

Academic Year/course: 2022/23

## 29539 - Production Process Management

### Syllabus Information

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**Academic Year:** 2022/23

**Subject:** 29539 - Production Process Management

**Faculty / School:** 175 - Escuela Universitaria Politécnica de La Almunia

**Degree:** 625 - Bachelor's Degree in Industrial Processes' Data Engineering

**ECTS:** 6.0

**Year:** 2

**Semester:** Second semester

**Subject Type:** Compulsory

**Module:**

## 1. General information

### 1.1. Aims of the course

#### **The subject and its expected results respond to the following approaches and objectives:**

The knowledge and use of basic instruments for the management of the production/operations area in organizations. In particular, it seeks to:

Present the basic concepts on the meaning of the production function in organizations and the interrelation it generates with the rest of the organization's areas.

To analyze, from the available information, the organization of the productive activity of the company.

To be able to express all the theoretical knowledge acquired through the resolution of practical assumptions published for this purpose, with emphasis on autonomous work, given the importance of non-attendance credits in the framework of the European Higher Education Area (EHEA).

These approaches and objectives are in line with the following Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda (<https://www.un.org/sustainabledevelopment/>) in particular Goal 9: Industry, innovation and infrastructure and Goal 12: Responsible production and consumption, in such a way that the acquisition of the course learning outcomes provides training and competence to contribute to their achievement to some degree.

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

The subject "Organization of Production Processes" is a 6 ECTS credits course of compulsory nature that is part of the Degree in Data Engineering in Industrial Processes.

Once the student has taken the basic and transversal subjects of the first year of the degree, this course will show him how to manage the functional area of Production, recognizing that it must act in coherence with the rest of the functional areas and that it can be a source of competitive advantage for the success of the company or organization. The meaning of the course in the degree is justified by the fact that its design aims to introduce the student to the knowledge of appropriate techniques that will promote efficient decision making in the operations area. In this way, it contributes to train professionals capable of analyzing processes in organizations, serving the general objective of the Degree in Data Engineering in Industrial Processes.

### 1.3. Recommendations to take this course

Although there are no prerequisites for the completion of this subject, it is recommended that those who take it have in mind the knowledge acquired in "Business Organization and Management" for a better contextualization and understanding of the course.

## 2. Learning goals

### 2.1. Competences

Upon passing the course, the student will be more competent to acquire the following competences:

**BASIC AND GENERAL:**

- Efficiently solve basic problems related to production processes in industry.(CG02).

- Build solutions derived from data analysis to optimize production processes in the industry.(CG06)
- That students know how to apply their knowledge to their work or vocation in a professional manner and possess the competences that are usually demonstrated through the elaboration and defense of arguments and the resolution of problems within their area of study (CB2).
- That students can transmit information, ideas, problems and solutions to both specialized and non-specialized audiences (CB4).

#### TRANSVERSAL:

- Search, select and manage information and knowledge in a responsible manner (CT03).
- Analyze and solve problems autonomously, adapt to unexpected situations and make decisions (CT07).
- Demonstrate sensitivity to ethical, social and environmental issues. (CT08)
- Plan and manage time, material and human resources (CT11).

#### SPECIFIC

- CE24 - Differentiate production, logistics and process control systems.

## 2.2. Learning goals

The student, in order to pass this course, must demonstrate the following learning outcomes:

1. Organizes and manages the planning, scheduling and production control of a company, selecting the most suitable equipment 2.
2. Uses the different diagrams for the representation of the working methods.
3. Applies time measurement techniques and time calculation of tasks.
4. Describes the different areas of the supply chain and their interrelationships.
5. Organizes the purchasing and procurement, warehousing and logistics functions of the company, knowing how to apply appropriate analysis techniques.

## 2.3. Importance of learning goals

Organizations produce goods and/or services, which they make available to the market and, to do so, they must coordinate a set of elements that make up their operations, interrelating these with the rest of the activities of the marketing, financial, human resources and management areas.

Students' knowledge of the different techniques will allow them to make efficient decisions in the operations area.

Among the different types of engineering professionals that are demanded by society are the figures of:

- Company managers in different functional areas such as production/operations,
- Purchasing and supply managers, among others.

In order to carry out the above professional tasks effectively and efficiently, it will be necessary for them to master the contents of this subject.

In addition, the importance of the learning outcomes of this subject lies in knowing the importance of concepts such as production, productivity, break-even point, MRP (Material Requirements Planning) and ERP (Enterprise Resource Planning), among many others.

Knowledge of the functioning of the production/operations area of organizations and the ability to perform any work related to its management is considered essential to access jobs that involve decision-making in the production/operations area as well as the decisions made by the people responsible for planning activities.

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

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

Following the spirit of Bologna regarding the degree of involvement and continuous work of the student throughout the course, the evaluation of the subject contemplates the Continuous Assessment method as the most appropriate to be in line with the guidelines set by the EHEA framework.

However, in order to improve the student's motivation and without restricting the right to opt for continuous assessment, attendance to daily class activities will be compulsory. To these effects, it will be considered valid if the attendance to class is accredited in more than 80%.

For this purpose, different activities have been designed, consisting of Evaluation Tests on the topics in which the subject matter of the course has been structured.

The evaluation process will be carried out according to the:

- Direct observation of the student to know his attitude towards the subject and the work it requires (attention in class, completion of assignments, resolution of questions and problems, active participation in the classroom, etc.).
- Checking their progress in the conceptual field (questions in class, comments in the classroom, etc.).
- Periodic oral and/or written tests to assess the degree of knowledge acquired, as well as the qualities of expression that, at this educational level, must be shown with ample correction.

