

Course Unit	Food quality and safety		Field of study	Engineering and related techniques	
Master in	Agroecology		School	School of Agriculture	
Academic Year	2022/2023	Year of study	1	Level	2-1
Type	Semestral	Semester	1	ECTS credits	6.0
Code	6348-488-1205-00-22				
Workload (hours)	162	Contact hours	T 30	TP -	PL 30
			TC -	S -	E -
			OT 4	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 Fátima Alves Pinto Lopes da Silva, Vitor Manuel Ramalheira Martins

### Learning outcomes and competences

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

1. Identify the main aspects related to the quality and food safety problematic produced in sustainable agriculture;
2. Know the main hazards associated to vegetable products;
3. Implement preventive and corrective measures to guarantee the safety of products of plant origin;
4. Obtain knowledge for the implementation of quality management systems and certification of products in sustainable production systems;
5. Integrate the acquired knowledge in the obtaining of safe products and in the traceability along the production chain.

### Prerequisites

Before the course unit the learner is expected to be able to:  
Non applicable.

### Course contents

Food Quality and Safety. Main food safety issues in foods of animal and vegetable origin. Hazards. Maximum admissible levels. Good Agricultural Practices. Traceability. Certification. Main certification systems applied to products of plant origin and agro-food industries.

### Course contents (extended version)

1. Food Quality and Safety.
  - Concepts and definitions.
  - Main food safety issues in foods of animal and vegetable origin.
2. Hazards in food products. Maximum admissible levels.
  - Biological hazards.
  - Chemical hazards: micotoxins, antibiotics, pesticides, fertilizers, heavy metals.
  - Physical hazards.
3. Good Agricultural Practices.
  - Farm production, hygiene, management, storage and transport of plant origin products.
  - Cleaning and hygiene in farms, operators, equipments and installations.
  - Traceability.
4. Certification. Concepts and definitions, objectives, advantages and scope.
5. Main certification systems applied to products of plant origin and agro-food industries
  - General standards: ISO 9001; HACCP; ISO 22000; ISO 45001;
  - Specific production system: Organic Agriculture, integrated protection and production;
  - Protected Designation Origin, Protected Geographical Indication, Traditional Speciality Guaranteed.
  - Private standards for systems of production, food safety and products.

### Recommended reading

1. Autoridade de Segurança Alimentar e Económica. (2012). Perfil de risco dos principais alimentos consumidos em Portugal. ASAE - Direcção de Avaliação e Comunicação dos Riscos.
2. d'Mello, J. P. F. (Ed. ), 2003. Food Safety: Contaminants and Toxins. CABI Publishing, London, UK, 472 pp.
3. Federação das Indústrias Portuguesas Agro-Alimentares (FIPA), (s. d). Rastreabilidade e Gestão de Incidentes na Indústria Agro-Alimentar.
4. www. dgadr. gov. pt/; www. dgv. min-agricultura. pt/; www. asae. gov. pt; www. ipma. pt; www. ipq. pt; www. efsa. europa. eu; www. codexalimentarius. net/; www. iso. org.
5. Vaz, A. , Moreira, R. ; Hogg, T. , 2000. Introdução ao HACCP. Escola Superior de Biotecnologia – Universidade Católica Portuguesa.

### Teaching and learning methods

Theoretical and practical lessons of the themes to be developed in the Course Unit. Research of literature for the preparation and discussion of the seminars presented by the students.

### Assessment methods

- Alternative 1 - (Regular, Student Worker) (Final, Supplementary, Special)
- Practical Work - 30% (Team Works with presentation and discussion (minimum 10/20 values, total).)
- Final Written Exam - 70% (Minimum 8/20 values.)

### Language of instruction

1. Portuguese, with additional English support for foreign students.
2. Spanish

### Electronic validation

Maria Fátima Alves Pinto Lopes da Silva, Vitor Manuel Ramalheira Martins	Maria da Conceição Constantino Fernandes	Manuel Ângelo Rosa Rodrigues	José Carlos Batista Couto Barbosa
19-12-2022	20-12-2022	20-12-2022	20-12-2022