzing the current issues these companies are facing and applying the course concepts and techniques to develop improvement initiatives.

Self-study: Students diagnose their learning needs, in collaboration with the lecturers, and plan their own learning process.

## LEARNING OBJECTIVES OF THE SUBJECT

The course Production and Logistics introduces students to the concepts, principles and techniques associated with the production system supply chain management. This course examines the value stream from suppliers to customers, including the purchasing process, the production process, the planning process, the distribution process, as well as the process of monitoring and improving the whole system.

## STUDY LOAD

| Type               | Hours | Percentage |
|--------------------|-------|------------|
| Self study         | 127,5 | 68.00      |
| Hours large group  | 30,0  | 16.00      |
| Hours medium group | 30,0  | 16.00      |

**Total learning time:** 187.5 h

## CONTENTS

### Module1: Operations management

#### Description:

The goal of this module is to learn concepts, principles and techniques associated with the design and improvement of the production system, as well as the maintenance and optimization of the resources involved in the manufacturing process.

Production process strategies and design  
Value Stream Analysis  
Line balancing  
Capacity analysis  
Plant layout  
Lean manufacturing  
Equipment Maintenance  
Continuous improvement

#### Related activities:

Distance and in-class activities  
Group project (First part)  
Mid-term exam

#### Full-or-part-time: 94h

Theory classes: 15h  
Practical classes: 15h  
Self study : 64h



## Module 2: Logistics and Supply chain management

### Description:

The goal of this module is to learn the concepts, principles and techniques to design the order fulfillment process, the planning process, the logistics chain and the purchasing process.

Introduction to integral logistics  
Push flow supply chains  
Pull flow supply chains  
Inventory management  
Storage design  
Demand planning  
Material and resources requirement planning  
Distribution resources planning  
Purchasing and procurement

### Related activities:

Distance and in-class activities  
Group project (Second part)  
Final exam

### Full-or-part-time: 93h 30m

Theory classes: 15h  
Practical classes: 15h  
Self study : 63h 30m

## GRADING SYSTEM

The final grade depends on the following three elements:

- 30%, Mid term exam
- 30%, Final exam
- 20%, Team project
- 20%, In-class activities

For those students who meet the requirements and submit to the reevaluation examination, the grade of the reevaluation exam will replace the grades of all the written exams (mid-term and final exams) and the grades obtained during the course for case discussion, teamworks, projects and presentations will be kept.

If the final grade after reevaluation is lower than 5.0, it will replace the initial one only if it is higher. If the final grade after reevaluation is greater or equal to 5.0, the final grade of the subject will be pass 5.0.

## BIBLIOGRAPHY

### Basic:

- Baudin, Michel. Lean logistics: the nuts and bolts of delivering materials and goods. New York: Productivity Press, 2004. ISBN 9781563272967.
- Chopra, S.; Meindl, P. Supply chain management: strategy, planning, and operation. 5th ed., global ed. Boston: Pearson, 2013. ISBN 9780273765226.
- Heizer, J.H.; Render, B.; Munson, C. Operations management: sustainability and supply chain management. 12th ed., global ed. Essex: Pearson Education, cop. 2017. ISBN 9781292148632.
- Liker, Jeffrey K. The Toyota way: 14 management principles from the world's greatest manufacturer. New York [etc.]: McGraw-Hill, cop. 2004. ISBN 9780071392310.
- Womack, J.P.; Jones, D.T. Lean thinking: banish waste and create wealth in your corporation. Rev. and upd. New York [etc.]: Free Press, 2003. ISBN 0743249275.

### Complementary:

- Schwab, Klaus. The fourth industrial revolution. Geneva: World Economic Forum, 2016. ISBN 9781944835002.