Universidad Zaragoza

Academic Year/course: 2021/22

28939 - Quality management for the agri-food industry

Syllabus Information

Academic Year: 2021/22
Subject: 28939 - Quality management for the agri-food industry
Faculty / School: 201 - Escuela Politécnica Superior
Degree: 583 - Degree in Rural and Agri-Food Engineering
ECTS: 6.0
Year: 3 and 4
Semester: Second semester
Subject Type: Optional
Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

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: Theoretical lectures 3 ECTS: (30 hours), laboratory practices in food control 2 ECTS: (20 hours) and cases and problems 1 ECTS: (10 hours).

4.2. Learning tasks

The course will address the following topics:

- **Lectures 3 ECTS:** 30 hours. Students will need the material provided by the teacher that will be available in the reprographic service and in the *Digital Education Ring* of the University of Zaragoza (http://add.unizar.es).
- **Laboratory practices 2 ECTS**: 20 hours. The material will be provided in the same way as the lecture materials. In the first session, all protocols will be explained in order to remember the basic concepts of instrumental analysis. Subsequently, the different methodologies of analysis will be developed and results will be analyzed.
- **Cases and problems 1 ECTS:** 10 hours. Practical experience related to a better understanding of food safety problems, their origin, and solutions.

4.3. Syllabus

The course will address the following topics:

THEORETICAL PROGRAMME:

FIRST CONCEPTUAL BLOCK

Topic 1. Introduction to Quality. What is quality? The relationship between quality and analytical chemistry. The relationship between quality and chemical analysis. Selection of the most appropriate analytical method. Guarantee of analytical results. Analysis within the Agrifood Industry.

Topic 2. Quality Management. Quality; concept definition and evolution. Common abbreviations for quality management vocabulary. Introduction of a Quality Management System (QMS). Project production and development. Auditing and

maintenance of the QMS. Quality and standardization. Quality certification systems. The ISO 9000 family of standards.

Topic 3. The ISO 9000:2005 Standard. Introduction; objectives and field of application, the fundamentals of a QMS. Terminology and definitions. The ISO 9001:2008 Standard. Introduction. Quality management systems, management responsibilities and resources, food production, measuring methods, analysis and improvement.

Topic 4. Guarantee of Analytical Quality. Concept of quality in a laboratory. Analytical quality and properties. Elements of quality guarantee and audits. Laboratory accreditation.

Topic 5. Quality Systems in Laboratories. The UNE-EN ISO 17025/2005 standard. Objectives of the standard. Structure of the document; management and technical requirements. Structure and layout of the quality manual. Work procedures and instructions. Good Laboratory Practice (GLP).

Topic 6. Measurement Processes in Chemistry. Definitions and examples. Preliminary operations, sample taking and treatments. Analytical measurement and signal transduction. Data acquisition and treatment. Validation of a CMP (chemical measurement process).

Topic 7. Reference Materials and Calibration. Types and properties of materials. Calibration of reference materials. Comparative exercises.

Topic 8. Food Analysis. Analytical technology in the agri-food industry. International standards. Methods of analysis. Analytical techniques.

SECOND CONCEPTUAL BLOCK
Topic 1. Food Quality. Concept of consumption suitability, food quality and fitness for consumption; safety, nutritive value, palatability and authenticity. Partial quality (implicit and explicit methods); enumeration, advantages and disadvantages. Quality assurance systems.
Topic 2. European Policy for Food Safety. Concept of food safety. Principals of food safety. Food safety in Spain and within the European Union.
Topic 3. Health Risks Associated with Food Consumption. Concept and classification of food contamination. Origin and sources of food contamination. Classification of the principal biotic and antibiotic food contaminants. Natural toxicity in food.
Topic 4. Good Hygiene Practices. European regulations. Codes of good practice relating to hygiene and production. Food establishments. Equipment. Food handlers. Production processes. Storage and distribution processes.
Topic 5. Risk Analysis of Critical Control Points in the Agrifood Industry. HACCP terminology, definitions and concepts. Prior requisites for the successful introduction of the HACCP system. Basic principals and introduction of HACCP. Development and maintenance of the HACCP system.

