

**COURSE DATA****Data Subject**

<b>Code</b>	34775
<b>Name</b>	Quality Management
<b>Cycle</b>	Grade
<b>ECTS Credits</b>	4.5
<b>Academic year</b>	2020 - 2021

**Study (s)**

<b>Degree</b>	<b>Center</b>	<b>Acad. year</b>	<b>Period</b>
1401 - Degree in Chemical Engineering	School of Engineering	4	Second term

**Subject-matter**

<b>Degree</b>	<b>Subject-matter</b>	<b>Character</b>
1401 - Degree in Chemical Engineering	23 - Optional subjects	Optional

**Coordination**

<b>Name</b>	<b>Department</b>
FRANCO VIÑUALES, CARLOS FRANCISCO	245 - Chemical Engineering
PICAZO RODENAS, MARIA JOSE	245 - Chemical Engineering
SORIANO CARDO, CARLOS	245 - Chemical Engineering

**SUMMARY**

The optional course Management of Quality is taught in the fourth year in the degree in Chemical Engineering. The curriculum includes 4.5 ECTS. This subject aims to deepen into the knowledge and application of the main quality management instruments related to the chemical industry. Advanced techniques of statistical quality control, quality and environmental management systems and application of specific regulations for the treatment of business aspects such as occupational health, management in the food industry, corporate social responsibility, and incorporation of the gender perspective in companies and the control of information security are overcome. This subject serves as a complement to the knowledge acquired in previous subjects related to the management of production, such as "Organization and Management of Production".



The contents of the subject are summarized in three thematic units:

1. Advanced statistical techniques of control and improvement of quality
2. Quality and environmental management systems
3. Expansion of management systems in the industry

## PREVIOUS KNOWLEDGE

### Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

### Other requirements

To successfully tackle the subject it is necessary that the student has acquired the competences of the subjects: Management and Organization of Production

## OUTCOMES

### 1401 - Degree in Chemical Engineering

- O1 - More comprehensive skills than those acquired in compulsory subjects.

## LEARNING OUTCOMES

- To be able to establish a computerized system for planning the quality control of a process (O1)
- To know how to apply the methodologies of statistical quality control (O1)
- To project actions for statistical improvement of the quality of a process (O1)
- To know the key points of management systems. Focus High Level Structure (O1)
- To know the specific and common characteristics of the models of quality and environmental management systems (O1)
- To know how to write the different documents of the systems and how to undertake the integration of systems (O1)
- To know the most relevant aspects of the specific business management standards in aspects of occupational health, food safety, corporate social responsibility, gender perspective and information security. (O1)

## DESCRIPTION OF CONTENTS



### **1. Advanced statistical techniques for the control and improvement of quality**

#### 1. Advanced statistical techniques for the control and improvement of quality

##### 1.1. Planning, control and statistical improvement of quality

##### 1.2. Sampling, inspection and acceptance plans.

##### 1.3. Advanced control graphics

##### 1.4. Statistical design of experiments

##### 1.5. Computer packages for statistical quality control

### **2. Quality and environmental management systems**

#### 2. Quality and environmental management systems

##### 2.1. New approach of high level structure for management system regulations

##### 2.2. Quality Management Systems. Evolution and latest versions of the standard. ISO 9001: 2015

##### 2.3. Key elements of a quality management system

##### 2.4. Environmental management system. ISO 14001: 2015 Key elements

##### 2.5. Support standards in both systems. Audits of management systems.

##### 2.6. Family of standards of ISO 9001: 2015 and ISO 14001: 2015. Overview

##### 2.7. New developments of standards. The ISO 50001 standard, energy efficiency management system

### **3. Expansion of management systems at the industry**

#### 3. Expansion of management systems at the industry

##### 3.1. Management of the safety and health of workers. Accidents and occupational diseases. The prevention of occupational risks in companies. Legislation more relevant. ISO 45001 standard.

##### 3.2. Corporate social responsibility and gender equality. Principles of CSR. ISO 26000 standard, GRI, UN Global Compact. Gender Equality Plans.

##### 3.3. Food safety management. Hazard Analysis and Critical Control Points HACCP. Standard ISO 22000, BRC, IFS, FSSC2000.



3.4. Management of information security. The protection of personal data.  
ISO 27001 standard.

3.5. A global vision. Compliance. Integration of management systems.

## WORKLOAD

ACTIVITY	Hours	% To be attended
Theory classes	25,00	100
Classroom practices	20,00	100
Development of group work	40,00	0
Preparing lectures	5,00	0
Preparation of practical classes and problem	5,00	0
Resolution of case studies	17,50	0
<b>TOTAL</b>	<b>112,50</b>	

## TEACHING METHODOLOGY

- Theoretical activities: topics will be developed in the lectures by providing a comprehensive and integrated vision, analyzing in more detail the key aspects of greater complexity and encouraging at all times, student participation. Also adequate resources for the subsequent preparation of the issue in depth by the student will be recommended.

