

# 30823 - Integrated Quality Management in the Food Industry

## Syllabus Information

**Academic Year:** 2020/21

**Subject:** 30823 - Integrated Quality Management in the Food Industry

**Faculty / School:** 105 - Facultad de Veterinaria

**Degree:** 568 - Degree in Food Science and Technology

**ECTS:** 6.0

**Year:** 3

**Semester:** First semester

**Subject Type:** Compulsory

**Module:** ---

## 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

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented such as the acquisition of theoretical knowledge about quality management in the food industry, complemented with the application of this knowledge to solve case study.

Students must follow the regulations described in:

- Prevention: A guide for students at the University of Zaragoza:  
[http://uprl.unizar.es/publicaciones/estudiantes\\_ingles.pdf](http://uprl.unizar.es/publicaciones/estudiantes_ingles.pdf)
- Manual de seguridad en los laboratorios de la Universidad de Zaragoza y normas marcadas por la Unidad de Prevención de Riesgos Laborales:  
<http://uprl.unizar.es/seguridad/pdfs/seglaborUZ.pdf>  
<http://uprl.unizar.es/seguridad/pdfs/laboratorios.pdf>

In addition, students will follow as well any instructions related to biosecurity given by the professor

### 4.2.Learning tasks

The course is structured in 30 participatory lecture sessions, 23 hours of seminars for case study solving and 7 hours of laboratory sessions.

In relation to the theoretical teaching given in lectures, it is scheduled to deliver to students well in advance the documentation for each subject, with the aim that the student knows the contents on the subject to be treated, which will favor a class more participatory.

Seminars and laboratory practice sessions were organized in 2 or 4-hour sessions. As in the theoretical teaching, students have in advance the script of practices.

### 4.3.Syllabus

The course will address the following learning tasks:

Topic 1. The quality of the food sector and its management.

- Lecture sessions: Definitions of quality according to international standards. The quality in agri-food sector. Mechanisms of the consumer to make a judgment about the quality of a food product. The different qualities of food products. Concepts related to quality: management, processes, products, Quality management: concept and decision making.
- Practical activities: Calculation of quality costs as a control mechanism.
- Learning-teaching activities:
  - Lecture sessions: 5 hours
  - Case-study solving: 2 hours
  - Private study: 10 hours

Topic 2. Quality as a competitive strategy in the food sector.

- Lecture sessions: Quality as a strategic element of business management. Main trends of quality management in business. Principles of quality management, and benefits for organizations. Common lines of action to the different quality management systems. ISO 9001 Quality Management Systems.
- Practical activities: Practical problems solving the implementation of a quality management system at the business level.
- Learning-teaching activities:
  - Lecture sessions: 5 hours
  - Case-study solving: 8 hours
  - Private study: 10 hours

Topic 3. Systems of quality management in the food sector.

- Lecture sessions: Food safety and quality systems. Origin and regulatory framework of quality systems in the sector. Classification criteria and main management systems.
- Practical activities: Documentation of food safety and quality management systems. Documentation of quality management systems of testing and calibration laboratories.
- Learning-teaching activities:
  - Lecture sessions: 5 hours
  - Case-study solving: 4 hours
  - Private study: 18 hours

Topic 4. Quality infrastructure.

- Lecture sessions: Standardization, accreditation and certification of systems and products. Quality-labelled food products.
- Practical teaching: Different certification systems. Development of the required documentation for the quality-labelled food product application.
- Learning-teaching activities:
  - Lecture sessions: 5 hours
  - Case-study solving: 6 hours
  - Private study: 10 hours

Topic 5. Quality design of a food product.

- Lecture sessions: Planning product characteristics: identification of customer requirements; planning of technical specifications. Planning realization conditions. Program planning quality management. Deployment Quality Function (QFD) QFD concept; QFD tools; practicalities.
- Practical teaching: Planning quality in product design (QFD) and its production process mainly using QFD and FMEA and relating HACCP.
- Learning-teaching activities:
  - Lecture sessions: 3 hours

- Laboratory sessions: 2 hours
- Private study: 10 hours

Topic 6. Quality in the production process of a food product.

- Lecture sessions: Relationship QFD. Design Review. Quality assessment. Fault tree analysis. statistical design of experiments. Taguchi. Analysis of Failure Modes and Effects (FMEA) and process design and its relationship with HACCP. Statistical processes control. Elimination of waste. Quality tools.
- Practical teaching: Resolution of a statistical design of experiments. Application of quality tools cases of the food industry. Learning-teaching activities:
  - Lecture sessions: 5 hours
  - Case-study solving: 3 hours
  - Laboratory sessions: 3 hours
  - Private study: 20 hours

Topic 7. Calibration and measurement. Expression of the result.

