

**Quality, Innovation and Emerging Processing
Technologies**

Code: 43035
ECTS Credits: 9

Degree	Type	Year	Semester
4313796 Quality of Food of Animal Origin	OB	0	2

Contact

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Teachers

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Use of languages

Principal working language: spanish (spa)

External teachers

Elena Beltran

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M. Dolors Guàrdia

Sònia Guri

Prerequisites

This module does not have any requirements.

Objectives and Contextualisation

In this module students will learn the different key stages in the innovation process and design of a new product of animal origin. They will also know the most innovative processing technologies; its validation and they will study the parameters of the process that have the greatest impact on the characteristics of the final product. Among the technologies that reduce the environmental impact of the food industry, students will study the use of products for the preparation of functional ingredients.

Skills

- Communicate and justify conclusions clearly and unambiguously to both specialist and non-specialist audiences.
- Design new foods by incorporating the necessary ingredients and additives and by applying appropriate processing and conservation technologies.
- Design, organise and execute projects related to this field of study, working alone or in a unidisciplinary or multidisciplinary team, displaying a critical sense and creativity, and the ability to analyse, synthesise and interpret information.
- Evaluate the potential of a technological process to obtain the microbiological, physical, chemical, sensorial and nutritional properties that determine the quality of a food.
- Execute and manage an innovation process on a food product, or a production and conservation process.
- Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
- Search for information using the appropriate channels and use this information to solve problems in the work context.
- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.

Learning outcomes

1. Carry out a bibliographic search.
2. Communicate and justify conclusions clearly and unambiguously to both specialist and non-specialist audiences.
3. Identify regional, national and international regulations.
4. Identify scientifically sound information sources.
5. Identify the differential characteristics of the innovation project.
6. Identify the potential of food industry by-products as sources of functional ingredients.
7. Integrate knowledge and use it to make judgements in complex situations, with incomplete information, while keeping in mind social and ethical responsibilities.
8. Know the parameters that determine product quality in a process of food transformation or conservation
9. Make proposals for addressing specific practical problems.
10. Obtain the parameters of a quantitative model that describes the changes caused by technological processing to the properties of a food.
11. Prepare flowcharts, diagrams, tables and/or figures.
12. Present work done in seminars, leading the discussion of problem areas
13. Present work done in seminars, leading the discussion of problem areas.
14. Recognise the capacities of each different food processing and conservation technology, especially those of emerging technologies.
15. Recommend the appropriate technology for preparing innovative foods.
16. Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
17. Use mathematical models to predict the effect of processing on the characteristics of a food.
18. Use tools for managing and documenting the innovation process.

Content

- New technologies for processing, preservation and control

Sensors: fundamentals, validation and uses

High pressure

Electrical pulses

High pressure homogenization

Active packaging/UV radiation

- Validation of technological treatments to ensure food quality
- Innovation Management
- New products design

Foods with nutrition and health claims

Recovery of traditional products

Collective restoration

- Recovery of raw materials devalued and sub products of food industry.

Methodology

- Lectures / expository classes
- Seminars
- Problem-based Learning
- Debates
- Tutoring
- Lab / Pilot Plant
- Reporting / coursework
- Reading articles / reports of interest
- Lecture / oral presentation of work

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Participative lectures	42	1.68	8, 9, 6, 5, 10, 16, 7, 15, 14, 18, 17
Pilot plant practices	9	0.36	9, 6, 11, 16, 7, 14
Presentation/Oral presentations	14	0.56	11, 12, 13, 2
Seminars	4	0.16	4, 1, 10, 11, 13, 16, 2, 7, 17
Type: Supervised			
Learning based on problem-solving	10	0.4	8, 4, 9, 1, 6, 5, 3, 10, 11, 12, 13, 16, 2, 7, 15, 14, 18, 17
Unprogrammed tutoring	15	0.6	8, 4, 9, 6, 5, 10, 12, 2, 7, 15, 14, 18, 17
Type: Autonomous			
Reading articles and reports of interest	70	2.8	8, 4, 1, 6, 5, 3, 10, 11, 7, 15, 14, 18, 17
Reporting	58	2.32	8, 4, 9, 1, 6, 5, 3, 10, 11, 12, 13, 16, 7, 15, 14, 18, 17

Evaluation

Several activities depending on item and teacher. They will be announced with enough time.

Evaluation activities

Title	Weighting	Hours	ECTS	Learning outcomes
Delivery of problems and written exercises	Weighted with the associated topics	1	0.04	8, 4, 9, 1, 6, 5, 3, 10, 11, 12, 13, 16, 2, 7, 15, 14, 18, 17
Multiple choice test	Proportional to related items	1	0.04	8, 6, 5, 14, 17
Presentations	Weighted with the associated topics	1	0.04	8, 4, 9, 1, 6, 5, 3, 10, 11, 12, 13, 16, 2, 7, 15, 14, 18, 17

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