

30171 - Logistics

Syllabus Information

Academic Year: 2022/23

Subject: 30171 - Logistics

Faculty / School: 179 - Centro Universitario de la Defensa - Zaragoza

Degree: 563 - Bachelor's Degree in Industrial Organisational Engineering

ECTS: 4.5

Year: 3

Semester: First semester

Subject Type: Compulsory

Module:

1. General information

1.1. Aims of the course

The main aim of this subject is to provide students a global vision of logistic management in organizations based on supply chain management. Students will deepen in each traditional fields of logistics as the procurement, storage, distribution and reverse logistic. For each one of them the student will be able to critically analyze different logistic strategies and apply the basic tools usually used for their design and management. Finally, the student will know the technologies used to codify and track products within supply chains.

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/>), Goal 9, Industry, innovation and infrastructure, Goal 11, Sustainable cities and communities and Goal 12, Responsible consumption and production. In this way, 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

In the last few years logistic is one of the business decision areas which have received greater attention from the standpoint of international competitiveness of companies. Logistics management as a fundamental element aimed at satisfying customer requirements, as well as the possibility of generating value from processes such as reverse logistics, being logistics a fundamental tool of the Industrial Organization. Finally, it must be taken into account that adequate logistics management is a key aspect for the optimal functioning of any productive process.

Moreover, logistics is an essential capability in the proper functioning of Armed Forces of any country, It is so relevant and complex that a high percentage of the armies personal devote their work to these tasks. In fact, armies have been precursors of many of the advances in this field along history.

Therefore, the interest of this subject for the degree of Industrial Organization Engineering is undeniable. Even more if it fits for the Defense profile that the future officers study on Centro Universitario de la Defensa.

1.3. Recommendations to take this course

To face this subject is necessary to have knowledge of the subject **Operational Research**, with the aim of formulate models from the verbal description of the real system, as well as handle mathematical knowledge necessary to solve optimization problems.

It is also convenient to have knowledge about modeling of engineering environments under stochastic nature, as well as performing calculations in situations of uncertainty. This knowledge should have been acquired in the subject **Statistics**.

2. Learning goals

2.1. Competences

Among all competences expected of the graduates of this degree, students will have developed the following during this subject:

Generic competences

- C02 - Ability to plan, budget, organise, manage and monitor tasks, people and resources.

- C04 - Ability to solve problems and take decisions with initiative, creativity and critical reasoning.
- C05 - Ability to apply Information and Communication Technologies (ICTs) within the field of engineering.
- C06 - Ability to communicate knowledge and skills in Spanish.
- C08 - Ability to analyse and evaluate the social and ecological impact of technical solutions, behaving ethically, with professional responsibility and social commitment, always striving for quality and continuous improvement.
- C09 - Ability to work in a multidisciplinary group and in a multilingual setting.
- C10 - Ability to manage information; skills to handle and apply technical specifications and the necessary legislation to practice.
- C11 - Ability to continue learning and develop self-learning strategies.

Specific competences

- C29 - Knowledge and capacities to design, manage and organize productive and logistic systems in a business.

2.2. Learning goals

Curriculum of the degree in Industrial Organization Engineering presents as required knowledge for this subject:

- Know Areas of the Supply Chain and their interrelations.
- Identify key decisions in purchasing and procurement process
- Organize purchasing and provisioning function of the company
- Know how to apply supplier evaluation techniques.
- Classify the company's products related with their importance for logistics management.
- Distinguish the most suitable warehouse typology for each company depending on its logistic process.
- Identify the storage and handling systems required in different logistic situations.
- Organize the basic principles of inventory management to optimize the acquisition of materials.
- Plan the distribution of materials of a company between its different production and logistics centers
- Apply analysis techniques to manage distribution routes.
- Understand the different processes involved in reverse logistics.
- Organize reverse logistics processes between the production and logistics centers of the company.
- Know how to apply identification systems in different processes.
- Identify the necessary technologies to perform the traceability of materials in the company's logistics cycle.

2.3. Importance of learning goals

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3. Assessment (1st and 2nd call)

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

FIRST CALL

Continuous assessment:

The students will be able to pass the total of the subject by the continuous assessment procedure. To do this, they must demonstrate that they have achieved the expected learning outcomes by passing the assessment instruments indicated below, which will be carried out throughout the semester:

1. Exams (65% of the final grade)

- These two exams (32,5% of the grade each) may contain different kinds of questions: multiple-choice questions, short answer questions, and problems.
- The student must have a grade equal or greater than 5 in the mean of these exams.

