

**Waste Management**

Code: 42408  
ECTS Credits: 6

**2025/2026**

Degree	Type	Year
Interdisciplinary Studies in Environmental, Economic and Social Sustainability	OT	0

## Contact

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## Teachers

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## Teaching groups languages

You can view this information at the [end](#) of this document.

## Prerequisites

No specific knowledge required.

## Objectives and Contextualisation

Provide the knowledge needed to manage waste as a resources, energy saving and impact reduction, through Circular Economy Design framework.

## Competences

- Analyse, summarise, organise and plan projects related to the environmental improvement of product, processes and services.
- Communicate and justify conclusions clearly and unambiguously to both specialised and non-specialised audiences.
- Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
- Work in an international, multidisciplinary context.

## Learning Outcomes

1. Choose and propose the most sustainable waste management system under current legislation and the objectives of international policies.
2. Communicate and justify conclusions clearly and unambiguously to both specialised and non-specialised audiences.
3. Estimate greenhouse gas emissions attributable to waste.
4. Estimate the main environmental impacts of waste management systems, whether urban, industrial or agricultural.
5. Quantify the chances of reducing environmental impacts and GHG on the basis of new technologies, methodologies and waste management systems.
6. Solve problems in new or little-known situations within broader (or multidisciplinary) contexts related to the field of study.
7. Work in an international, multidisciplinary context.

## Content

### Block 1 Waste management in a linear model

- Reduction. Collection. Transportation compaction Evaluation. classification
- Landfills and estimation of their emissions.
- Classification of waste. Definition of a management plan.

### Block 2 Waste management in the Technical Cycle

- Recyclable materials: plastic, glass, paper and cardboard, cans, batteries and accumulators.
- Recycling plants. Ecoparks and recovery areas.

### Block 3 Waste management in the biological cycle

- Composting and anaerobic digestion plants. Ecoparks and recovery areas.
- Recycling plants. Ecoparks and recovery areas. Energy saving and recycling of materials and recovery of materials and energy. Organic matter. Other recyclable materials.
- Reapply Industrial Ecology tools (industrial symbiosis, exchange of flows, MFA, LCA Exegetical Analysis, Ecodesign, carbon footprint, ...) to design an innovative and sustainable waste management system.

### Block 4. Product design eliminating the concept of waste, with Cradle to Cradle principles and the circular economy

## Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures	27	1.08	
Visits to case studies	3	0.12	
Type: Supervised			
Possible Visit to industrial plants	7	0.28	

Seminars Preparation/Oral Expositions	15	0.6
Tutoring	18	0.72
Type: Autonomous		
Preparation of reports	24	0.96
Reading of reports/papers	20	0.8
Self-study	30	1.2

Lectures / oral presentations

Reading articles and other documents of interest

Classroom practices including debates and interactive exercises.

Seminars

Individual and collaborative reporting

Individual work

Reading reports, articles and other documents of interest

All these types of tasks will be oriented towards project-based learning (PBL) and problem-solving (PRP).

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Assessment

### Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Questionnaires, problem solving, and other evaluable tests	40 %	0	0	1, 4, 3, 5, 6
Reports delivery, oral presentations and related activities	60 %	6	0.24	1, 4, 3, 6, 2, 7

This course will be graded through a continuous evaluation.

40% of the grade will be obtained by completing quizzes and evaluable activities throughout class hours, based on class-related content.

The remaining 60% will be obtained through activities related to group projects and their oral presentation in class.

This module does not offer the Single Assessment modality, in accordance with the coordination of the degree and with the Dean's Office of the Faculty of Sciences.

Students who do not complete the final work and the corresponding oral presentation will not be evaluated. Students who cannot be present on the day of the oral presentation with reasonable cause (and supporting justification), must have sent a recording of the presentation prior to the date defined for this task. In cases of force majeure, a personalized analysis will be made. The evaluation will be made solely for the tasks carried out, being able to reach the maximum score corresponding to said tasks.

In case of overall failure of the subject in the first evaluation, and as long as and when at least 2/3 of the required tasks have been completed throughout the subject (a minimum average grade is not necessary), the students will have to complete a re-assignment and present it on the retake date defined by the university.

For this subject, the use of Artificial Intelligence (AI) technologies is permitted exclusively in supporting tasks, such as bibliographic or information searches, text correction or translations (for other uses, consult professors beforehand). The student must clearly identify which parts have been generated with this technology, specify the tools used and include a critical reflection on how these have influenced the process and the final result of the activity. The lack of transparency in the use of AI in this assessable activity will be considered a lack of academic honesty and may lead to a partial or total penalty in grading the activity, or greater sanctions in serious cases.

## Bibliography

- Materiales del campus virtual de la UAB. (intranet UAB, campus virtual)
- Handbook Zero Waste, ZERO WASTE PROJECT (1G-MED08-533).  
[http://icta.uab.cat/ecotech/zero\\_waste/Handbook/Final\\_Handbook.pdf](http://icta.uab.cat/ecotech/zero_waste/Handbook/Final_Handbook.pdf)
- Cara Brower; Rachel Mallory; Zachary Ohlman. 2005. *Experimental Eco>Design*. Suiza. Editorial Rotovision. ISBN 2-88046-817
- Han Brezet, Carolien Van Hemel. 1997. *Ecodesign. A promising approach to sustainable production and consumption*. United Nations Publications, Paris Henrik Wenzel; Michael Hauschild; Leo Alting. 1997. *Environmental Assessment of Products (vol.1). Methodology, tools and case studies in product development*. Chapman & Hall
- Bilitewski, B., Härdtle, G., Marek, K., Weissbach, A., Boeddicker, H. Waste management. 1997. Springer (Germany).
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- Landreth, R. E., Rebers, P. A. Municipal Solid Wastes. Problems and Solutions. CRC Press, Inc., 1997. (USA)
- Solid waste processing and resource recovery. Handbook of environmental engineering. Vol 2. Lawrence K. Wang i Norman C. Pereira. Clifton (1980).
- Perry's Chemical engineer's handkook. (section 26-31).
- Roger Tim Haug. Compost engineering. Principles and practice. Technomic Publishing C.Inc. 1980. (Lancaster).
- Tchobanoglous, G., Theisen, H., Vigil, S. Gestión integral de residuos sólidos. McGraw-Hill. Madrid (1994).
- Cradle to Cradle Product Innovation Institute [www.c2ccertified.org](http://www.c2ccertified.org)
- Ellen MacArthur Foundation, <https://www.ellenmacarthurfoundation.org/>
- Doughnout Economics, <https://doughnouteconomics.org/>
- Regenerative agriculture. Example of the approach: Regeneration International, <https://regenerationinternational.org/why-regenerative-agriculture/>

## Software

Not applicable.

## Groups and Languages

Please note that this information is provisional until 30 November 2025. You can check it through this [link](#). To consult the language you will need to enter the CODE of the subject.

Name	Group	Language	Semester	Turn
(TEm) Theory (master)	1	English	first semester	afternoon