- Practical work: Practical classes will complement the theoretical activities in order to apply the basics and expand the knowledge and experience they acquire during the performance of the proposed work. This will be done in the classroom or in small groups. They include the following types of classroom activities:

- Classes of problems and issues in the classroom. The teacher will explain a number of sample problems that allow students to acquire the skills necessary to analyze, formulate and solve the problems of each topic. Student skills for decision making will be enhanced.
- Discussion sessions and troubleshooting or work. In these sessions, which are conducted in small groups, are analyzed and discussed a series of exercises or work previously posed by the teacher and the students worked in small groups.

- Tutorials: In them, the teacher will guide the student on all elements of the learning process. In addition, the teacher will guide the student on the most appropriate methodology for learning basic knowledge of the subject.

The exercises will work and proposed a timetable for completion and delivery by the students. They will consist of individual growth or small group of case studies of application.



## EVALUATION

The assessment of student learning will be carried out proposing two evaluation modalities:

A) Works: 3 works will be carried out, corresponding to each of the thematic units of the subject. Each work will be scored between 0 and 10. The overall grade of the subject will be the weighted average of the works, taking as a weighting coefficient the relative number of classroom hours of each unit with respect to the total hours of the class. The minimum grade of each work to do average is 4.0. The minimum grade of the weighted average to pass the subject is 5.0.

B) Exam: An exam will be carried out, in the cases in which modality A is not fulfilled, or, in compliance with modality A, it is preferred to take the exam. In both cases, the grade of the subject will correspond to mode B. The minimum grade to pass the subject will be 5.0 in the exam.

Students who opt for option A), and who do not pass the subject in the first call, must be presented to the examination of the second call and the modality of evaluation will be, then, mode B).

## REFERENCES

### Basic

- Control estadístico de la calidad. Montgomery. Ed. Wiley
- AENOR. Normas de sistema de gestión de calidad UNE EN ISO 9001:2015 y UNE EN ISO 14001:2015
- Siniestralidad laboral enero 2015-diciembre 2015, 2016, INSHT
- Evaluación de riesgos laborales, 2ª edición, INSHT
- Guía para la implementación de la norma ISO 45001, 2018, FREMAP
- Guide to corporate sustainability, 2014, United Nations
- Informe sobre la certificación de calidad y seguridad, 2010, Comisión Nacional de la Competencia
- Estudio sobre la protección de datos de las empresas españolas, 2010, Instituto Nacional de Tecnologías de la Comunicación
- Norma UNE 66177: Sistemas de gestión. Guía para la integración de los sistemas de gestión, 2005, AENOR
- Guía para la elaboración y obtención del visado de Planes de Igualdad en las empresas de la Comunitat Valenciana, 2008, Generalitat Valenciana





### **Additional**

- Estadística para investigadores. Diseño, innovación y descubrimiento. Box, Hunter, Hunter. Ed. Reverté
- Valdés Fernández JL, Asociación Española de Normalización y Certificación. Guía Para La Aplicación De UNE-EN ISO 14001:2015. Madrid: AENOR; 2016. / López Lemos P, Fundación CONFEMETAL (Madrid). novedades Iso 9001:2015. Madrid: Fundación Confemetal; 2016.

## **ADDENDUM COVID-19**

**This addendum will only be activated if the health situation requires so and with the prior agreement of the Governing Council**

### **Contents**

*The contents initially established in the Course Guide are maintained.*

### **Workload and planning of teaching**

#### *Workload:*

*The activities described in the Course Guide with their time dedication are maintained.*

#### *Planning of teaching:*

*The material for the follow-up of the classes allows to continue with the teaching time planning both in days and in time, whether the teaching is face-to-face in the classroom or not.*

### **Teaching methodology**

*The development of the subject is articulated as has been established in the teaching model of the degree for the second semester ([https://www.uv.es/etsedoc/Web/Modelo%20Docente\\_GIQ\\_2C.pdf](https://www.uv.es/etsedoc/Web/Modelo%20Docente_GIQ_2C.pdf)).*

*If there is a closure of the facilities for sanitary reasons that totally or partially affects the classes, these will be replaced by non-person sessions following the established timetable.*



## **Evaluation**

*The evaluation system described in the Course Guide in which the activities have been specified as well as their contribution to the final grade of the subject is maintained.*

*If there is a closure of the facilities for sanitary reasons that affect the development of any face-to-face evaluable activity, it will be replaced by a test/activity of a similar nature that will be carried out in virtual mode using the computer tools licensed by the University of Valencia. The contribution of each evaluable activity to the final grade of the course will remain unchanged, as established in this guide.*

## **References**

*The recommended references in the Course Guide are maintained, since they are available.*