Universidad Zaragoza

Academic Year/course: 2024/25

66227 -

Syllabus Information

Academic year: 2024/25
Subject: 66227 -
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 531 - Master's in Chemical Engineering
ECTS: 3.0
Year: 2
Semester: First semester
Subject type: Optional
Module:

1. General information

The aim is for the student to acquire basic scientific and technological knowledge of the different production processes of the main industries related to the elaboration and processing of food. In this way, the student's qualification to work in the chemical industry is improved.

- Design of the food production, processing and preservation system.
- Quality control and food safety.
- Environmental management in the food industry.

2. Learning results

- Choose the sequence of basic operations and transformations necessary for the preparation, processing and preservation of a specific food.
- Analyse the impact that possible changes in the characteristics of the raw material or in the processing conditions could have on the final quality of the food.
- Analyse the advantages, disadvantages and limitations of the equipment and facilities used for food processing and preservation.
- Apply the knowledge of food industry processes to assess and quantify the influence of different operating variables in food processing.
- Identify the distinctive aspects of the food industry compared to other process industries.

3. Syllabus

The foreseen syllabus for this subject is the following:

1. The food industry. Stages of the manufacturing process. Environmental aspects and best available techniques.
2. Processes for the production of oil, olive oil mill wastewater (alpechines), solid residue (orujo) and alperujo.
3. Fruits and vegetables Vegetable preserves, types of preserves, canning process, juices and nectars, juice extraction and concentration, by-products.
4. Beer production process: Types of beer, raw materials, stages of the brewing process, by-products.
5. Sugar production. Classification of sugars, manufacturing process.
6. Dairy industry. Milk processing, pasteurization plants, aseptic packaging, production of cream and other types of milk, cheese, yogurt, dairy desserts, whey.
7. Other processes

4. Academic activities

The calendar of the subject is adapted to the one established by the School of Engineering and Architecture (EINA), as well as its timetable and exam calendar, all of which can be consulted on its web page: http://eina.unizar.es, . The teacher will also inform about their tutoring schedule. The academic calendar, schedules and classrooms are available on the centre's website. The list of dates and specific activities as well as all kinds of information and documentation on the subject will be published on the Moodle platform (for access to this network the student must be enrolled in the subject). The subject will be developed throughout the first semester (fall) of the academic year and according to the established schedule. This is a 3 ETCS subject, which is equivalent to 75 hours of student work, which will be distributed into the following activities:

1. **20 hours of master class distributed in approximately two hours per week**. Theoretical content and concepts necessary for the resolution of problems and practical cases will be presented.
2. **5 hours of problem and case-based learning,** distributed into approximately 1 hour every two weeks. In them, problems and practical cases will be developed with the active participation of the students. They will also be

coordinated in content with the temporal evolution of the theoretical presentations.

3. **Individual study and supervised work (42 hours)**. The student is advised to study continuously and individually throughout the semester.
4. **5 hours of special practices,** corresponding to company visits. The date of these visits must be coordinated with the company to be visited.

3 hours of evaluation tests: there will be a global written test where the theoretical and practical knowledge achieved by the student will be evaluated. The dates for the global evaluation test in first and second call will be in accordance with the EINA academic calendar and can be consulted on the EINA web page.

5. Assessment system

The student must demonstrate achievement of the intended learning results through the following assessment activities:

Option 1

Written test in the call for exams corresponding to the global evaluation periods consisting of short or essay questions and/or multiple-choice questions **(grade 1)**.

Completion of exercises, assignments and company visits, related to aspects of the subject proposed during the term **(grade 2)**.

Class participation during the term (**grade 3**).

The final grade for the subject will be calculated according to the following formula:

Final grade= 0.50*grade 1 + 0.40*grade 2 + 0.10*grade 3

Option 2

According to the Regulations of Learning Assessment Standards of the University of Zaragoza, the student will have the right to a global test in which the competencies developed in the subject will be evaluated. This comprehensive test will be held on the date scheduled in the School of Engineering and Architecture examination calendar and will account for 100% of the final grade. This option will be available in both calls.

6. Sustainable Development Goals

2 - Zero Hunger
9 - Industry, Innovation and Infrastructure
12 - Responsible Production and Consumption