

28939 - Quality management for the agri-food industry

Información del Plan Docente

Academic Year	2016/17
Academic center	201 - Escuela Politécnica Superior
Degree	437 - Degree in Rural and Agri-Food Engineering
ECTS	6.0
Course	3
Period	Second semester
Subject Type	Compulsory
Module	---

1.Basic info

1.1.Recommendations to take this course

1.2.Activities and key dates for the course

2.Initiation

2.1.Learning outcomes that define the subject

2.2.Introduction

3.Context and competences

3.1.Goals

3.2.Context and meaning of the subject in the degree

3.3.Competences

3.4.Importance of learning outcomes

4.Evaluation

5.Activities and resources

5.1.General methodological presentation

Theoretical lectures (30 hours) , laboratory practices in food control (20 hours) and cases and problems (10 hours).

5.2.Learning activities

- Lectures: 30 hours

Students will need the material provided by the teacher that will be available in the reprographic service and in the *Digital*

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Education Ring of the University of Zaragoza (<http://add.unizar.es>).

- Laboratory practices: 20 hours

The material will be provided in the same way of the lectures materials. In the first session, all protocols will be explained in order to remember basic concepts of instrumental analysis. Subsequently, different methodology of analysis will be developed and results will be analyzed.

- Cases and problems: 10 hours.

Practical experience related to a better understanding of food safety problems, their origin and solutions.

5.3.Program

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 Agri-food 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.

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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 Agri-food 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.

Topic 6. Hygiene Control . Hygiene control during the procurement of meat, fish, milk, eggs, fruit and vegetable products, water etc.

PRACTICAL PROGRAMME :

FIRST CONCEPTUAL BLOCK

Practicals 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

Practicals 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.)

5.4.Planning and scheduling

SEMANA

	Lectures	Laboratory practices	Case studies
1	2 hours	2 hours	

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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	
10	2 hours	2 hours	
11	2 hours		2 hours
12	2 hours		2 hours
13	2 hours		2 hours
14	2 hours		2 hours
15	2 hours		2 hours

5.5. Bibliography and recommended resources

BASIC:

- 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
- Hyginov, Critt. *Guía para la elaboración de un plan de limpieza y desinfección : de aplicación en empresas del sector alimentario*; traducción de Susana Lacuna Omeñaca . Zaragoza : Acribia, D.L. 2001
- Mortimore, Sara. *HACCP: A Practical Approach* , Sara Mortimore and Carol Wallace, Aspen Publishers, 403 pages, ISBN: 0-412-75440-1

COMPLEMENTARY:

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- Gerhard Wildbrett. Limpieza y desinfección en la industria alimentaria. traducido por Jaime Esaín Escobar . Zaragoza : Acribia, 2000.
- Marriott, Norman G.. Principios de higiene alimentaria / Norman G. Marriott ; traducido del inglés por Jaime Esaín Escobar . Zaragoza : Acribia, 2003
- Salvador Sagrado ... [et al.]. Manual práctico de calidad en los laboratorios : enfoque ISO 17025. 2ª ed. rev. Madrid : AENOR, D.L. 2005.
- Revoil, Gilles. Aseguramiento de la calidad en los laboratorios de análisis y de ensayos. Madrid : AENOR (Asociación Española de Normalización y Certificación), D.L.1998
- Rivera Vilas, Luis Miguel. Gestión de la calidad agroalimentaria / Luis Miguel Rivera Vilas . Madrid : Mundi-Prensa : A. Madrid Vicente, 1995