

26225 - Food Technology II

Información del Plan Docente

Academic Year	2016/17
Academic center	105 - Facultad de Veterinaria
Degree	294 - Degree in Food Science and Technology
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

The course is structured in 35 h of participatory theoretical lectures, 21 hours of pilot plant practices, 2 seminars (2 hours each) and the approach, implementation and presentation of a work which will have 3 hours of tutoring per working group.

Participatory theoretical lectures : It is scheduled to deliver the documentation for each lesson at least 1 week in advance.

26225 - Food Technology II

Pilot plant practices : they will be held in sessions of 3-4 hours. The penultimate scheduled practice will be voluntary and will be conducted in English language.

The coordinated work will be done in coordination with the subjects of "Legislación alimentaria" and "Higiene Alimentaria Aplicada", in groups of 3-5 persons. Students will have to assess from legal, hygienic and technological terms the development process of a product.

The project is divided into two phases: in the first one, students will work on the equipment available at the Pilot Plant that would be used in the process of preparing a product. In this part, a technical sheet of two of the apparatus used in the process will be prepared, the process parameters of each stage of the process will be defined, and the probes necessary to control and monitor the corresponding stage will be selected. These materials will be discussed with students during the 3 tutorial sessions of 1 hour/session per group. In the second phase, the coordinated work will be defended at a joint session of the three subjects referenced above; it constitutes an additional practice session. Prior to the defense of the work, a written version of the presentation will be presented to the professors to prepare the debate.

Students will have 2 hours of tutoring per week.

All material both theoretical and practical sessions will be available to students in the ADD (<https://moodle2.unizar.es/add/>).

5.2.Learning activities

1. Theoretical sessions (lecture): 35 hours (1 hour sessions).
2. Practical sessions (laboratory practice): 21 hours (sessions 3-4 hours).
3. Seminars (troubleshooting and cases): 4 hours (2-hour sessions).
4. Development of coordinated work in collaboration with the subjects of "Legislación alimentaria" and "Higiene Alimentaria Aplicada". It will include 3 tutorials of 1 hour for each group.

5.3.Program

BLOCK I. Introduction

Theoretical sessions:

Lesson 1. Introduction (0.1 ECTS).

26225 - Food Technology II

Lesson 2. Cleaning, sorting and grading. Resizing (0.2 ECTS).

Lesson 3. Transport and pumping (0.2 ECTS).

BLOCK II. Food processing by heat, ionization and other non-thermal technologies.

Theoretical sessions:

Lesson 4. Food preservation by heat. Applications (blanching, pasteurization, sterilization, extrusion). Equipment and facilities. Process Control (0.7 ECTS).

Lesson 5. Food preservation by ionizing radiation. Sources and facilities. Applications. dosimetry control (0.1 ECTS).

Lesson 6. Food preservation by new technologies. Applications. Equipment and facilities. Process Control (0.1 ECTS).

Practical sessions:

PRACTICE 1. Canning processing. Retort setting up and management (0.4 ECTS).

PRACTICE 2. Pasteurization / sterilization of a liquid product. (0.4 ECTS).

TUTORING 1 for carrying out the coordinated work.

BLOCK III. Food processing by lowering the temperature and by modifying the atmosphere.

Theoretical sessions:

Lesson 7. Food preservation by lowering the temperature. Cooling and freezing systems. Cold chain. Applications. Equipment and facilities. Process Control (0.9 ECTS).

Lesson 8. Food preservation by controlling the atmosphere. Types. Applications. Equipment and facilities. Process Control (0.1 ECTS).

Practical sessions:

PRACTICE 3. Management of pilot plant apparatus needed in the coordinated work (0.3 ECTS).

PRACTICE 4. Preparation of frozen green beans. Management and characterization of tunnel freezer, the freezing chamber and indirect cooling system (ECTS 0.4).

26225 - Food Technology II

SEMINAR. Cooling load calculations (0.2 ECTS).

TUTORING 2 for carrying out the coordinated work.

BLOCK IV. Food processing by lowering the water activity. Chemical food preservation.

Theoretical sessions:

Lesson 9. Food preservation by lowering the water activity. Applications. Equipment and facilities. Process control. Reconstitution of food (0.7 ECTS).

Lesson 10. Chemical Food Preservation. Smoked, salting and brining (0.1 ECTS).

Practical sessions:

PRACTICE 5. Determination of the conditions of evaporation of a juice (0.4 ECTS).

SEMINAR. Dehydration and storage of a dehydrated product (0.2 ECTS).

TUTORING 3 for carrying out the coordinated work.

V. BLOCK food packaging.

Theoretical sessions:

Lesson 11. Packaging. Materials and manufacturing. Filling and sealing. Aseptic packaging. Active packaging. Smart packaging. Edible films and coatings (0.3 ECTS).

Practical sessions:

PRACTICE 6. Presentation and oral discussion of the integrated work together with the subjects of "Legislación Alimentaria" and "Higiene Alimentaria Aplicada" (0.2 ECTS).

5.4.Planning and scheduling

Schedule sessions and presentation of works.

The calendar and scheduling of the theoretical and practical sessions of the course will appear on the website of the

26225 - Food Technology II

Faculty of Veterinary Medicine, at the following address:

<http://veterinaria.unizar.es>

5.5. Bibliography and recommended resources

BB Casp Vanaclocha, Ana. Procesos de conservación de alimentos / Ana Casp Vanaclocha, José Abril Requena . 2ª ed. corr. Madrid : A. Madrid Vicente : Mundi-Prensa, 2003

BB Cheftel, Jean-Claude. Introducción a la bioquímica y tecnología de los alimentos. Vol. I / Jean-Claude Cheftel, Henri Cheftel / traducido del francés por Francisco López Capont . [1º ed., 4ª reimp.] Zaragoza : Acribia, 2000

BB Cheftel, Jean-Claude. Introducción a la bioquímica y tecnología de los alimentos. Vol.II / Jean-Claude Cheftel, Henri Cheftel, Pierre Besançon ; prólogo de Pierre Desnuelle ; traducido del francés por Francisco López Capont . [1ª ed., 4ª reimp.] Zaragoza : Acribia, 2000

BB Fellows, Peter.. Tecnología del procesado de los alimentos : principios y prácticas / Peter Fellows ; traducción de Jesús Ceamanos Lavilla . 2ª ed. Zaragoza : Acribia, D.L. 2007

BB Las operaciones de la ingeniería de los alimentos / J.G. Brennan ... [et al.] . 3ª ed Zaragoza : Acribia, 1998

BB Tecnología de los alimentos. Vol.I, Componentes de los alimentos y procesos / Juan A. Ordóñez Pereda (editor) . Madrid : Síntesis, D.L. 1998

URL: ADD-Unizar - [<http://add.unizar.es/>]

<http://psfunizar7.unizar.es/br13/egAsignaturas.php?codigo=26225&Identificador=12144>