

Operations Management

Code: 104677
ECTS Credits: 6

Degree	Type	Year	Semester
2501572 Business Administration and Management	OB	3	2
2501573 Economics	OT	3	2
2501573 Economics	OT	4	0

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: Yes
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: Yes

Teachers

Olga Borrell Vilanova
Julio Perez Ortega Pérez Ortega
Alexandra Simon Villar
David Chavez Villanueva

Prerequisites

Subject development doesn't requires any knowledge prerequisites.

Obviously, all administrative requirements to course the subject must be fulfilled to enroll in the course.

Objectives and Contextualisation

- To introduce a modern approach to Operations Management as a basement to achieve an integrated management of the company
- To place the production system as the union of procurement, manufacturing and distribution subsystems positioning itself in relation with Finance and Marketing Systems
- To introduce the strategic and operational aspects of the production function
- To know the main decision areas of the operations area
- To know the main tools used to support decisions in the operations area

Competences

- Business Administration and Management
- 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.
- 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.
- 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.
- Use of the available information technology and adaptation to new technological environments.

Economics

- 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.
- 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.
- 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.
- Show motivation for carrying out quality work and sensitivity to the consequences for the environment and society.
- Use of the available information technology and adaptation to new technological environments.

Learning Outcomes

1. Apply algorithmic resolution techniques to optimisation problems.
2. Apply the basic principles of modelling in business decision-making.
3. Demonstrate initiative and work independently when required.
4. Demonstrate motivation regarding the quality of the work performed and sensitivity regarding the consequences on the environment and society.
5. Differentiate between alternative methods of analysis, and apply the appropriate quantitative tools to resolve business management problems.
6. Model the management of business operations by applying quantitative support techniques.
7. Organise work, in terms of good time management and organisation and planning.
8. Select and generate the information needed for each problem, analyse it and make decisions based on this information.
9. Solve problems optimising and obtaining forecasts through information technology applications.
10. Use available information technology and be able to adapt to new technological settings.
11. Use forecasting techniques in business contexts.

Content

THEME I - INTRODUCTION TO OPERATIONS MANAGEMENT

1. What is Operations Management?
2. Why study OM?
3. The production function and the production system
4. Goods versus services
5. What operations managers do
6. OM and the strategy of the firm
7. New trends in OM

THEME II - PROCESS DESIGN AND PLANNING

PART 1 - Capacity and Performance Measurement

1. Process strategies

2. Capacity and Productivity
3. Considerations on capacity and strategy

PART 2 - Time studies

1. Labor Standards and Work Measurement
2. Time studies
3. Predetermined Time Standards

PART 3 - Line Balancing

1. Production lines
2. Cycle Time, Number of Workstations, Efficiency
3. Heuristic methods for elements assignment

THEME III - PRODUCTION PLANNING

1. What is Aggregate Planning?
2. Methods for Aggregate Planning
3. Graphical Methods - (constant workforce; variable workforce; subcontracting)
4. Transportation Method of Linear Programming (Bowman)
5. Other models

THEME IV - MATERIALS REQUIREMENT PLANNING

1. MRP: definition and benefits
2. Dependent demand
3. Master Production Schedule (MPS)
4. From Aggregate Production Plan to MPS
5. Bill of Materials (BOM)
6. Lead times, safety stock and lot policy
7. Examples MRP

THEME V - PRODUCTION SCHEDULING

1. The strategic importance of short-term scheduling
2. Scheduling issues
3. Forward and backward scheduling
4. Scheduling criteria
5. Scheduling process-focused facilities
6. Loading jobs
7. Sequencing jobs
8. Finite Capacity Scheduling (FCS)
9. Theory of Constraints
10. Scheduling repetitive facilities
11. Scheduling services

THEME VI - INVENTORY MANAGEMENT FOR INDEPENDENT DEMAND PRODUCTS

1. Inventory: functions and types
2. What is inventory management?
3. ABC analysis
4. Holding, Ordering, and Setup Costs
5. Deterministic inventory models
 1. Basic economic order quantity
 2. Production order quantity
 3. Quantity discount model
7. Deterministic versus probabilistic Models
8. Probabilistic Models and Safety Stock
9. Fixed quantity (Q) versus fixed period (P) models

Methodology

Teaching will be offered on campus.

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).

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, 1, 3, 5, 6, 7, 9, 8, 10, 11
Theory classes	32.5	1.3	2, 1, 5, 6, 9, 8, 10, 11
Type: Supervised			
Tutoring for project preparation	12	0.48	3, 7, 8, 10
Type: Autonomous			
Study	85	3.4	2, 1, 5, 6, 7, 9, 8, 11

Assessment

A student is considered as "Not evaluable" for the final overall grade, whenever he/she did not participate to any evaluation activity.

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

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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".

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).

"To participate in the retake process, students must have previously been assessed in a set of activities that represent a minimum of two thirds of the total grade of the subject or module. " Section 3 of Article 112b. Retake (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
Final exam	50%	2	0.08	2, 1, 3, 5, 6, 4, 7, 9, 8, 10, 11
Group project	15%	0	0	4, 7, 8, 10
Mid-term exam	35%	1.5	0.06	3, 4, 7, 8

Bibliography

Basic Bibliography:

- Heizer, I., Render, B. and Munson, C. (2016): Operations Management: Sustainability and Supply Chain Management. 12 edition. Prentice-Hall (this is the latest version of the manual accessible as a digital book through the UAB Library Service)

Additional Bibliography:

- Chase, R.B., Aquilano, y N.J. Jacobs, F.R. (2012): Administración de la producción y operaciones, 13ª edición. McGraw-Hill.
- Gaither, N y Frazier, G. (2000): Administración de Producción y Operaciones. 4ª edición. Thomson Editores.
- Greasley, A. (2013): Operations Management. 3ª edición. John Wiley & sons
- Miranda Gonzalez, F.J. y otros. (2008): Manual de Dirección de Operaciones. 1ª edición. Thomson
- 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. Gestió 2000

Software

Microsoft Excel