1. Assignments (35% of the final grade)

- Several assignments will be proposed throughout the course to be carried out by all students.
- The value of each assignment will depend on the final number of assignment carried out and the size of each one.
- Assignments will be held in small groups.
- Student will have to perform a previous individual test with multiple-choice questions in the classroom. To do that, the student will have all material of the subject. This test will represent 25% of the assessment grade. Multiple-choice questions will be focused on theory apply to the assignment, as well as the understanding of the tasks.
- The grading of each assignment will take into account the accuracy of the results, the quality of the explanations, the creativity provided by the students, as well as the formal quality of the reports and the compliance with the established deadlines.
- The student must have a grade equal or greater than 5 in each assignment. If this grade is not reached after the first submission, it must be submitted again, following the indications given by the teacher.
- When the minimum grade is achieved after the scheduled date, the maximum grade which will be considered for the final grade will be 5.
- An oral presentation of the assignments in Spanish or English may be required.

In the final mark of the continuous assessment (100%) all the assessment instruments carried out throughout the course and its weight will be taken into account. To pass the subject, the student's final grade must be equal to or greater than 5.

Final Exam:

- The students who do not pass the subject by continuous assessment or who would like to improve their grades, will have the right to take the Final Exam set in the academic calendar, prevailing, in any case, the best of both grades. This global assessment will be equivalent to the continuous assessment test described and will have the 65% weight in the final grade. The grade of this exam must be at least 5 in order to pass.
- The student will be able to repeat or carry out, if he had not carried them out, the work of the continuous evaluation, counting 35% of the grade.

Second Call

The students who do not pass the subject in the first call may take the Final Exam set in the academic calendar for the second call.

- This global assessment will be equivalent to the continuous assessment test described and will have the 65% weight in the final grade. The grade of this exam must be at least 5 in order to pass.
- The student will be able to repeat or carry out, if he had not carried them out, the work of the continuous evaluation, counting 35% of the grade.

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

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

The methodology of the course is based on promoting the active learning of the student, applying the theoretical contents in the different activities.

Lectures allow the transmission of knowledge to the students, promoting the participation of them, in which, case studies will be resolved as well as theory will be taught without having an explicit separation between them.

In the practice sessions, based on cases and workgroups, students should internalize the concepts explained in the lectures

and aware both of the difficulties involved in logistic tasks and their impact on any company or organization.

4.2. Learning tasks

The course includes the following learning tasks:

1. Classroom learning activities: (40 hours)
 - Lectures: Theoretical activities carried out mainly through exposition by the professors, where the theoretical supports of the subject are displayed, highlighting the fundamental, structuring them in topics and or sections, interrelating them. (28 hours)
 - Practice Sessions and group work: Students will study examples and case studies carried out in small groups concerning the theoretical concepts. (12 hours)
3. Realization of tutored works. Students will work in groups under the supervision of their professors. An oral presentation of the work may be also required. (9 hours)
4. Study and autonomous work: continued by students from the beginning of the course. (58.5 hours)
5. Assessment tasks. (5 hours)

Professors of the subject make public to the students the program with the specific dates of the activities through the Moodle platform that can be consulted by logging with their username and password at the address <http://moodle.unizar.es>.

4.3. Syllabus

The course will address the following topics:

- Topic 1: Introduction
- Topic 2: Inventory management
- Topic 3: Logistics storage
- Topic 4: Distribution logistics
- Topic 5: Forecast
- Topic 6: Procurements logistics.
- Topic 7: Reverse logistics processes.
- Topic 8: Systems for capture and transmission of information

4.4. Course planning and calendar

Calendar of the sessions is available on the web site of the institution. The submission of papers is notified to the students either during the development of the class itself, or through the Moodle platform: <http://moodle.unizar.es>.

Methodologies that are going to be used:

- Theory session.
- Practice session:
 - Problems: in addition to the problems solved in the class by the professor, students will be asked to solve problems, later results obtained will be shared in class.
 - Case method: in certain topics, the application of the case method is interesting. The professor will propose a real problem that students must solve in small groups, with previous individual work and make a report with the results obtained that they will defend in a group before the professor.
- Tutorials, both individual and in groups. The last one is of special interest in the possible cases proposed.
- Flexible web training tools:
 - General information of the subjects: data of the professors, program of the subjects, evaluation criteria, calendar of the subject, etc.
 - Basic contents: notes or presentations used in class, updated.
 - Evaluation area: in which the student can consult his grades and, above all, can perform exercises and self-assessment tests in order to increase their motivation.

The main methodology is theory seasons that allow the student to advance along with the contents of the subject. In addition, Centro Universitario de la Defensa has special characteristic as small groups (20-30 students) and compulsory attendance. In theory seasons, the professor will be looking for the participation of students. For this purpose, questions and examples related to the subject will be done with the aim of helping the students to understand the theoretical concepts.

Problems and practical seasons are the second fundamental pillar of the didactic methodologies used. It will try that the student was able to solve by himself or in group problems on the subjects approached in the classes of theory with the guide of the professor. Students will be encouraged to present their own resolution of the proposed problems.

The temporal distribution of activities will be adapted to the schedule to be published at the beginning of the course as follows:

Topics	Temporal distribution of activities
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