PRACTICAL PROGRAMME:
FIRST CONCEPTUAL BLOCK

Practical relating to topics 1 to 5. Determination of the nutritional quality of a series of foods through the analysis of chemical parameters in a laboratory. Application of quality control to the analysis.

SECOND CONCEPTUAL BLOCK
Practical relating to topics 6 to 10. Control of hygiene quality (biological and chemical risk) in a variety of food. Hygienic control of the process (handlers, equipment and surfaces.)

4.4. Course planning and calendar

Weeks	Lectures	Laboratoy practices	Case studies
1	2 hours	2 hours	
2	2 hours	2 hours	
3	2 hours	2 hours	
4	2 hours	2 hours	
5	2 hours	2 hours	
6	2 hours	2 hours	
7	2 hours	2 hours	
8	2 hours	2 hours	
9	2 hours	2 hours	

4.5. Bibliogra and recomm resource

BB Bolton, Andrew. Sistemas de gestión de la calidad en la industria alimentaria : guía para ISO 9001/2 / Andrew Bolton ; traducido por Luis M. Cintas Izarra. Zaragoza : Acribia, 2000

BB Dorado Martín, Esperanza. Trazabilidad y seguridad alimentaria : sistema APPCC / Esperanza Dorado Martín. Antequera : EXLibric, 2018

BB Ferrandis-García Aparisi, Gloria. Seguridad, higiene y gestión de la calidad alimentaria / Gloria Ferrandis-García Aparisi. 2ª ed. actualizada. Madrid : Síntesis, D.L. 2019

BB Hyginov, Critt. Guía para la elaboración de un plan de limpieza y desinfección : de aplicación en empresas del sector alimentario / Critt Hyginov ; traducción de Susana Lacuna Omeñaca. Zaragoza : Acribia, D.L. 2001

BB Martínez Monsalve, Isabel M. Seguridad alimentaria : del campo a la mesa / Isabel M. Martínez Monsalve. Alcalá la Real (Jaén) : Formación Alcalá, 2019

BB Mortimore, Sara. HACCP : enfoque práctico / Sara Mortimore, Carol Wallace ; traducción Blas Borde-Lekona. 2a ed. Zaragoza : Acribia, D.L. 2001

BC Limpieza y desinfección en la industria alimentaria / coordinador, Gerhard Wildbrett ; traducido por Jaime Esaín Escobar. Zaragoza : Acribia, 2000

10 2 hours 2 hours

BC Manual práctico de calidad en los laboratorios : enfoque ISO 17025 / Salvador Sagrado... [et al.]. 2ª ed. rev. Madrid : AENOR, D.L. 2005

11 2 hours 2 hours

BC Marriott, Norman G. Principios de higiene alimentaria / Norman G. Marriott ; traducido del inglés por Jaime Esaín Escobar. Zaragoza : Acribia, 2003

12 2 hours 2 hours

BC [Revoil, Gilles]. Aseguramiento de la calidad en los laboratorios de análisis y de ensayos / [autor, Gilles Revoil]. Madrid : AENOR (Asociación Española de Normalización y Certificación), D.L. 1998

13 2 hours 2 hours

BC Rivera Vilas, Luis Miguel. Gestión de la calidad agroalimentaria / Luis Miguel Rivera Vilas. Madrid : Mundi-Prensa : A. Madrid Vicente, 1995

14 2 hours 2 hours

LISTADO DE URLs:

15 2 hours 2 hours

Cugat, G., et al. (2005). El autocontrol en los establecimientos alimentarios. Barcelona: Agencia Catalana de Seguridad Alimentaria
[https://www.facilityservices.es/library/Sistema%20de%20An%C3%A1lisis%20de%20APPCC.pdf]

Guía para el diseño y la aplicación de planes de prerrequisitos
[http://www.cocinascentrales.com/archivos/Prerrequisitos_Catalu%C3%83%C2%B1a.pdf]

Guía para el diseño y la aplicación de un sistema de APPCC
[http://www.sek.edu/images/postgrados/APCC/Guia_para_el_diseno_APPCC.pdf]

Norma UNE-EN ISO 9001 y UNE-EN 17025. Más información en biblioteca.unizar.es>Buscar>Normas técnicas
[http://www.aenor.es/aenor/inicio/home/home.asp#.UkqPGtK8CXs]

The updated recommended bibliography can be consulted in:
http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=28939