Course guide
390323 - IEF - Extraction and Fermentation Industries

Unit in charge: Barcelona School of Agri-Food and Biosystems Engineering
Teaching unit: 745 - DEAB - Department of Agri-Food Engineering and Biotechnology.
Degree: BACHELOR’S DEGREE IN FOOD ENGINEERING (Syllabus 2009). (Compulsory subject).
Academic year: 2022  ECTS Credits: 6.0  Languages: Catalan, Spanish

LECTURER
Coordinating lecturer: Isabel Achaerandio
Others: Elena Sanchez  Amèlia Sarroca

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES
Specific:
1. Food engineering and technology: Food technology.
2. Food engineering and technology: Processes in food industry.
3. Food engineering and technology: Modeling and optimization.

TEACHING METHODOLOGY
Autonomous learning, students work outside the classroom part of the contents of the course with material for self-learning.
Directed learning, combine participatory lectures with lab-pilot plant sessions, visits to food industries and group work of a practical case study. Some learning activities are carried out cooperative work in small groups of students. Different activities will be evaluated on an ongoing basis; the use of the ATENEA virtual forum will be encouraged.

LEARNING OBJECTIVES OF THE SUBJECT
At the end of the course, the student should be able to:
· Describe the stages of the productive process of extraction and processed of raw materials (musts, flour, oil and fat).
· Describe the production of food products from the extractive and fermentation industries: ingredients, formulation, product development and technological processes from the raw material to the final product.
· Propose control parameters to minimize production losses and obtain a quality product that complies with current legislation and respects environmental and social aspects.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Hours small group</td>
<td>20,0</td>
<td>13.33</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
<tr>
<td>Hours large group</td>
<td>40,0</td>
<td>26.67</td>
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</tbody>
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Total learning time: 150 h
CONTENTS

FERMENTED BEVERAGES. WINE AND BEER

Description:

Related activities:
Activity 1. Classroom activities
Activity 2. Individual exam
Activity 3. Laboratory work and pilot plant
Activity 4. Visits to Food industries

Full-or-part-time: 75h 25m
Theory classes: 20h 25m
Laboratory classes: 10h
Self study : 45h

FOOD OILS AND FATS

Description:
Sort of oils and fats for food use. Olive oil. Other vegetable oils and animal. Extraction of crude oils and fats. Refining and processing (fractionation, hydrogenation and interesterification). Applications of oils in the food industry. Selection criteria of an oil or fat.

Related activities:
Activity 1. Classroom activities
Activity 2. Individual exam
Activity 3. Laboratory work and pilot plant
Activity 4. Visit a Food industry

Full-or-part-time: 37h 42m
Theory classes: 10h 12m
Laboratory classes: 5h
Self study : 22h 30m

CEREALS PRODUCTS

Description:
Wheat flour production process. Flour components and functionality in bread. Quality control and classification of flour.

Related activities:
Activity 1. Classroom activities
Activity 2. Individual exam
Activity 3. Laboratory work and pilot plant
Activity 4. Visit a Food industry

Full-or-part-time: 37h 43m
Theory classes: 10h 13m
Laboratory classes: 5h
Self study : 22h 30m
ACTIVITIES

ACTIVITY 1: CLASSROOM ACTIVITIES

Full-or-part-time: 98h
Theory classes: 38h
Self study: 60h

ACTIVITY 2: INDIVIDUAL EXAM

Full-or-part-time: 2h
Theory classes: 2h

ACTIVITY 3: LABORATORY WORK AND PILOT PLANT

Full-or-part-time: 42h
Laboratory classes: 14h
Self study: 28h

ACTIVITY 4: VISIT A FOOD INDUSTRY

Full-or-part-time: 8h
Laboratory classes: 6h
Self study: 2h

GRADING SYSTEM

The final grade of the course, Nfinal is the sum of the following partial qualifications:

\[
N_{\text{final}} = 0.45 \times N_1 + 0.45 \times N_2 + 0.1 \times \text{(participation)}
\]

- \( N_1 \) (1 content) = 100% individual exam
- \( N_2 \) (contents 2 and 3) = 70% individual exam + 30% tasks

BIBLIOGRAPHY

Basic: