Course guide
240641 - 240641 - Food Bioengineering

Unit in charge: Barcelona School of Industrial Engineering
Teaching unit: 713 - EQ - Department of Chemical Engineering.
Degree: BACHELOR’S DEGREE IN INDUSTRIAL TECHNOLOGY ENGINEERING (Syllabus 2010). (Optional subject).
Academic year: 2022  ECTS Credits: 3.0  Languages: Spanish, English

LECTURER
Coordinating lecturer: María Pilar Almajano

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Transversal:
06 URI. EFFECTIVE USE OF INFORMATION RESOURCES. Managing the acquisition, structure, analysis and display of information from the own field of specialization. Taking a critical stance with regard to the results obtained.

TEACHING METHODOLOGY

There will be 18 hours synchronous classes with active methodologies 8 hours dedicated to practices and are allocated 4 hour to visits. In non-contact hours delivered documents will be scheduled through Athena.

LEARNING OBJECTIVES OF THE SUBJECT

1. Differentiate the components of foods, their basic characteristics and the contribution of each component to the nutritional properties of the food
2. Justifiably the need (or not) of food additives
3. Explain the major alteration reactions that may occur in food processing machines and design to minimize
4. Determine the parameters influencing good control of the specific characteristics that determine food processing, distribution and industrial preparation
5. Implement the relevant food handling
6. Working with basic regulatory and legal framework applicable to the processing, distribution and preparation of food, especially food additives, packaging and labeling.
7. Applying the theoretical framework, new technologies of food irradiation
8. Taking decisions on the implementation of quality standards for the food industry.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self study</td>
<td>45,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>30,0</td>
<td>40.00</td>
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</tbody>
</table>

Total learning time: 75 h
## Biomolecules

**Description:**

**Related activities:**
Lab practice

**Full-or-part-time:** 9h
Theory classes: 2h
Laboratory classes: 2h
Guided activities: 1h
Self study: 4h

## Reactions in food

**Description:**
Main reactions occurring in food processing. Importance in its development

**Related activities:**
Laboratory practices

**Full-or-part-time:** 12h
Theory classes: 4h
Laboratory classes: 1h
Guided activities: 3h
Self study: 4h

## Additives

**Description:**
Food Additives. Rating, Law and use

**Related activities:**
Discussion

**Full-or-part-time:** 9h
Theory classes: 1h
Practical classes: 1h
Guided activities: 3h
Self study: 4h

## Quality and hygiene

**Description:**
Quality and hygiene in the food industry. HACCP system. Product testing and installations

**Full-or-part-time:** 8h
Theory classes: 3h
Guided activities: 1h
Self study: 4h
## Biotechnology. GM food

**Description:**
Biotechnology. GM food

**Related activities:**
Work with scientific articles

**Full-or-part-time:** 7h
- Theory classes: 2h
- Guided activities: 2h
- Self study: 3h

## Food treatments

**Description:**
Treatments for energy supply
Thermal pasteurization and sterilization
Irradiation
Emerging Technologies

**Related activities:**
Team work. Exhibition in the classroom

**Full-or-part-time:** 15h
- Theory classes: 2h
- Practical classes: 1h
- Guided activities: 6h
- Self study: 6h

### ACTIVITIES

#### Visit a food factories

**Full-or-part-time:** 4h
- Theory classes: 4h

#### Laboratory practices

**Full-or-part-time:** 8h
- Practical classes: 8h

#### Discussion

**Full-or-part-time:** 6h
- Theory classes: 2h
- Guided activities: 2h
- Self study: 2h
GRADING SYSTEM
Classroom Activities 25%
Teamwork 25%
Theory test 35%
Practices 15%

BIBLIOGRAPHY
Basic:

RESOURCES
Audiovisual material:
- Nom recurs. Resource