

## 30117 - Production Management

### Información del Plan Docente

<b>Academic Year</b>	2018/19
<b>Subject</b>	30117 - Production Management
<b>Faculty / School</b>	175 - Escuela Universitaria Politécnica de La Almunia 179 - Centro Universitario de la Defensa - Zaragoza
<b>Degree</b>	457 - Bachelor's Degree in Industrial Organisational Engineering 563 - Bachelor's Degree in Industrial Organisational Engineering 425 - Bachelor's Degree in Industrial Organisational Engineering
<b>ECTS</b>	6.0
<b>Year</b>	3
<b>Semester</b>	Half-yearly
<b>Subject Type</b>	Compulsory
<b>Module</b>	---

### **1.General information**

#### **1.1.Aims of the course**

#### **1.2.Context and importance of this course in the degree**

#### **1.3.Recommendations to take this course**

### **2.Learning goals**

#### **2.1.Competences**

#### **2.2.Learning goals**

#### **2.3.Importance of learning goals**

### **3.Assessment (1st and 2nd call)**

#### **3.1.Assessment tasks (description of tasks, marking system and assessment criteria)**

### **4.Methodology, learning tasks, syllabus and resources**

#### **4.1.Methodological overview**

### **SPECIALIZATION IN BUSINESS**

The learning process designed for this subject is based on the following:

Strong interaction between the teacher/student. This interaction is brought into being through a division of work and responsibilities between the students and the teacher. Nevertheless, it must be taken into account that, to a certain

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degree, students can set their learning pace based on their own needs and availability, following the guidelines set by the teacher.

The subject is conceived as a combination of contents, yet organized into two fundamental and complementary forms, which are: the theoretical concepts of each teaching unit and the solving of problems or resolution of questions at the same time supported by other activities.

The organization of teaching will be carried out using the following steps:

- **Theory Classes:** Theoretical activities carried out mainly through exposition by the teacher, where the theoretical supports of the subject are displayed, highlighting the fundamental, structuring them in topics and or sections, interrelating them.
- **Practical Classes:** The teacher resolves practical problems or cases for demonstrative purposes. This type of teaching complements the theory shown in the lectures with practical aspects.
- **Individual Tutorials:** Those carried out giving individual, personalized attention with a teacher from the department. These tutorials may be in person or online.

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- Lectures or theoretical sessions.
- Practical sessions.
- Office hours.

## 4.2.Learning tasks

### SPECIALIZATION IN BUSINESS

Throughout the semester they will be established:

#### Face-to-face generic activities:

1. **Theory Classes:** the theoretical concepts of the subject will be explained and practical examples will be developed by the teacher.
2. Practice tutored, problems and cases for discussion: Students will develop examples and conduct problems or case studies concerning the theoretical concepts studied.

#### Generic non-class activities

1. Tutored autonomous activities: These activities will be guided by the teacher of the subject. They will focus both papers, either individually or in small groups, as the study methodology necessary or convenient for the assimilation of each of the aspects developed in each subject.
2. Reinforcement activities: Through the virtual learning portal Moodle various activities that reinforce the basic contents of the subject will be published. The implementation of these activities will be personalized and controlled.
3. Individual tutorials: They may be actual or virtual.
4. Independent learning activities: Students must carry out the for:
  - \* The study and assimilation of the theory presented in lectures.
  - \* Understanding and assimilation of solved problems and practical cases.
  - \* The preparation of seminars, solving proposed problems, etc.
  - \* The preparation of the written tests Continuous Assessment and Global Assessment.

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### DEFENCE

- Lectures.
- Practical sessions.
- Office hours: personalised attention.

### 4.3.Syllabus

#### SPECIALIZATION IN BUSINESS

Contents of the subjects essential for achieving the learning outcomes.

The choice of the content of the various teaching units was made seeking the express clarification of the final objective, so that with the combination of knowledge the student obtains a structured and assimilable knowledge to a student in Industrial Management Engineering

The theoretical basis articulated in ten teaching units encompassed in four thematic blocks. These topics collect the contents needed for the acquisition of predetermined learning outcomes.

#### SYNTHETIC CONTENT

##### \* Block I

UNIT 1. INTRODUCTION TO OPERATIONS MANAGEMENT

UNIT 2: PURCHASING MANAGEMENT

##### \* Block II

UNIT 3: INVENTORY MANAGEMENT

UNIT 4: STATISTICAL QUALITY CONTROL FOR FINISHED PRODUCTS

##### \* Block III

UNIT 5: PRODUCTION STRATEGY

UNIT 6: METHODS ENGINEERING. WORK STUDY

UNIT 7: TIME AND MOTION STUDY

##### \* Block IV

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UNIT 8: PLANT LAYOUT STUDY

UNIT 9: PROGRAMMING AND CONTROL PROJECT

UNIT 10: LEAN MANUFACTURING

Each topic exposed, has associated practices in this regard, whether through practical cases, interpretation and commentary on readings associated with the subject and / or work leading to obtaining results and their analysis and interpretation. As topics are developed they will go raising practices in classroom or through the Moodle platform.

### DEFENCE

The short syllabus for "Operations management" (Defence) is shown in Table 1.