## DETAIL OF THE TESTS OF CONTINUOUS EVALUATION:

The Evaluation Tests, will consist of written tests and practical work with a valuation weight of 100% of the final grade, specifically:

1. **WRITTEN TESTS.** They will consist of TWO theoretical-practical TESTS of the contents seen to date, consisting of the development of theory questions and problem solving. The evaluation criteria for the questions will be based on the precision, relevance and clarity of the answers. The minimum passing grade will be 5 out of 10. It constitutes 60% of the evaluation.
2. **HOMEWORKS.** They will consist of the elaboration of works that will be published in the Moodle platform. The evaluation criteria for these tests are the obtaining of results, analysis and interpretation of the same. It constitutes 40% of the evaluation.

To compensate partial exams with assignments it is essential to pass both exams and assignments.

- In case of obtaining a result lower than 5 and higher than 4 points out of 10 in any partial exam and an average mark of work is higher than 7 points, it will serve to pass the failed partial exam.
- For the first call, those students who fail a midterm will be able to sit for the exam and will only be examined for the failed midterm.
- For the second exam those students who have not passed the course in the first exam with the whole syllabus will be able to take the exam.

## GLOBAL EVALUATION

Those students who so wish may apply, in the manner and within the term that the center considers, to the possibility of being evaluated through an Extraordinary Global Evaluation in call, as opposed to the Continuous Evaluation above.

The Extraordinary Global Evaluation will consist of a single global test with which 100% of the student's grade will be evaluated. This test will include the content of all the material covered throughout the course, by means of theoretical and practical questions of the same type and maintaining the same criteria for its correction as those indicated for the Continuous Evaluation.

For the dates of these tests, please refer to the EUPLA website (<http://www.eupla.unizar.es>).

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

### 4.1. Methodological overview

The teaching methodology is based on teacher/student interaction. This interaction is materialized by means of a division of work/responsibilities between students and teachers.

In order to achieve the aforementioned objectives, the organization of the teaching will be developed by means of different types of activities:

- Lectures: Theoretical and/or practical activities given by the teacher.
- Practical classroom classes: Theoretical discussion activities or preferably practical activities carried out in the classroom and that require student participation.
- Group tutorials: Scheduled activities to monitor learning, in which the teacher meets with a group of students to guide their work of study and independent learning and tutoring of directed work or requiring a very high degree of advice from the teacher.
- Individual tutorials: they may be face-to-face or virtual.

The approach, methodology and evaluation of this guide is prepared to be the same in any teaching scenario. They will be adjusted to the socio-sanitary conditions of each moment, as well as to the indications given by the competent authorities.

### 4.2. Learning tasks

To help students achieve the expected results, the following activities will be carried out:

#### Classroom activities:

1. theoretical concepts of the subject will be explained Expository theoretical classes: and practical examples will be developed by the teacher.
2. Tutored practicals, problem classes and cases to debate: Students will develop examples and will carry out problems or practical cases referring to the theoretical concepts studied.

#### Non-attendance activities:

1. Autonomous tutored activities: These activities will be guided by the faculty of the course. They will be focused on the realization of works/projects, either individual or in small groups, as well as on the necessary or more convenient study methodology for the assimilation of each of the aspects developed in each subject.
2. Reinforcement activities: Through the virtual teaching portal Moodle will be directed various activities that reinforce the basic contents of the subject. These activities will be personalized and their realization will be controlled through the same.
3. Individual tutorials: They can be face-to-face or virtual.

**Autonomous activities:** The students will have to carry them out for:

- The study and assimilation of the theory exposed in the master classes.
- The understanding and assimilation of problems and practical cases solved in the practical classes.

- The preparation of seminars, resolution of proposed problems, etc.
- The preparation of the written tests of Continuous Evaluation and Global Evaluation.

### 4.3. Syllabus

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 sections. These topics collect the contents needed for the acquisition of predetermined learning outcomes. The course will address the following topics:

#### **SYNTHETIC CONTENT**

- Topic 1. INTRODUCTION TO OPERATIONS MANAGEMENT
- Topic 2: PURCHASING MANAGEMENT
- Topic 3: DEMAND ANALYSIS, FORECASTING AND PLANNING
- Topic 4: INVENTORY MANAGEMENT
- Topic 5: STATISTICAL QUALITY CONTROL FOR FINISHED PRODUCTS
- Topic 6: PROGRAMMING AND CONTROL PROJECT
- Topic 7: PRODUCTION STRATEGY
- Topic 8: METHODS of ENGINEERING. WORK STUDY
- Topic 9: TIME AND MOTION STUDY
- Topic 10: PLANT LAYOUT
- Topic 11: 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 the classroom or through the Moodle platform.

### 4.4. Course planning and calendar

#### **Schedule of classroom sessions and presentation of papers**

The course consists of 6 ECTS credits.

The summary of the time distribution of the course activities is as follows:

- Lectures: 35 hours
- Practical classes: 14 hours
- Evaluation tests: 6 hours
- Tutored practicals: 5 hours
- Tutored autonomous activities: 32 hours
- Autonomous activities: 58 hours

In the master class, the theoretical exposition is combined with the resolution of typical problems.

The practical classes are directed to the realization of problems, exposition and discussion of cases.

The above activities are distributed weekly in four hours of master class.

The weekly distribution of the different blocks may vary depending on the development of the teaching activity.

#### **KEY DATES**

The weekly timetable of the course and the dates of the evaluation of the call can be found in the web pages of the center. Likewise, the dates of realization

<http://eupla.unizar.es> <http://cud.unizar.es> of the evaluation tests will be informed in advance both in class and on the virtual platform Moodle 2.

### 4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=29539>