

## Course guide

# 390227 - GAIA - Environmental Management of Food Industries

**Last modified:** 12/01/2024

**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:** 2023    **ECTS Credits:** 6.0    **Languages:** Spanish

### LECTURER

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**Coordinating lecturer:** Ramos Quiroz, Carlos Antonio

**Others:**

### DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

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**Specific:**

CE-BC-16. Management and exploitation of by-products from the agricultural industry.

### TEACHING METHODOLOGY

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### LEARNING OBJECTIVES OF THE SUBJECT

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The objective of the subject is to acquire knowledge for the student about the management and use of agroindustrial byproducts.

Therefore, it is expected that upon successful completion of the subject, students will acquire knowledge in:

- Existing problems in the food industry related to the generation of wastewater and waste.
- Technical and legislative aspects related to the management of wastewater and waste generated in this industry.
- Main technologies for the treatment, valorization and minimization of pollutants.
- Environmental management tools applied to the agri-food industry that allow improving environmental quality.

Through this knowledge, students should be able to:

- Propose organizational, operational and technological measures to minimize the quantity and/or danger of waste generated in food industries.
- Make sustainable decisions from an environmental point of view.

### STUDY LOAD

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Type	Hours	Percentage
Self study	90,0	60.00
Hours large group	40,0	26.67
Hours small group	20,0	13.33

**Total learning time:** 150 h



## CONTENTS

### Introduction

**Description:**

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

**Full-or-part-time:** 2h 30m

Theory classes: 1h

Self study : 1h 30m

### Wastewater treatment from food industry

**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.

**Full-or-part-time:** 80h

Theory classes: 20h

Laboratory classes: 12h

Self study : 48h

### Management of waste from food industry

**Description:**

- Characterization of the most significant waste of the food industry and associated problems.
- Processes for the treatment and valorization of organic waste from the food industry.
- Management of waste from food industry.

**Full-or-part-time:** 22h 30m

Theory classes: 5h

Laboratory classes: 4h

Self study : 13h 30m

### Pollution minimization

**Description:**

- Cleaner production.
- Pollution prevention in food industries by sectors.

**Full-or-part-time:** 18h

Theory classes: 4h

Laboratory classes: 2h

Self study : 12h



### Environmental management tools

**Description:**

- Environmental management tools.
- The 20/2009 law of prevention and environmental control of activities.

**Full-or-part-time:** 25h

Theory classes: 8h

Laboratory classes: 2h

Self study : 15h

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### GRADING SYSTEM

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### BIBLIOGRAPHY

**Basic:**

- Tchobanoglous, George; Burton, Franklin L. Ingeniería de aguas residuales : tratamiento, vertido y reutilización. 3a ed. Madrid: McGraw-Hill, 1995. ISBN 8448116070.
- Carlos M. López Vázquez; Germán Buitrón Méndez; Héctor A. García; Francisco J. Cervantes Carrillo. Tratamiento biológico de aguas residuales: Principios, modelación y diseño [on line]. 1era. London: IWA, 2017 Available on: <https://iwaponline.com/ebooks/book/707/Tratamiento-biologico-de-aguas-residuales>. ISBN 9781780409139.