

Academic Year/course: 2022/23

## 28843 - Quality Management and Industrial Safety & Health

### Syllabus Information

**Academic Year:** 2022/23

**Subject:** 28843 - Quality Management and Industrial Safety & Health

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

**Degree:** 424 - Bachelor's Degree in Mechatronic Engineering

**ECTS:** 4.0

**Year:** 4

**Semester:** Second semester

**Subject Type:** Optional

**Module:**

## 1. General information

### 1.1. Aims of the course

The subject and its expected results respond to the following approaches and objectives: The general objective of the course is to provide the necessary knowledge and skills for the planning and management of quality and safety within an industrial environment. To do this, it is necessary to know the concept of quality and safety beforehand to be able to recognize the activities necessary to carry out in the company before considering the implementation of a management system.

#### Alignment with the SDGs

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/es/>), in such a way that the acquisition of the course learning outcomes provides training and competence to contribute to their achievement to some degree.

- Goal 3: Ensure healthy lives and promote well-being for all at all ages.
- Goal 8: Promote inclusive and sustainable economic growth, employment and decent work for all.
- Goal 16: Promote just, peaceful and inclusive societies.

Specifically with the following goals:

- 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.
- 8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.
- 16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels.

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

The subject of Quality Management and Prevention of Working hazard prevention Management is part of the Degree in Mechatronics Engineering taught by the EUPLA, framed within the group of subjects that make up the module called Instrumentals. It is a subject of the fourth year located in the eighth semester and optional (OP), with a teaching load of 4 ECTS credits. The necessity of the subject in the curriculum of the present degree is more than justified since all the companies work from the point of view of the quality of its clients and all of them must comply with the Law of Prevention of Occupational Risks, with or Without management system. Many graduates have quality issues related to quality and safety.

### 1.3. Recommendations to take this course

This subject does not have any normative prerequisite or require specific complementary knowledge.

## 2. Learning goals

### 2.1. Competences

By passing the subject, the student will be more competent to ...

- GI03 Knowing basic and technological subjects, which will enable them to learn new methods and theories, and give them the versatility to adapt to new situations.
- GI04 Ability to solve problems with initiative, decision making, creativity, critical thinking and to communicate and transmit knowledge, skills and skills in the field of Industrial Engineering and in particular in the field of industrial electronics.
- GI06 Ability to handle specifications, regulations and mandatory rules.
- GI08 Ability to apply principles and methods of quality.
- GI09 Capacity of organization and planning in the scope of the company, and other institutions and organizations.
- GC03 Ability for abstraction and logical reasoning.
- GC04 Ability to learn continuously, self-directed and autonomous.
- GC05 Ability to evaluate alternatives.
- GC07 Ability to lead a team as well as being a committed member of the team.
- GC08 Ability to locate technical information, as well as its understanding and assessment.
- GC10 Ability to write technical documentation and present it with the help of appropriate computer tools.
- GC11 Ability to communicate their reasoning and designs in a clear way to specialized and non-specialized audiences.
- GC12 Knowledge of safety, certification, industrial property and environmental impacts.
- GC13 Ability to assess the technical and economic feasibility of complex projects.

## 2.2. Learning goals

- The student, to overcome this subject, must demonstrate the following results ...
- Defining the concept of quality and its impact on the company.
- Explaining in a basic way the documentation of a quality management system.
- Defining the preventive regulations applicable to companies.
- Explaining the regulations and stages of the certification process of a quality system.
- Differencing and values ??the different preventive managers.
- Identifying the mandatory preventive documentation in companies.
- Identifying the different basic labour hazards that may arise in industrial activities.
- Designing basic preventive measures adequate to eliminate or minimize the occupational hazards that can be presented.
- Exhibiting in a basic way the documentation of a security management system.
- Relating integrating quality, healthy and environmental management systems.

## 2.3. Importance of learning goals

The learning outcomes are focused on obtaining the competence established for this subject.

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

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

The student must demonstrate that he/she has attained the expected learning outcomes through the following assessment activities In order to qualify for this system, it is necessary for the student to attend 80% of the classroom activities of which the subject is composed

### Assessment System throughout the semester:

- Exercises, theoretical questions and proposed works: The teacher will propose exercises, problems, practical cases, theoretical questions, etc. To solve individually or in a group. These papers will have a score of 6.5

- Exam: A theoretical exam will be carried out, which will have a score of 3.5 points, with a required minimum mark of 1.6 points.

