30820 - Food Technology I

Información del Plan Docente

Academic Year	2017/18
Faculty / School	105 - Facultad de Veterinaria
Degree	568 - Degree in Food Science and Technology
ECTS	6.0
Year	3
Semester	First semester
Subject Type	Compulsory
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

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 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 tasks

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.Syllabus

The program that the student is offered to help you achieve the expected results includes the following activities ...
1:
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.
2:
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 Dt and z values. Development of predictive models.
Teaching and learning activities: (3.0 ECTS)
master-classes: 14 hours

-Practices in class: 8 hours

-Laboratory practices: 8 hours (includes development of predictive models).

3: BLOCK III: Processing of food by cold and modified atmospheres Contents:

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

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

Teaching-learning activities: (0,8 ECTS)

- Master Classes: 4 hours

-Laboratory practices: 4 hours

4: BLOCK IV: Fundamentals of food processing by reduction of water activity. Contents:

Theoretical teaching: Introduction and historical perspective. Interaction of water with other food components: Aw. Sorption isotherm. Hysteresis. Biological effects of the decline in water activity. Adaptation to hyperosmoticity. Effects of declining water activity on quality.

Practical teaching: Food conservation by control of aw. Determination of the water activity by a method of graphical intrapolation and by determination of the dew point. Determination of water activity by isopitic methods. Elaboration and analysis of a sorption isotherm.

Teaching-learning activities: (1 ECTS)

- Master Classes: 6 hours

-Laboratory practices: 4 hours

5: BLOCK V: Other technologies.

Contents:

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Theoretical teaching: Fundamentals of acidification of food. Fundamentals of chemical food preservation. Fundamentals of new food processing technologies. Fundamentals of food preservation by combined processes.

Teaching-learning activities: (0,5 ECTS)

- Master Classes: 5 hours

5.4.Course planning and calendar

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

5.5.Bibliography and recommended resources

Normally, the bibliography of the current academic year is kept up-to-date and consulted on the Library website (search recommended bibliography at biblioteca.unizar.es)