

Food Industry and Environment (250670)

General Information

School	ETSECCPB
Departments	Departament d'Enginyeria Agroalimentària i Biotecnologia (DEAB)
Credits	5.0 ECTS
Programs	MÀSTER UNIVERSITARI EN ENGINYERIA AMBIENTAL (pla 2014)
Course	2020/21

Main teaching language at each group

- Group 10Q1 language pending definition (Q1)

Faculty

Responsible Faculty: Sabas Alegre Alegre

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Objectives of Education

CE01 - Apply scientific concepts to environmental problems and their correlation with technological concepts.

CE08-Dimension unconventional systems and advanced treatment and raise their mass balance and energy.

Explore scientific concepts and technical principles of quality management of the receiving means, atmosphere, water and soil, and applied to problem solving.

Explore scientific concepts and technical principles of management and treatment of gaseous emissions, water supply, sewage and waste and remediation techniques for groundwater and contaminated soils.

Sized systems for the treatment of major pollutants vectors in specific sectors of activity.

Interprets rules, identifies goals, assesses technical alternatives proposed unconventional solutions and priority actions.

Aspects of food production and industrialization.

Unit processes in the food industry.

Emerging Technologies for the food industry: APH, HIPEF, ESC, irradiation, membrane technologies,...

Processing waste from the food industry.

Case studies.

Fundamental concepts of food processing and specificity of this important sector. Justify the new processes and products with emphasis on environmental aspects.

Competencies

Especific

Apply scientific concepts to environmental problems and their correlation with technological concepts.

Dimension unconventional systems and advanced treatment and raise their mass balance and energy.

Total hours of student work

		Hours	Percentage
Supervised Learning	Large group	25.5 h	56.67 %
	Medium group	9.75 h	21.67 %
	Laboratory classes	9.75 h	21.67 %
	Guided Activities	0.0 h	0.00 %
Self Study		80.0 h	

Contents

Unit processes most important for the food industry

Production and industrialization of food. Relevant background.

Specific Objectives

Identify the most important unit processes for the food industry and the basic principles that govern them.

Technical innovations applied to processed foods.

Technical innovations applied to food processing.

Specific applications of emerging techniques in various sectors of the food industry.

Specific Objectives

Get the possibilities of applying an emerging technology to a concrete food industry justifying its use, especially the environmental point of view.

Waste treatment in the food processing industry

We propose a flowchart duly justified treatment of waste effluents or a particular sector of the food industry that is considered more appropriate.

Propose a flowchart, justified, for the treatment of waste effluents for a particular sector of the food industry

Specific Objectives

Explain and justify the best solution proposed to treat the waste or effluent from a particular food industry

Explain and justify the best solution proposed to treat the waste or effluent from a particular food industry

Activities

Environmental aspects of a unit operation of the food industry

Determine environmental improvements in the processes traditionally used in the food industry

Dedication

2h

Emerging technologies for food industry

Knowing the possibilities of applying an emerging technology to a particular food industry interest justifying its use, particularly from the environmental point of view.

Dedication

2h

Treatment of waste or effluent from the food industry

Explain and justify the best solution proposed to treat the waste or effluent from a particular food industry

Dedication

2h

Teaching Methodology

The subject has continuous assessment. Begins with theoretical classes of 3 hours when the teacher explains the concepts, methodology, work plan and basic materials of the matter.

As the course progresses, there is a greater interaction and participation of the students. There are case studies in order to consolidate General and specific learning objectives.

Grading Rules

() The evaluation calendar and grading rules will be approved before the start of the course.*

The mark of the course is obtained from the ratings of continuous assessment.

Continuous assessment consist in several activities, both individually and in group, of additive and training characteristics, carried out during the year (both in and out of the classroom).
The teachings of the laboratory grade is the average in such activities.

The evaluation tests consist of a part with questions about concepts associated with the learning objectives of the course with regard to knowledge or understanding, and a part with a set of application exercises.

Test Rules

If any of the continuous assessment activities is not performed at the scheduled time, a final global exam will be needed in order to obtain a suitable grade for the course.

Office Hours

Before and after classes.

Contact: merce.raventos@upc.edu

Bibliography

Basic

- Wang, L.K. [Tratamiento de los residuos de la industria del procesado de alimentos](#). Zaragoza: Acribia, 2006. ISBN 9788420011035.
- Raventós, M. [Industria alimentaria, tecnologías emergentes](#). Barcelona: Edicions UPC, 2005. ISBN 8483017903.