### Call Assessment:

- Written test: A theoretical-practical exam will be carried out. which will have a score of 10 points. The parts approved during the semester will be saved for the exam of the call, the corresponding part of the exam will not be carried out

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

### 4.1. Methodological overview

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

**Theoretical-practical classes:** Theoretical activities given mostly in an expository way by the teacher, in such a way as to explain the theoretical supports of the subject, highlighting the fundamental issues, structuring them in units and/or sections and relating them to each other. A great part of the theoretical classes has an important practical component of interpretation and application of regulations to a company associated.

**Individual tutorials:** These are the ones made through the individual attention of the teacher in the department. They are intended to help solve the doubts that students find, especially those who for various reasons can not attend group tutorials or need more personalized attention. These tutorials can be face-to-face or virtual, through regular e-mail, mail through Moodle or messages published in the forum for solving moodle doubts.

The approach, methodology and assessment of this guide are intended to be the same for any teaching scenarios. They will be adapted to the social-health situation at any particular time, as well as to the instructions given by the authorities concerned.

### 4.2. Learning tasks

The course includes the following learning tasks:

**Generic face-to-face activities:**  
- Theoretical classes: The theoretical concepts of the subject will be explained and illustrative practical examples will be developed as a support to the theory when it is deemed necessary.  
- Practical classes: Exercises and practical cases will be done as a complement to the theoretical concepts studied. Visits to companies about the content of this subject may also be made, and questions may be included in continuous assessment

**Generic non-class activities:**  
- Study and assimilation of the theory explained in the lectures.  
- Comprehension, interpretation and application of the preventive regulations commented in class Preparation of tasks  
- Preparation of exams

### 4.3. Syllabus

The course will address the following topics:

Theoretical contents.

First part. Quality and Quality Management

- Basic concepts.
- Quality planning.
- Quality management ISO 9001: 2015.
- Process of implementation and certification of the company.

Second part. Security and Safety Management

- Basic Concepts of Risk.
- LPRL, RD Prevention Services, CAE.
- Offenses and penalties in the area of prevention.
- Summary of minimum provisions.
- Healthy and safety management systems. OHSAS 18.001: 2007 and ISO 45001:2018
- Integrated management systems: quality, safety and environment.

Practical contents: Each topic discussed in the previous section has associated practical content, such as:

- Examples of quality planning in real companies
- Drafting of documents belonging to quality management systems in companies
- Interpretation of the corresponding regulations applied to the case of companies in the industrial environment
- Analysis of situations that have created occupational accidents
- Viewing photos and videos about unsafe working conditions
- Design of preventive measures applicable in each of the proposed theoretical themes
- Drafting of documents pertaining to systems of management of the security in companies

Some of the practical contents should be made and exposed on a class by the students individually and/or group. The dates of the final exams will be published officially at <http://www.eupla.unizar.es>

### 4.4. Course planning and calendar

First part. Quality and Quality Management

- Basic concepts. Week 1
- Quality planning. Week 2
- Quality management ISO 9001: 2015. Weeks 3-4
- Process of implementation and certification of the company. Week 5

#### Second part. Security and Safety Management

- Basic Concepts of Risk. Week 6
- LPRL, RD Prevention Services, CAE. Week 7
- Offences and penalties in the area of prevention. Week 8
- Summary of minimum provisions. Week 8-9
- Healthy and safety management systems. OHSAS 18.001: 2007 and ISO 45001:2018. Week 10
- Integrated management systems: quality, safety and environment. Week 10

Activities and key dates for the course  
To achieve the learning outcomes, the following activities will be developed:

Generic face-to-face activities:  
Theoretical-practical classes: The theoretical concepts of the subject will be explained and illustrative practical examples will be developed as a support for the theory when it is deemed necessary.  
Practical classes: Practical cases will be done as a complement to the theoretical concepts studied.

Generic non-presence activities:  
-Study and assimilation of the theory explained in the lectures.  
-Comprehension and assimilation of examples and practical cases  
-Preparation exercises and practical cases to be solved by the student  
-Preparation of written tests of continuous assessment and final exams.  
The weekly schedule of the subject and the dates in each call will be described on the EUPLA website.  
The dates of the final exams will be those published officially at <http://www.eupla.unizar.es>

#### 4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=28843>