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| Course Unit | Food Safety Management Systems | Field of study | Food industries |
| Bachelor in | Food Engineering | School | School of Agriculture |
| Academic Year | 2022/2023 | Year of study | 3 |
| Type | Semestral | Semester | 2 |
| Level | 1-3 | ECTS credits | 6.0 |
| Code | 9087-641-3204-00-22 | | |
| Workload (hours) | 162 | Contact hours | T - TP - PL - TC - S - E - OT - O - |

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Maria da Conceição Constantino Fernandes, Vitor Manuel Ramalheira Martins

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Know the main aspects related to the food quality control and understand its relationship with food safety issues;
2. Understand the European Union food quality and safety principles;
3. Recognize HACCP methodology as an important tool for food safety assurance;
4. Recognize the importance of food safety management systems;
5. Use the acquired knowledge in the implementation, evaluation and improvement of food safety management systems.

Prerequisites

Before the course unit the learner is expected to be able to:

Knowledge about food chemistry, food microbiology and food processing operations.

Course contents

The importance of food quality control and its relationship with food safety issues. The Portuguese Institute of Quality and the Portuguese Quality System. The HACCP methodology and its relationship with food safety management systems. The NP EN ISO 22000 standard. Other standards for food safety.

Course contents (extended version)

1. Food quality control and food safety:
 - Concept of quality and its evolution;
 - Concept of food safety;
 - Currents of thought and action in quality.
2. The Portuguese Institute of Quality and the Portuguese Quality System:
 - Role of the Portuguese Institute of Quality;
 - The Portuguese Quality System and its sub-systems;
 - Metrology sub-system: evolution, patterns, and equipment calibration;
 - Qualification sub-system: concepts of accreditation and certification;
 - Standardization sub-system.
3. National and European legislation:
 - National legislation;
 - European legislation;
 - Vertical and horizontal legislation.
4. The HACCP methodology:
 - Concepts and definitions;
 - Plan fitness;
 - Pre-requisites;
 - Implementation;
 - Hazards analysis;
 - System audit;
 - Corrective actions;
 - Plan verification.
5. The NP EN ISO 22000 standard for food safety management systems:
 - Scope, terms, and definitions;
 - Food safety management systems: general and documentation requirements;
 - Management responsibility;
 - Resource management;
 - Planning and realization of safe products;
 - Validation, verification, and improvement of the food safety management system.
6. Other standards for food safety- scope, advantages, and disadvantages:
 - GlobalGap;
 - IFS;
 - BRC;
 - FSSC 22000;
 - GFSI.

Recommended reading

1. Juran, J. , Quality Control Handbook, Mc Graw-Hill, 1988;
2. Vaz, A. , Moreira, R. ; Hogg, T. , Introdução ao HACCP. Escola Superior de Biotecnologia – Universidade Católica Portuguesa, 2000;
3. ISO 22000 Standard Procedures for Food Safety Management Systems, A guide to creating a food safety management system for any organization in the supply chain, Bizmanualz, 2008;
4. Wallace, C. A. , Sperber, W. , Mortimore, S. , Food Safety for the 21st Century: Managing HACCP and Food Safety throughout the Global Supply Chain, WileyBlackwell, 2010;
5. <http://www.ipq.pt>; <http://europa.eu>; <http://www.globalgap.org>; <https://www.brcglobalstandards.com>

Teaching and learning methods

Theoretical practical classes: exposure of programmatic content, discussion and analysis of course topics. Practical classes: development of skills within the curricular unit scope using group works with research and discussion of information from various available sources of documentation.

Assessment methods

1. Alternative 1 - (Regular, Student Worker) (Final)
 - Intermediate Written Test - 50% (Minimum grade of 9. 5 (out of 20))
 - Practical Work - 50% (group works, case studies analysis, etc. . . Minimum grade of 9. 5 (out of 20))
2. Alternative 2 - (Regular, Student Worker) (Supplementary, Special)
 - Final Written Exam - 50% (Minimum grade of 9. 5 (out of 20))
 - Practical Work - 50% (Minimum grade of 9. 5 (out of 20))

Language of instruction

Portuguese, with additional English support for foreign students.

Electronic validation

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| Maria da Conceição Constantino Fernandes, Vitor Manuel Ramalheira Martins | Maria Fátima Alves Pinto Lopes da Silva | Elsa Cristina Dantas Ramalhosa | José Carlos Batista Couto Barbosa |
| 12-12-2022 | 15-12-2022 | 19-12-2022 | 19-12-2022 |