

60652 - Food Processing Procedures

Syllabus Information

Academic year: 2024/25

Subject: 60652 - Food Processing Procedures

Faculty / School: 100 - Facultad de Ciencias

Degree: 540 - Master's in Industrial Chemistry

ECTS: 3.0

Year: 1

Semester: Second semester

Subject type: Optional

Module:

1. General information

The aim is for the student to acquire basic knowledge of food industry processes, both in terms of production processes and environmental aspects. In this way, the student's qualification to work in the chemical industry is improved.

2. Learning results

Upon completion of this subject, the student will be able to:

- Choose the sequence of basic operations and transformations necessary for the preparation, processing and preservation of a given 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.
- Analyse the impact on the final quality of the food that possible changes in the characteristics of the raw material or in the processing conditions could have.

3. Syllabus

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

4. Academic activities

The 75 hours of student work will be divided into activities as follows:

1. Participative master classes (20 hours) where the fundamentals will be taught.
2. Face-to-face classes of problem solving and case studies (5 hours): in these classes the student will solve problems supervised by the teacher.. In these classes the students will also present the results of the tutored work.
3. Individual study and supervised work (42 non face-to-face hours).
4. Visits to companies (5 h according to availability).
5. Final assessment (3 hours): there will be a global written test to assess the knowledge acquired by the student.

5. Assessment system

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

- Individual written tests throughout the teaching period, in order to pass the subject gradually. If the students do not pass it, they are entitled to a written test in the call for exams corresponding to the periods of global assessment. The

written tests will consist of short questions, open-ended questions and/or multiple choice questions (grade 1).

- Completion of exercises and/or assignments and/or visits to companies, related to aspects of the subject proposed during the course (grade 2).
- Class participation during the term (grade 3).

The final grade for the subject will be the best of the grades obtained by the student between two alternative formulas:

- Formula 1: Final grade= $0.6 \cdot \text{grade 1} + 0.25 \cdot \text{grade 2} + 0.15 \cdot \text{grade 3}$
- Formula 2: Final grade= $0.6 \cdot \text{grade 1} + 0.4 \cdot \text{grade 2}$

6. Sustainable Development Goals

6 - Clean Water and Sanitation

7 - Affordable and Clean Energy

9 - Industry, Innovation and Infrastructure