**Table 1. "Operations management" (Defence) short syllabus**

<b>BLOCK I. Operations and Productivity</b>
1. Operations
2. Productivity
3. Operations strategy in a global environment
<b>BLOCK II. Operations design</b>
4. Design of goods and services
5. Process strategy
6. Capacity planning
<b>BLOCK III. Tactical and operational decisions</b>
7. Aggregate planning
8. Material Requirements Planning (MRP) and Enterprise Resource Planning (ERP)

9. Short-term scheduling

### **SYLLABUS**

#### **BLOCK I. Operations and Productivity**

##### **1. Operations**

- 1.1. What is "Operations Management" (OM)?
- 1.2. Organising to produce goods and services
- 1.3. Why study Operations Management?
- 1.4. What Operations Managers do? Ten critical decisions
- 1.5. Operations in the service sector
- 1.6. New trends in OM
- 1.7. Ethics and social responsibility

##### **2. Productivity**

- 2.1. Productivity challenge
- 2.2. Productivity measurement and analysis: Single-factor productivities
- 2.3. Productivity measurement and analysis: Multi-factor productivities
- 2.4. Key variables for improving productivity
- 2.5. Productivity in the service sector

##### **3. Operations strategy in a global environment**

- 3.1. Introduction. A global view of operations
- 3.2. Defining and developing missions and strategies

- 3.3. Internal and external environmental factors that affect OM
- 3.4. Strategies for achieving competitive advantage through operations
  - 3.4.1. Competing on Differentiation
  - 3.4.2. Competing on Cost (Low cost strategy)
  - 3.4.3. Competing on Response
- 3.5. Strategy development and implementation
- 3.6. Global Operations Strategy Options
  - 3.6.1. International strategy
  - 3.6.2. Multidomestic strategy
  - 3.6.3. Global strategy
  - 3.6.4. Transnational strategy

### **BLOCK II. Operations design**

#### **4. Design of Goods and Services**

- 4.1. Goods and services selection
- 4.2. Generating new products
- 4.3. Product development
- 4.4. Issues for product design
- 4.5. Time-based competition
- 4.6. Defining a product
- 4.7. Document for production

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4.8. Service design

4.9. Application of decision trees to product design

4.10. Transition to production

### **5. Process strategy**

5.1. Four process strategies: process focus, repetitive focus, product focus and mass customization

5.2. Process analysis and design

5.3. Service process design

5.4. Selection of equipment and technology

5.5. Production technology

5.6. Technology in services

5.7. Process redesign

### **6. Capacity planning**

6.1. Capacity: design capacity, effective capacity, utilization and efficiency

6.2. Capacity planning

6.3. Demand and capacity management in the service sector

6.4. Break-even analysis. Multiproduct case

6.5. Applying Net Present Value (NPV) to strategy-driven investments regarding capacity

### **BLOCK III. Tactical and operational decisions**

#### **7. Aggregate Planning**

7.1. The planning process

7.2. The nature of aggregate planning

7.3. Aggregate planning strategies

7.4. Methods for aggregate planning

7.5. Aggregate planning in Services

7.6. Yield management

### **8. Material Requirements Planning (MRP) and ERP**

8.1. Forecasting

8.2. Inventory management: dependent demand *versus* independent demand

8.3. Dependent inventory model requirements

8.4. Material Requirements Planning (MRP)

8.5. Lot-sizing techniques

8.6. Extensions of MRP

8.7. MRP in Services

8.8. Enterprise Resource Planning (ERP)

### **9. Short-term scheduling**

9.1. Strategic importance of short-term scheduling

9.2. Scheduling issues, decisions and criteria

9.3. Scheduling process-focused facilities

9.4. Loading jobs. Assignment method

9.5. Sequencing jobs



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9.6. Scheduling services

### 4.4.Course planning and calendar

#### **SPECIALIZATION IN BUSINESS**

The subject has 6 ECTS credits, which represents 150 hours of student work in the subject during the semester, in other words, 10 hours per week for 15 weeks of class.

The summary of the timing of the course activities, would be the following:

- \* Lectures: 35 hours
- \* Practical classes: 14 hours
- \* assessment tests: 6 hours
- \* Tutored practices: 5 hours
- \* Tutored Independent learning activities: 32 hours
- \* Independent learning activities: 58 hours

In the lecture, the theoretical exposition is combined with problem solving.

The practical classes are directed to the realization of problems, presentation and discussion of cases. The above activities are distributed weekly in four hours of lecture.

The weekly distribution of the course is done in three blocks of content that structure the subject matter and may vary depending on the evolution of teaching.

- \* Block I: Week 1 to Week 3
- \* Block II: Week 4 to Week 9
- \* Block III: Week 10 to Week 14
- \* Block IV: Week 15

The dates of the final exams will be published officially in: <http://www.eupla.unizar.es>.

#### **DEFENCE**

The subject has 6 ECTS credits, which represents 60 hours of presential activities during the semester.

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The summary of the timing of the 60 hours will be as follows:

Lectures: 35 hours

Practical sessions: 19 hours

Exams/Tests: 6 hours

The weekly distribution of the course is structured in three blocks of contents and may vary depending on the evolution of the academic year.

Week #1 - Week #4: Block I (Operations and productivity)

Week #5 - Week #9: Block II (Operations design) and assessment test 1

Week #10 - Week #14: Block III (Tactical and operational design)

Week #15: Overview.

The dates of the assessment tests will be published at: <http://cud.unizar.es/calendarios>.

### **4.5. Bibliography and recommended resources**

#### **DEFENCE**

Teaching resources are available in Moodle.