

COURSE: PRODUCTION MANAGEMENT AND OPERATIONS

SUBJECT: Operations Management

MODULE: Management and Optimization of
Production and Sustainability

STUDIES: Master in Chemical Engineering

GENERAL CHARACTERISTICS*

Type: Basic formation, Mandatory, Optional

Master Thesis Internship

Duration: Semestral

Semester / s: 2

Number of ECTS credits: 3

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

DESCRIPTION

BRIEF DESCRIPTION AND JUSTIFICATION

The subject of Production and Operations Management aims to raise the knowledge of the strategic importance of Operations Management in the current company. It is known and accepted that through Operations, enterprises gain competitive advantages over its competitors in the increasingly global, complex and competitive current environment.

The course deepens into the major issues in the field of Production and Operations Management: Productivity, Operations Strategy and production processes, Human Resources, Quality, Organizational Structure, and Value Chain.

Finally, it is also shown that an effective and efficient production and Operations management, contribute huge and decisively in improving the performance of the assets of the companies and, ultimately their profitability.

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.
- CB9 - The student can communicate their conclusions and their knowledge and technical/scientific basis to specialists and non-specialists in a clear and unambiguous way.
- CT1 - The student is able to communicate effectively both orally and in writing with specialized partners and with non-specialized audiences in the field of Chemical Engineering.
- 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.

* 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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- 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.

PREVIOUS REQUIREMENTS*

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

CONTENTS

1. Operations Management in the current company
2. Operations Strategy in a Global Environment
3. Strategies and layout process.
4. Just in Time (JIT), Lean Manufacturing. 5S. Kaizen. SMED.
5. Overall Equipment Effectiveness (OEE).
6. Linear Programming Operations.

METHODOLOGY

LEARNING ACTIVITIES*

	Credits ECTS	Competences
Lectures presenting concepts and procedures	0,72	CB6, CB8, EC7, CE11
Lectures solving exercises, problems and cases	0,57	CB6, CB8 CE7, CE11
Presentations	0.04	CB9, CT1, CE7
Personal study activities by students	1,63	CB6, CB8 EC7, CE11
Evaluation activities (tests, problem resolution, ...)	0.04	CB6, CB8, CE7, CE11
TOTAL	3.00	

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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

ASSESSMENT METHODS *

	Weight	Competences
Exams	60%	CB6, CB8, EC7
Assignments and presentations	25%	CB6, CB8, CB9, CT1, CE7, CE11
Participation	15%	CB6, CB8, CB9, CT1, CE7, 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 communicate effectively and communicate their conclusions and the knowledge and rationale that underpin them to both skilled and unskilled public, in a clear and unambiguous manner.

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- 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.

EVALUATION

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 assignments and presentations consist of doing a summary and answering the questions from articles of technical journals, on topics related to Operations Management in the companies, as well as the resolution of Business Cases of companies that have a specific problem in this area of the company.

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.

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- 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.
- 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 2013

January 2016 (prof. Francisco Amaro Martínez)

LAST REVISION

January 2019 (prof. Francisco Amaro Martínez).