- Lecture sessions: Metrology. The international system. Traceability and dissemination. Terms and concepts in measurement processes. Measurement errors: nature of the errors; types of errors; expression of the result. Correction and uncertainty. Economic aspects.
- Practical teaching: Calibrating a measuring laboratory equipment and adequately expressing the results as validated and accredited laboratories responsible for monitoring methods.
- Learning-teaching activities:
  - Lecture sessions: 2 hours
  - Laboratory sessions: 2 hours
  - Private study: 8 hours

#### 4.4. Course planning and calendar

The dates and milestones of the course are described in detail, along with the other courses in the third year in the degree in Food Science and Technology, on the website of the Faculty of Veterinary (link: <http://veterinaria.unizar.es/gradocfa/>). This link will be updated at the beginning of each academic year.

#### 4.5. Bibliography and recommended resources

The updated bibliography is incorporated through the Library Center and can be accessed by the web.

Camisón Zornoza, César. Gestión de la calidad: conceptos, enfoques, modelos y sistemas / César Camisón, Sonia Cruz, Tomas González. [reimp.] Madrid: Pearson Educación, 2006 (reimp. 2011).

Campanella, Jack. Principios de los costes de la calidad / Jack Campanella; versión española de Jesús Nicolau Medina, Mercedes Gozalbes Ballester. Madrid: Díaz de Santos, D.L. 1992.

Cuatrecasas Arbós, Lluís. Gestión integral de la calidad: implantación, control y certificación / Luis Cuatrecasas. 2a. ed. Barcelona: Gestión 2000, D.L. 2001.

Gómez Martínez, José Antonio. Guía para la aplicación de UNE-EN ISO 9001:2015. Madrid. AENOR (Asociación Española de Normalización y Certificación), 2015.

La qualité des produits alimentaires: politique, incitations, gestion et contrôle / coordonnateur J. L. Multon, avec la collaboration de J. F. Arthaud et A. Soroste; préface de P. Creysse; avant-propos de E. Gaerner. 2<sup>e</sup> éd. réf. Paris [etc.] : Technique & Documentation-Lavoisier, cop.1994.

Manual de control estadístico de calidad: teoría y aplicaciones / Pablo Juan Verdoy ... [et al.]. Castellón de la Plana: Universitat Jaume I, D.L. 2006

Nuevas tecnologías para el control de proceso y de producto en la industria alimentaria / Felicidad Ronda Balbás... [et al.]. Valladolid: Universidad de Valladolid, Secretariado de Publicaciones e Intercambio Editorial, 2004

Pola Maseda, Angel. Gestión de la calidad / Angel Pola Maseda. Barcelona: Marcombo Boixareu, D.L.1988

Rivera Vilas, Luis Miguel. Calidad integral y su gestión en el sector agroalimentario / Luis Miguel Rivera Vilas, Juan M. Buitrago Vera, Bernat Roig Merino. Valencia: Universidad Politécnica de Valencia, 2002

Senlle, Andrés. Evaluar la gestión y la calidad: herramientas para la gestión de la calidad y los recursos humanos/ Andrés Senlle . Barcelona: Gestión 2000, D.L. 2003

Belenguer, I. Fernández Segovia. València: Universitat Politècnica de València, 2010

Vilar Barrio, José Francisco. Cómo implantar y gestionar la calidad total / [José Francisco Vilar Barrio; en colaboración con Fermín Gómez Fraile, Miguel Tejero Monzón] . Madrid: Fundación Confemetal, D.L. 1997

Vilar Barrio, José Francisco. Las 7 nuevas herramientas para la mejora de la calidad / José Francisco Vilar Barrio. Madrid: Fundación Confemetal, 1997

## **URLs:**

AENOR. Asociación Española de Normalización y Certificación:

<http://www.aenor.es/aenor/inicio/home/home.asp#.UhxZI3824y4>

Aragón Alimentos:

<http://www.aragonalimentos.es/>

BRC. British Retail Consortium:

[http://www.brc.org.uk/brc\\_home.asp](http://www.brc.org.uk/brc_home.asp)

Comisión Europea. Agricultura y Desarrollo Rural. Agricultura Ecológica:

[https://ec.europa.eu/agriculture/organic/index\\_es.htm](https://ec.europa.eu/agriculture/organic/index_es.htm)

ENAC. Entidad Nacional de Acreditación:

<http://www.enac.es/>

España. Ministerio de Agricultura, Alimentación y Medio Ambiente. Área de Alimentación:

<http://www.magrama.gob.es/es/>

España. Patrimonio agrario, alimentario y gastronómico:

<http://www.alimentacion.es/es/>

European Commission. Agriculture and Rural Development. Quality Police. Door database:

<http://ec.europa.eu/agriculture/quality/>

FSSC. Foundation for Food Safety Certification:

<http://www.fssc22000.com/documents/home.xml?lang=es>

GFSI. Global Food Safety Initiative:

<http://www.mygfsi.com/>

GLOBALG.A.P:

<http://www.globalgap.org/es>

Gobierno de Aragón. Medio Rural y agroalimentación:

<http://www.aragon.es/Temas/MedioRuralAgrolimentacion>

IFS. International Featured Standards:

<https://www.ifs-certification.com/index.php/es/>

ISO. International Organization for Standardization:

<http://www.iso.org/iso/home.html>