Course guide
820014 - OP - Operations Management

Last modified: 02/10/2025

Unit in charge: Barcelona East School of Engineering
Teaching unit: 732 - OE - Department of Management.

Degree: BACHELOR'S DEGREE IN BIOMEDICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN CHEMICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN ELECTRICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN ENERGY ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN INDUSTRIAL ELECTRONICS AND AUTOMATIC CONTROL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Compulsory subject).
BACHELOR'S DEGREE IN MATERIALS ENGINEERING (Syllabus 2010). (Compulsory subject).

Academic year: 2025 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: RAFAEL PASTOR MORENO - BRUNO DOMÉNECH LÉGA

Others: Primer quadrimestre:
DAVID AGUSTIN RIPOLL - Grup: M31, Grup: M32, Grup: M41, Grup: M42
BRUNO DOMÉNECH LÉGA - Grup: M41, Grup: M42
XAVIER GRÈBOL NOGUERAS - Grup: T11, Grup: T12
RUBÉN MARTÍN TORT - Grup: T21, Grup: T22
RAFAEL PASTOR MORENO - Grup: M11, Grup: M12, Grup: M31, Grup: M32, Grup: M42
GEMMA ROS ESCODA - Grup: M21, Grup: M22

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
4. Understand the applications of business organisation.
5. Understand the basics of production and manufacturing systems.

Transversal:
2. ENTREPRENEURSHIP AND INNOVATION - Level 2. Taking initiatives that give rise to opportunities and to new products and solutions, doing so with a vision of process implementation and market understanding, and involving others in projects that have to be carried out.

TEACHING METHODOLOGY

The course has 4 different typologies of sessions along the semester:
- Theory: explanation of the theoretical concepts and resolution of small practical examples (20% of the time)
- Problems: resolution in group of practical exercices to deepen on the theoretical concepts (10% of the time)
- Laboratory: formulation of mathematical models and their resolution using a specialized software (10% of the time)
- Selflearning: guided actrivities as well as personal and non-in-person study (60% of the time)

LEARNING OBJECTIVES OF THE SUBJECT

Show the main ideas of production, its relationship with the logistics area and other management elements of the enterprise
Give to the students the idea of the importance of decision making when managing logistic and production systems.
Prepare the student to different techniques to schedule and control activites.
Prepare the student to solve fuzzy problems.
Teach the student quatitative techniques applicable to the solution of management problems

STUDY LOAD

Type	Hours	Percentage
Self study	90,0	60.00
Hours small group	15,0	10.00
Hours large group	45,0	30.00

Total learning time: 150 h

CONTENTS

title english

Description:
content english

Related competencies :
CEI-17. Understand the applications of business organisation.

Full-or-part-time: 0h 30m
Theory classes: 0h 30m

title english

Description:
content english

Related competencies :
CEI-15. Understand the basics of production and manufacturing systems.

Full-or-part-time: 12h 30m
Theory classes: 2h 30m
Practical classes: 2h
Self study : 8h

title english

Description:
content english

Related competencies :
CEI-15. Understand the basics of production and manufacturing systems.

Full-or-part-time: 19h
Theory classes: 5h
Practical classes: 2h
Self study : 12h

title english

Description:
content english

Related competencies :
CEI-15. Understand the basics of production and manufacturing systems.

Full-or-part-time: 16h
Theory classes: 4h
Practical classes: 2h
Self study : 10h

title english

Description:
content english

Related competencies :
CEI-15. Understand the basics of production and manufacturing systems.

Full-or-part-time: 24h
Theory classes: 6h
Practical classes: 3h
Self study : 15h

title english

Description:
content english

Related competencies :
CEI-15. Understand the basics of production and manufacturing systems.

Full-or-part-time: 14h 30m
Theory classes: 3h 30m
Practical classes: 2h
Self study : 9h

title english

Description:
content english

Related competencies :
CEI-15. Understand the basics of production and manufacturing systems.

Full-or-part-time: 9h 30m
Theory classes: 2h 30m
Practical classes: 1h
Self study : 6h

title english

Description:
content english

Related competencies :
CEI-15. Understand the basics of production and manufacturing systems.

Full-or-part-time: 24h
Theory classes: 6h
Practical classes: 3h
Self study : 15h

title english

Description:
content english

Related competencies :
01 EIN N2. ENTREPRENEURSHIP AND INNOVATION - Level 2. Taking initiatives that give rise to opportunities and to new products and solutions, doing so with a vision of process implementation and market understanding, and involving others in projects that have to be carried out.

Full-or-part-time: 30h
Laboratory classes: 15h
Self study : 15h

GRADING SYSTEM

The final mark of the course is calculated as follows:

NF = max{NF1; NF2}

NF1 = 0,45·EF + 0,25·EP + 0,15·EL + 0,1·EdP + 0,05·EdL
NF2 = 0,45·EF + 0,35·EP + 0,2·EL

EF = mark of the final examen
EP = mark of the mid-term exam
EL = mark of the laboratory exam
EdP = mark of the activities of evaluation of theory
EdL = mark of the activities of evaluation of laboratory

In case of failing, a reevaluation exam can be carried out, which allows recovering 80% of the course (the mark of the laboratory exam, EL and ACL, is excluded). Students can attend the reevaluation exam if they accomplish the requirements defined by the EEBE in the Assessment and Permanence Regulations.

Requests for review of problem and laboratory submissions must be requested by email, no later than 7 days after the submission date.

EXAMINATION RULES.

The language (catalan/spanish) assigned to a group will be the language in which classes will be taught, including exams.

The exam supervisors will help anyone who needs it by translating words and/or phrases.

BIBLIOGRAPHY

Basic:
- Companys Pascual, Ramón; Corominas Subias, Albert. Organización de la producción I: diseño de sistemas productivos. Barcelona: Edicions UPC, 1993-1994. ISBN 8476533632.
- Companys Pascual, Ramón; Corominas Subias, Albert. Organización de la producción II: dirección de operaciones. Barcelona: Edicions UPC, 1995-1996. ISBN 8476534515.

Complementary:
- Heizer, Jay H.; Render, Barry. Dirección de la producción y de operaciones: decisiones tácticas. 11ª ed. Madrid [etc.]: Pearson Educación, 2015. ISBN 9788490352854.
- Heizer, Jay H.; Render, Barry. Dirección de la producción y de operaciones: decisiones estratégicas. 11ª ed. Madrid [etc.]: Pearson Educación, 2015. ISBN 9788490352878.
- Corominas Subias, Albert; Pastor, Rafaell; Lusa García, Amaial; García Villoria, Abertol; Fossas Colet, Enricl; Domenech Léga, Brunol; Benedito, Ernestl; Batlle Arnau, Carlesl. Técnicas de optimización [on line]. Madrid: Editorial Dextra, 2021 [Consultation: 15/10/2024]. Available on: https://www-ingebook-com.recursos.biblioteca.upc.edu/ib/NPcd/IB_BooksVis?cod_primaria=1000187&codigo_libro=10934. ISBN 9788417946548.
- Hillier, Frederick S.; Lieberman, Gerald J. Introducción a la investigación de operaciones. 11ª ed. México, D.F: McGraw-Hill Interamericana de España S.L, 2023. ISBN 9781456291006.

RESOURCES

Other resources:

Transparencias de teoría
Domenech, B.; Pastor, R. "Organització de la Producció. Transparències (Curs 25-26_Q1)". Barcelona, 2025. ATENEA.

Enunciados de problemas
Agustín, D.; Domenech, B.; Grèbol, X.; Martín, R.; Pastor, R.; Ros, G. "Organització de la Producció. Sessions de problemes. Enunciats (Curs 25-26_Q1)". Barcelona, 2025. ATENEA.

Transparencia de teoría de modelización matemática
Domenech, B.; Pastor, R. "Organització de la Producció. Introducció a la Programació Lineal (Curs 25-26_Q1)". Barcelona, 2025. ATENEA.

Enunciados de laboratorio
Departament d'Organització d'Empreses. "Organització de la Producció. Sessions de laboratori. Enunciats (Curs 25-26_Q1)". Barcelona, 2025. ATENEA.

Recursos web
https://dops.upc.edu/es />https://bibliotecnica.upc.edu/