Course guide
390329 - ICL - Meat and Dairy 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: ROSER ROMERO DEL CASTILLO SHELLY
Others: MARIA ISABEL ACHAERANDIO PUENTE

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. Food engineering and technology: Engineering and basic operations in food industry.
2. Food engineering and technology: Food technology.
3. Food engineering and technology: Processes in food industry.

TEACHING METHODOLOGY

The teaching methodology will consist of theoretical classes of the whole group where from an introduction to a subject or from questions about subjects that students want to learn.
Practical classes with small group where dairy and meat products will be elaborated in the pilot plant and the laboratory where quality controls will be made.
It will be complemented with outings to visit the meat and dairy industries.
Students will have to carry out work on the topics proposed in the theoretical class as well as solve practical cases on the subject.

LEARNING OBJECTIVES OF THE SUBJECT

The student must be able to describe, explain and develop the main processing lines of the agri-food industries derived from the dairy and meat industries, in terms of characteristics and quality of raw materials, technical specifications of ingredients, methods of application of the usual additives, equipment, auxiliary machinery, specific technology and evolution and inspection of the product.

The student must be able to advocate changes in a process line and design pilot experiences to test for changes in product formulation or processing technology.

STUDY LOAD

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

**CIÈNCIA DE LA CARN**

Description:
1. Chemistry, biochemistry and microbiology of meat.
2. The slaughterhouse. Industrial production of meat.
4. Legislative framework. Labeling and traceability.

Related activities:
1. Activity 1: Theoretical class
2. Activity 2: Written test
3. Activity 3: Making products
4. Activity 4: Departures

**BASES DE L’ELABORACIÓ DE PRODUCTES CARNIS**

Description:
1. Classification and description of processed meat products.
2. Preparation, mixing and processing operations: meat pastes and emulsions.
3. Conservation operations based on the reduction of water activity, the increase in temperature, the reduction of pH and the use of chemicals.
4. Raw materials, additives and starter crops for use in the meat industry.
5. Legislative framework.

Related activities:
1. Activity 1: Theoretical class
2. Activity 2: Written test
3. Activity 3: Making products
4. Activity 4: Technical visits

**Full-or-part-time**
25h
- Theory classes: 6h
- Laboratory classes: 2h
- Self study: 17h

10h
- Theory classes: 2h
- Self study: 8h
(ENG) ELABORACIÓ DE PRODUCTES CARNIS

Description:
(ENG) 1. Preparation of raw and cooked meat products
2. Preparation of cured meat products

Related activities:
(ENG) Activity 1: Theoretical class
Activity 2: Written test
Activity 3: Making products

Full-or-part-time: 40h
Theory classes: 12h
Laboratory classes: 8h
Self study: 20h

(ENG) MILK SCIENCE

Description:
(ENG) 1. Chemical and biochemical composition of milk
2. Microbiology of milk
3. Payment of milk for quality

Related activities:
(ENG) Activity 1: Theoretical class
Activity 2: Written test
Activity 3: Making products
Activity 4: Technical visits

Full-or-part-time: 25h
Theory classes: 6h
Laboratory classes: 2h
Self study: 17h

(ENG) LIQUID MILK PROCESSES

Description:
(ENG) 1. Milk collection and milk reception in the industry
2. Previous operations. Sanitation, skimming and homogenization
3. Pasteurization and Sterilization
4. Concentrated, condensed and evaporated milks

Related activities:
(ENG) Activity 1: Theoretical class
Activity 2: Written test
Activity 3: Making products
Activity 4: Technical visits

Full-or-part-time: 23h
Theory classes: 7h
Laboratory classes: 2h
Self study: 14h
### (ENG) ELABORACIÓ DE PRODUCTES LACTIS

**Description:**
(ENG) 1. Fermented milks  
2. Cheese  
3. Cream and butter  
4. Ice cream and dairy desserts

**Related activities:**
(ENG) Activity 1: Theoretical class  
Activity 2: Written test  
Activity 3: Making products  
Activity 4: Technical visits

**Full-or-part-time:** 27h  
Theory classes: 7h  
Laboratory classes: 6h  
Self study: 14h

### ACTIVITIES

#### (ENG) ACTIVITAT 1: CLASSES D’EXPLICACIÓ

**Description:**
Description: Master class, case study, presentation of the result of autonomous learning, discussion on the study of cases and the presentation of autonomous learning

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

#### (ENG) ACTIVITAT 2: PROVES INDIVIDUALS D’EVALUACIÓ

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

#### (ENG) ACTIVITAT 3: PRÀCTICA

**Full-or-part-time:** 40h  
Laboratory classes: 16h  
Self study: 24h

#### (ENG) ACTIVITAT 4: SORTIDES

**Full-or-part-time:** 10h  
Laboratory classes: 4h  
Self study: 6h
GRADING SYSTEM

The final qualification for the course (Final: Final grade) is obtained as follows:
N1: Activity 2: 2 Individual assessment tests (each test is worth 50%)
N2: Activity 3 and 4: Questionnaire about practices and departure
N3: Activities 3: Report on the work done to the practices
N4: Resolution of practical cases and works proposed to class
N_{\text{final}} = 0.7N_1 + 0.1N_2 + 0.1N_3 + 0.1N_4

EXAMINATION RULES.

The student will receive a calendar with the programming of the activities and delivery of the deliveries of the different activities. Attendance at sessions where cooperative learning activities are carried out will be compulsory, as well as practical sessions (computer room, laboratory, pilot plant and external visits).

BIBLIOGRAPHY

Basic: