

## COURSE: MATERIALS AND LOGISTICS MANAGEMENT

**SUBJECT:** Operations Management

**MODULE:** Management and Optimization of Production and Sustainability

**STUDIES:** Master in Chemical Engineering

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### GENERAL CHARACTERISTICS\*

**Type:**  Basic formation  Mandatory  Optional  
 Master Thesis  Internship

**Duration:** Semestral

**Semester / s:** two

**Number of ECTS credits:** 3

**Languages:** English, may include sessions in Spanish or Catalan.

### DESCRIPTION

#### BRIEF DESCRIPTION AND JUSTIFICATION

The course of Materials and Logistics Management aims to raise the knowledge of students about the strategic importance that an effective and efficient Supply Chain Management (SCM) has in the current company, and what is the impact on the Profit and Loss account and on the profitability of the companies.

Through their SCM, companies provide their customers the product they need, in the quantity, quality, lead time and place required, at the lowest possible cost and with the least possible investment.

Students also learn the different decisions made in this area of the company.

Finally will be shown cases of actual companies that through their Supply Chain (SC) get competitive advantages over its competitors, in the increasingly complex, diverse, and global current environment.

#### COMPETENCES

- CB6 - The student has knowledge and understanding of what constitutes a basis or an opportunity to be original by developing and/or applying ideas, often in a research context.
- CB8 - The student is able to integrate knowledge and handle complexity involving judgments based on incomplete or limited information, including issues on social and ethical responsibilities linked to the application of his/her knowledge and judgments.
- CE7 - The student is able to manage and organize companies and production systems and services, applying knowledge and skills of industrial organization, business strategy, planning and logistics, commercial and labour laws, financial accounting and costs.
- CE11 - The student knows how to manage and perform verification and control of facilities, processes and products as well as certifications, audits, validating, testing and reporting.

\* These features should not be modified without the approval of the academic bodies responsible for the academic higher-level structures (subject, module and / or study plan).

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### PREVIOUS REQUIREMENTS\*

Admission to the Master in Chemical Engineering from the Universitat Ramon Lull.

### CONTENTS

1. Inventory management.
2. Supply Chain Management.
3. Location criteria of warehouses and distribution networks.
4. KPI's (Key Performance Indicators) in the Supply Chain.
5. Aggregated Sales and Operations Planning (S&OP).
6. Materials Requirements Planning MRP and ERP.

### METHODOLOGY

### LEARNING ACTIVITIES\*

	<b>Credits ECTS</b>	<b>Competences</b>
Lectures presenting concepts and procedures	0,72	CB6, CB8, EC7, CE11
Lectures solving exercises, problems and cases	0,57	CB6, CB8 EC7, CE11
Presentations	0.04	CB6, CB8, EC7, CE11
Personal study activities by students	1,63	CB6, CB8 EC7, CE11
Evaluation activities (tests, problem resolution, ...)	0.04	CB6, CB8, EC7, CE11
<b>TOTAL</b>	<b>3.00</b>	

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### **TEACHING METHODOLOGY**

This course uses the following teaching methods:

- Lectures presenting concepts and procedures (possibly including demonstrations) by the teacher.
- Lectures solving exercises, approach / problem solving, and presentation / discussion of cases by the teacher, with the active participation of students.
- Instructions done by the teacher in order to review, discuss and answer questions about the materials and topics presented in the lectures that explain concepts, solve exercises, problems and cases. It includes visits to companies and facilities.
- Oral presentations by student.
- Personal work of the student to acquire the skills of each subject.
- Oral or written tests to assess skills acquired.

The subject is held in Spanish and English.

### **EVALUATION**

#### **EVALUATION METHODS \***

<b>Assessment methods</b>	<b>Weight</b>	<b>competences</b>
Exams	60%	CB6, CB8, EC7
Assignments and presentations	25%	CB6, CB8 EC7, CE11
Participation	fifteen%	CB6, CB8, EC7, CE11

### **LEARNING OUTCOMES**

The student will have acquired:

- Knowledge that provides the base or opportunity of being original in the development and / or implementation of ideas.
- Ability of integrating knowledge and cope with the complexity of formulating judgments based on information that although being incomplete or limited, include reflections on social and ethical responsibilities related to the application of their knowledge and judgments.
- Ability to lead and organize enterprises as well as production systems and services.
- Ability to lead and perform the verification and control of facilities, processes and products.

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### **QUALIFICATION**

The final exam of the course is divided into two parts: the first part is theoretical (multiple choice questions with four possible answers of which only one is correct), and the second part consists of the resolution of practical problems. The qualification of the theoretical part weights 40% of the final exam grade, and the problems part weights 60%.

The papers and presentations consist of doing a summary and answering questions from articles of technical journals on topics related to the Supply Chain, and also to the resolution of 3 Business Cases corresponding to leading companies in this field.

The qualification of the participation is obtained based on class attendance and also on the assessment of the contributions made in class when the different issues that arise during the course are discussed.

### **EVALUATION OF COMPETENCES**

The evaluation of competences will be performed as indicated in the table of evaluation methods.

### **BIBLIOGRAPHY** (Recommended and accessible to students.)

#### **BASIC.**

- HEIZER, J., RENDER. B. (2007). "Production Management and Operations. Strategic decisions". Ed. Pearson.
- Heizer, J., RENDER, B. (2007). "Production Management and Operations. Tactics decisions ". Ed. Pearson.
- CHASE, RB, JACOBS, FR and AQUILANO, NJ (2009). "Operations Management: production and supply chain." Ed. McGraw-Hill.
- CHRISTOPHER, Martin. Logistics and Supply: how to reduce costs, stocks, and improve services. Ed. Financial Times, 1994.
- STARR, Martin K. Managing Production and Operations. Ed. Prentice Hall, 1989.

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- MACHUCA DOMÍNGUEZ, José A. (et al.) Operations Management: strategic aspects of production and services. Ed. McGraw Hill, 1995.
- MACHUCA DOMÍNGUEZ, José A. (et al.) Operations Management: tactical and operational production and service aspects. Ed. McGraw Hill, 1995.

### **SUPPLEMENTARY**

- GREENE, James H. Production and Inventory Control Handbook. Ed. McGraw-Hill, 1987.
- Monden, Yasuhiro. The Toyota Production System. Ed. CRC, 1988.
- Fogarty Donald W - HOFFMANN, Thomas R - Stonebraker, Peter W. Production and Operations Management. Ed. South Western Publishing, 1989.
- SCHONBERGER, Richard J. World Class Manufacturing. The lessons of simplicity applied. Ed. The Free Press, 1986.
- Womack, JP Lean Thinking. Using lean thinking to eliminate waste and create value *the company*. Ed. Management 2000, 2005.

### **DOCUMENT HISTORY**

#### **PREVIOUS CHANGES**

September 2014

January 2016 (prof. Francisco Amaro Martínez).

#### **LAST REVISION :**

January 2019 (prof. Francisco Amaro Martínez).