390227 - GAIA - Environmental Management of Food 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)
ECTS credits: 6

Teaching languages: Catalan

Degree competences to which the subject contributes

Specific:

Transversal:
02 SCS N3. SUSTAINABILITY AND SOCIAL COMMITMENT - Level 3. Taking social, economic and environmental factors into account in the application of solutions. Undertaking projects that tie in with human development and sustainability.

Learning objectives of the subject

On successfully completing the schedule of this course the student will learn:
- all about existing problems in the food industry because of generation of wastewater and waste and its management
- the technologies of treatment more important
- options of pollution valorization and minimization
- the environmental management tools applicable to the food industry to improve its environmental behaviour.

This knowledge should enable students to:
- propose measures organizational, operational and technology to minimize the amount and/or hazard of the waste generated in food industries.
- make sustainable decisions from the environmental point of view.

Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group: 40h</th>
<th>26.67%</th>
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<tbody>
<tr>
<td>Hours small group: 20h</td>
<td>13.33%</td>
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<tr>
<td>Self study: 90h</td>
<td>60.00%</td>
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# Content

## INTRODUCTION

**Learning time:** 2h 30m  
Theory classes: 1h  
Laboratory classes: 0h  
Self study : 1h 30m

**Description:**  
Environmental problems of the food industry in the areas of waste and wastewater.

## WASTEWATER TREATMENT OF FOOD INDUSTRIES

**Learning time:** 80h  
Theory classes: 20h  
Laboratory classes: 12h  
Self study : 48h

**Description:**  
Wastewater treatment of food industries: physical, chemical and biological processes.  
Intensive and extensive wastewater treatment systems.  
Treatment and management of sewage sludge of food industries.  
Sanitation normative aspects and water taxes.

## INDUSTRIAL WASTE MANAGEMENT

**Learning time:** 22h 30m  
Theory classes: 5h  
Laboratory classes: 4h  
Self study : 13h 30m

**Description:**  
Characterization of the most significant residues of the food industry and associated problems.  
Valorization of organic waste from the food industry.  
Industrial waste management.

## POLLUTION MINIMIZATION

**Learning time:** 18h  
Theory classes: 4h  
Laboratory classes: 2h  
Self study : 12h

**Description:**  
Cleaner production.  
Pollution prevention in food industries by sectors.
Bibliography

Basic:


Others resources:

ENVIRONMENTAL MANAGEMENT TOOLS

<table>
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<th>Description:</th>
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<tr>
<td>Environmental management tools. The 20/2009 law of prevention and environmental control of activities.</td>
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Learning time: 25h
- Theory classes: 8h
- Laboratory classes: 2h
- Self study: 15h