

**Information Systems for the Management of  
Operations, Quality and Processes**

Code: 104682  
ECTS Credits: 6

Degree	Type	Year	Semester
2501572 Business Administration and Management	OT	4	1

## Contact

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## Use of Languages

Principal working language: english (eng)  
Some groups entirely in English: Yes  
Some groups entirely in Catalan: No  
Some groups entirely in Spanish: No

## Teachers

Olga Borrell Vilanova  
Víctor Gimenez Garcia  
Julio Perez Ortega Pérez Ortega

## Prerequisites

There is not prerequisite knowledge to take this course

## Objectives and Contextualisation

To show the concepts and techniques used within the area of operations, both in industrial and service companies, but with special emphasis on the latter

To learn the techniques that are used to manage the supply chain (SCM)

To learn the techniques and tools for project management

To introduce the concepts associated with the processes management (BPM) through its modeling and simulation

To introduce the concepts of quality management

To know and use professional software for operations management

## Competences

- Apply mathematical instruments to synthesise complex economic-business situations.
- Apply theoretical knowledge to improve relations with clients and suppliers, identifying the advantages and disadvantages of those relations for both sides: company and client or supplier.
- Capacity for adapting to changing environments.
- Capacity for independent learning in the future, gaining more profound knowledge of previous areas or learning new topics.
- Capacity for oral and written communication in Catalan, Spanish and English, which enables synthesis and oral and written presentation of the work carried out.

- Demonstrate initiative and work individually when the situation requires it.
- Identify, justify and reason the appropriate decisions according to the basic parameters of a business problem.
- Make changes to methods and processes in the area of knowledge in order to provide innovative responses to society's needs and demands.
- Organise the work in terms of good time management, organisation and planning.
- Select and generate the information necessary for each problem, analyse it and take decisions based on that information.
- Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
- Take decisions in situations of uncertainty, demonstrating an entrepreneurial and innovative attitude.
- Use of the available information technology and adaptation to new technological environments.
- Work well in a team, being able to argue proposals and validate or reject the arguments of others in a reasoned manner.

## Learning Outcomes

1. A capacity of oral and written communication in Catalan, Spanish and English, which allows them to summarise and present the work conducted both orally and in writing.
2. Analyse a situation and identify points for improvement.
3. Apply algorithmic resolution techniques to optimisation problems.
4. Apply the basic principles of modelling in business decision-making.
5. Capacity to adapt to changing environments.
6. Capacity to continue future learning independently, acquiring further knowledge and exploring new areas of knowledge.
7. Demonstrate initiative and work independently when required.
8. Differentiate between alternative methods of analysis, and apply the appropriate quantitative tools to resolve business management problems.
9. Identify situations in which a change or improvement is needed.
10. Make decisions in situations of uncertainty and show an enterprising and innovative spirit.
11. Model the management of business operations by applying quantitative support techniques.
12. Organise work, in terms of good time management and organisation and planning.
13. Select and generate the information needed for each problem, analyse it and make decisions based on this information.
14. Solve problems optimising and obtaining forecasts through information technology applications.
15. Students must be capable of collecting and interpreting relevant data (usually within their area of study) in order to make statements that reflect social, scientific or ethical relevant issues.
16. Use available information technology and be able to adapt to new technological settings.
17. Use forecasting techniques in business contexts.
18. Weigh up the risks and opportunities of one's own ideas for improvement and proposals made by others.
19. Work as part of a team and be able to argue own proposals and validate or refuse the arguments of others in a reasonable manner.

## Content

### 1. PROJECT MANAGEMENT

Types of projects  
 Techniques for project management  
 GANTT chart  
 ROY chart  
 PERT / CPM chart  
 Resources and projects  
 Resource balancing  
 Costs and projects

Software for project management

## 2. FACILITIES LOCATION

Features of the location decisions

Score models

Center of gravity models

Median geometric models

Cost Models

Coverage models

## 3. SIMULATION

Concept and usefulness of the simulation

Methodology for simulation

Main statistical distributions. Approximation of observed data to theoretical distributions. Stat :Fits software

Introduction to Simio software

## 4. QUALITY MANAGEMENT

Principles and definitions of quality

Dimensions of quality. Quality of Service

The cost of the quality

Models for quality management: ISO 9000 and EFQM

Failure Mode and Effect Analysis (FMEA)

Statistical Process Control (SPC)

Poka-Yokes systems

## 5. BUSINESS PROCESS MANAGEMENT

General concepts and definitions

Types of processes

Relationship between processes and projects

Application to quality systems ISO and EFQM

Process Map

Description and representation of processes. PROCESS MAPPING

Key performance indicators

Process Improvement

Continuous improvement

Software for process management

## Methodology

Through the course the different chapters of the course will be developed.

Usually a series of materials and activities will have to be worked by the student prior to the classes to motivate and improve the comprehension of the subject.

Through each chapter, a series of exercises and activities will be proposed to the students to reinforce the contents. These activities will be developed by reduced groups of students.

Each week the teachers will be available some hours to attend the students individually to solve any doubts they may have (tutorial time).

Professional software in Operations Management will be used throughout the course.

"The proposed teaching methodology may undergo some modifications according to the restrictions imposed by the health authorities on on-campus courses".

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Practise classes	17	0.68	2, 4, 3, 5, 1, 6, 7, 8, 9, 11, 12, 18, 10, 15, 14, 13, 19, 16, 17
Theory classes	32.5	1.3	2, 4, 5, 6, 8, 9, 11, 12, 18, 10, 13, 16, 17
Type: Supervised			
Tutoring sessions for the cases and software use	15.5	0.62	2, 4, 3, 5, 6, 7, 8, 9, 11, 12, 18, 15, 14, 17
Type: Autonomous			
Study / tasks preparation	85	3.4	2, 4, 3, 6, 7, 8, 9, 11, 12, 18, 15, 14, 13, 19, 16, 17

## Assessment

### Calendar of evaluation activities

The dates of the evaluation activities (midterm exams, exercises in the classroom, assignments, ...) will be announced well in advance during the semester.

The date of the final exam is scheduled in the assessment calendar of the Faculty.

*"The dates of evaluation activities cannot be modified, unless there is an exceptional and duly justified reason why an evaluation activity cannot be carried out. In this case, the degree coordinator will contact both the teaching staff and the affected student, and a new date will be scheduled within the same academic period to make up for the missed evaluation activity."* **Section 1 of Article 115. Calendar of evaluation activities (Academic Regulations UAB).** Students of the Faculty of Economics and Business, who in accordance with the previous paragraph need to change an evaluation activity date must process the request by filling out an Application for exams' reschedule  
[https://eformularis.uab.cat/group/deganat\\_feie/application-for-exams-reschedule](https://eformularis.uab.cat/group/deganat_feie/application-for-exams-reschedule)

### Grade revision process

After all grading activities have ended, students will be informed of the date and way in which the course grades will be published. Students will be also be informed of the procedure, place, date and time of grade revision following University regulations.

### Retake Process

All students are required to perform the evaluation activities. If the student's grade is 5 or higher, the student passes the course and it cannot be subject to further evaluation. If the student grade is less than 3.5, the student will have to repeat the course the following year. Students who have obtained a grade that is equal to or greater than 3.5 and less than 5 can take a second chance exam. The lecturers will decide the type of the second chance exam. When the second exam grade is greater than 5, the final grade will be a PASS with a maximum numerical grade of 5. When the second exam grade is less than 5, the final grade will be a FAIL with a numerical grade equal to the grade achieved in the course grade (not the second chance exam grade).

A student who does not perform any evaluative task is considered "not evaluable", therefore, a student who performs a continuous assessment component can no longer be qualified with a "not evaluable"

"To participate in the retake process, students must have previously been assessed in a set of activities that repr

Apartat 3 de l'Article 112 ter. La recuperació (Normativa Acadèmica UAB).

#### Irregularities in evaluation activities

In spite of other disciplinary measures deemed appropriate, and in accordance with current academic regulations, *"in the case that the student makes any irregularity that could lead to a significant variation in the grade of an evaluation activity, it will be graded with a 0, regardless of the disciplinary process that can be instructed. In case of various irregularities occur in the evaluation of the same subject, the final grade of this subject will be 0".* **Section 10 of Article 116. Results of the evaluation. (UAB Academic Regulations).**

***"The proposed evaluation activities may undergo some changes according to the restrictions imposed by the health authorities on on-campus courses."***

### Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Business process management- Written report with technical software support	25%	0	0	2, 4, 5, 6, 7, 9, 11, 12, 18, 10, 15, 14, 13, 19, 16, 17
Facilities location- Written report with software support	15%	0	0	5, 6, 7, 12, 10, 15, 13, 19, 16
Final task: Simulation- Oral presentation with technical software support	25%	0	0	2, 4, 3, 5, 1, 6, 7, 8, 9, 11, 12, 18, 10, 15, 14, 13, 19, 16, 17
Project Management- Case study with technical software support	15%	0	0	2, 4, 3, 5, 1, 6, 7, 8, 9, 11, 12, 18, 15, 14, 13, 16, 17
Quality management - Written report	20%	0	0	2, 4, 5, 1, 6, 7, 8, 9, 12, 18, 15, 13, 19, 16, 17

### Bibliography

Basic:

Heizer, J. and Render, B. (2013). Operations Management: sustainability and supply chain management (Global edition). 11<sup>a</sup> edición. Prentice-Hall.

Complementary:

- Chase, R.B., Aquilano, y N.J. Jacobs, F.R. (2018): Administración de la producción y operaciones, 12ª edición. McGraw-Hill.
- Companys, R. y Fonollosa, J.B. (1999): Nuevas técnicas de Gestión de stocks: MRP i JIT. 1ª edición. Marcombo.
- Greasley, A. (2013): Operations Management. 3ª edición. John Wiley & sons
- Schnierderjans, Marc J. and Cao, Qing. (2013) E-Commerce Operations Management. 2ª edición. World Scientific
- Schroeder, R. G. (2011): Administración de Operaciones. 5ª edición. McGraw-Hill
- Verge, X. y Martínez J.L.(1992): Estrategia y Sistemas de Producción de las Empresas Japonesas. 1ª edición. Gestió2000

#### Digital

- Nigel Slack, Alistair Brandon-Jones, [Operations management](https://cataleg.uab.cat/iii/encore/record/C__Rb2092110__S%28operations%29%20f%3Az__Orightresult__). Online book | Pearson 2019:  
[https://cataleg.uab.cat/iii/encore/record/C\\_\\_Rb2092110\\_\\_S%28operations%29%20f%3Az\\_\\_Orightresult\\_\\_](https://cataleg.uab.cat/iii/encore/record/C__Rb2092110__S%28operations%29%20f%3Az__Orightresult__)
- Jay Heizer, Barry Render, Chuck Munson, Operations Management : Sustainabilityand Supply Chain Management / Online book | Pearson Education | 2017 | Twelfth Edition, Global Edition:  
[https://cataleg.uab.cat/iii/encore/record/C\\_\\_Rb2003952\\_\\_S%28operations%29%20f%3Az\\_\\_Orightresult\\_\\_](https://cataleg.uab.cat/iii/encore/record/C__Rb2003952__S%28operations%29%20f%3Az__Orightresult__)

#### Software

Project software, SIMIO, Excel, Stat:Fit, Visio