# 63021 - New technologies of food processing

**Información del Plan Docente**

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| **Academic Year** | 2017/18 |
| **Faculty / School** | 105 - Facultad de Veterinaria |
| **Degree** | 566 - Master's in Food Quality, Safety and Technology |
| **ECTS** | 3.0 |
| **Year** | 1 |
| **Semester** | Second semester |
| **Subject Type** | Optional |
| **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 methodology followed in this course is oriented towards achievement of the learning objectives. The course is structured in 20 hours of lectures, 10 hours of laboratory practices and the preparation of a project (approach, implementation and presentation) that requires 45 hours of autonomous work.

- Lectures will be conducted with the help of audiovisual media, presenting the fundamentals of new processing technologies together with supplementary material such as tables, graphs, and webpages to expand the course

information.
- Practice sessions will be conducted in the laboratory in small groups with a protocol and the necessary material, being supervised by the course teachers.

Once completed the teaching sessions, in groups, the students will prepare a specialization project which, once discussed with their advisor, will be presented in a written format as well as orally to be evaluated.

## 5.2.Learning tasks

The course includes the following learning tasks:

- Lectures. 20 hours (2-hour sessions).
- Practice sessions. 10 hours (sessions of 3-4 hours).
- Specialization project. 45 hours (autonomous work). Students choose the most appropriate emerging technology for food preservation / storage / processing.

## 5.3.Syllabus

The course will address the following topics:

**Lectures**

Topic 1. Introduction. Traditional technologies versus new technologies, challenges and solutions. Review of progress in food processing (2 h)
Topic 2. New preservation, higienization, food processing and extraction technologies (irradiation, high hydrostatic pressure, ultrasound, ultraviolet, pulsed electric pulses, light pulses, cold plasma, natural antimicrobials, combined processes ...) (16 h)
Topic 3. New alternative heating methods (microwave, ohmic heating, dielectric heating, etc.) (1 h)
Topic 4. New packaging systems (active packaging, smart packaging, edible films, recyclable, reusable and biodegradable packaging, etc.) (1 h)

**Practice sessions**

Session 1. New food preservation technologies: handling equipment for high hydrostatic pressure, ultrasound, ultraviolet, and pulsed electric pulses treatments, and study of microbial and / or enzymatic inactivation by these technologies (3 h)

Session 2. New extraction technologies: handling equipment for extraction by pulsed electric pulses, and extraction of intracellular components of interest in the food industry (3 h)

Session 3. Analysis of results (4 h)

## 5.4.Course planning and calendar

Further information concerning the timetable, classroom, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the Faculty of Veterinary website http://veterinaria.unizar.es

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## 5.5.Bibliography and recommended resources