

26220 - Food Technology I

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	First 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 learning process that is designed for this subject is based on the following:

The course is structured in 36 lectures, 1 hour; 8 hours of classroom practices, organized in work sessions of two hours; 16 hours of laboratory practices, organized into 4-hour sessions; and performing, presentation and defense of a report on one of the practices, randomly chosen by the teacher.

In relation to the lectures, it is scheduled to deliver the documentation for each item prior to their development, so that the student review it in detail before the corresponding session. In principle 40-50 minutes will be devoted to the exhibition of the most important and / or difficult aspects, and 10-20 minutes to answer questions and practical issues relating to the subject matter; depending on the subject under study.

Classroom practice sessions will be organized in 2 hours and students will solve them different practical cases, which are

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intended to achieve the learning outcome 4. They were raised and discussed issues related to the calculation, optimization and adjustment of various treatments.

Practices are held in sessions of 4 hours. The conservation-related heat must be conducted on consecutive days. It is envisaged that each session the group to split into three subgroups 3-4 students, who will perform three different activities simultaneously. Except in the specific case of dedicated to thermal treatments, each group will practice a week, once received the corresponding theoretical classes.

5.2.Learning activities

The course is structured in 36 lectures, 1 hour; 8 hours of classroom practices, organized in work sessions of two hours; 16 hours of laboratory practices, organized into 4-hour sessions; and performing, presentation and defense of a report on one of the practices.

5.3.Program

BLOCK I. General principles. contents:

Theoretical teaching: Introduction. Parameters food quality. Altering agents food. food risks and technological solutions. Strategies food preservation. predictive modeling.

Practical teaching: predictive modeling. Growth models and inactivation. primary, secondary and tertiary models.

Teaching and learning activities: (0.7 ECTS)

master-classes: 7 hours

-Practices Laboratory: 2 hours, included in the analysis of data from other practices.

BLOCK II: Processed food by heat and irradiation. contents:

Theoretical teaching: Introduction and historical perspective. Biological Effects of Heat inactivation kinetics. Effects on quality: optimization of treatments. Calculation and adjustment of the heat treatments.

Teaching practice: Conserving heat. RTD data acquisition and the effects of heat on quality. Met. multipoint. RTD data collection. Met. the endpoint. Construction of graphs of survival, thermal destruction and TDT. Calculation of D_t and z values. Development of predictive models.

Teaching and learning activities: (3.0 ECTS)

master-classes: 14 hours

-Practices Classroom: 8 hours

-Practices Laboratory: 8 hours (including development of predictive models).

SECTION III: Processed food cold and modified atmospheres Contents:

Theoretical teaching: Introduction and historical perspective. Fundamentals of conservation in refrigeration. Fundamentals storage / packaging in special atmospheres. Fundamentals of freezing preservation.

Practical teaching: Conservation by lowering the temperature. Preparation freezing curves and estimation of the parameters of interest. colligative properties and its effect on freezing. Effect of freezing conditions on the quality of food. Effect of temperature on the enzymatic and / or microbial activity.

Teaching and learning activities: (0.8 ECTS)

master-classes: 4 hours

-Practices Laboratory: 4 hours

SECTION IV: Fundamentals of food processing by reducing water activity. contents:

Theoretical teaching: Introduction and historical perspective. Water interaction with other food components: A_w . Sorption isotherm. Hysteresis. Biological effects of decrease in water activity. Adjustment hiperosmoticidad. Effects of falling water activity on quality.

Practical teaching: Food Preservation by controlling the a_w . Determination of water activity by a method graphical interpolation and determining the dewpoint. Determination of water activity isopiestic methods. Development and analysis of a sorption isotherm.

Teaching and learning activities: (1 ECTS)

master-classes: 6 hours

-Practices Laboratory: 4 hours

BLOCK V: Other technologies.

contents:

Theoretical teaching: Foundations of acidification of food. Fundamentals of chemical food preservation. Fundamentals of

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new technologies of processing of food. Fundamentals of food preservation by combined processes.
Teaching and learning activities: (0.5 ECTS)
master-classes: 5 hours

5.4.Planning and scheduling

The dates and key milestones of the subject are described in detail , along with other subjects of the third course in the Degree of Science and Food Technology , on the website of the Faculty of Veterinary Medicine (link : [http : // veterinaria.unizar.es/gradocta/](http://veterinaria.unizar.es/gradocta/)) . This link will be updated at the beginning of each academic year .

5.5.Bibliography and recommended resources

Typically, the literature of the academic year is kept updated and is consulted by the Library website (search biblioteca.unizar.es recommended bibliography)