390323 - IEF - Extraction and Fermentation Industries

Coordinating unit: 390 - ESAB - Barcelona School of Agricultural Engineering
Teaching unit: 745 - EAB - Department of Agri-Food Engineering and Biotechnology
Academic year: 2018
Degree: BACHELOR'S DEGREE IN FOOD ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
BACHELOR'S DEGREE IN FOOD ENGINEERING (Syllabus 2009). (Teaching unit Compulsory)
ECTS credits: 6
Teaching languages: Catalan, Spanish

Coordinator: ELENA GORDUN QUILES

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 individual tests evaluation of the course will be students reviewed. 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 of raw materials (must, 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>Total learning time: 150h</th>
<th>Hours large group: 40h 26.67%</th>
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<tbody>
<tr>
<td></td>
<td>Hours medium group: 0h 0.00%</td>
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<td>Hours small group: 20h 13.33%</td>
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<td></td>
<td>Guided activities: 0h 0.00%</td>
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<tr>
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<td>Self study: 90h 60.00%</td>
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### FERMENTED BEVERAGES. WINE AND BEER

**Learning time:** 75h 25m  
- Theory classes: 20h 25m  
- Laboratory classes: 10h  
- Self study: 45h  

**Description:**  

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

### CEREALS PRODUCTS

**Learning time:** 37h 43m  
- Theory classes: 10h 13m  
- Laboratory classes: 5h  
- Self study: 22h 30m  

**Description:**  
Main industries cereal. Obtaining flour. Types and classification of flour. Production of bread.  

**Related activities:**  
- Activity 1. Classroom activities  
- Activity 2. Individual exam  
- Activity 3. Laboratory work and pilot plant  
- Activity 4. Visit a Food industry
### FOOD OILS AND胖子

**Learning time:** 37h 42m  
Theory classes: 10h 12m  
Laboratory classes: 5h  
Self study: 22h 30m  

**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

### Planning of activities

| ACTIVITY 1: CLASSROOM ACTIVITIES | Hours: 98h  
Theory classes: 38h  
Self study: 60h |
| ACTIVITY 2: INDIVIDUAL EXAM | Hours: 2h  
Theory classes: 2h |
| ACTIVITY 3: LABORATORY WORK AND PILOT PLANT | Hours: 42h  
Laboratory classes: 14h  
Self study: 28h |
| ACTIVITY 4: VISIT A FOOD INDUSTRY | Hours: 8h  
Laboratory classes: 6h  
Self study: 2h |
Qualification system

The final grade of the course, $N_{\text{final}}$, is the sum of the following partial qualifications:

$N_1$ (content 1) = 70% individual exam + 15% task + 15% practical work

$N_2$ (content 2 and 3) = 70% individual exam + 15% task + 15% practical work

$N_{\text{final}} = 0.45 + 0.45 + 0.1N_2$ (attitude and participation)

Regulations for carrying out activities

To pass the course it is essential to deliver on time at least 75% of the tasks of each content.

Bibliography

Basic:


