

**Waste Management**

Code: 42408  
ECTS Credits: 6

Degree	Type	Year	Semester
4313784 Interdisciplinary Studies in Environmental, Economic and Social Sustainability	OT	0	1

The proposed teaching and assessment methodology that appear in the guide may be subject to changes as a result of the restrictions to face-to-face class attendance imposed by the health authorities.

**Contact**

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**Use of Languages**

Principal working language: english (eng)

**Teachers**

Cristina Sendra Sala

**External teachers**

Aglaia Gomez  
Oscar Prado

**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 Lineal Model

- Reduction. Collection. Transport. Compaction. Valoration. Sorting.
- Landfills and estimation of their emissions.
- Waste classification. 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. Eco-parks and Recovery areas.

### Block 3 Waste Management in the Biological Cycle

- Composting and Anaerobic Digestion plants. Eco-parks and Recovery areas.
- Recycling plants. Eco-parks and Recovery areas. Saving energy and material recycling and recovery of materials and energy. Organic matter. Other recyclable materials.
- Applying Industrial Ecology tools (industrial symbiosis, flows exchanging, MFA, LCA Exegetic Analysis, Ecodesign, carbon footprint, ....) for designing innovative and sustainable system for waste management.

### Block 4. Design Products out of Waste, with Cradle to Cradle

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## Methodology

Lectures/oral expositions

Classroom practices

Seminars

Preparation of reports

Autonomous activity

Reading reports/papers of interest

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.

## Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Lectures	36	1.44	
Type: Supervised			
Seminars/Oral Expositions	15	0.6	
Visit to industrial plants	10	0.4	
Type: Autonomous			
Preparation of reports	25	1	
Reading of reports/papers	20	0.8	
Self-study	30	1.2	

## Assessment

This module will be evaluated continuously.

40% of the grade will be obtained by answering questionnaires and solving other evaluable activities throughout class hours.

The remaining 60% will be obtained through group work and oral presentation in class.

## Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Questionnaires, problem solving, and other evaluable tests	40 %	6	0.24	1, 4, 3, 5, 6
Reports delivery and oral presentations	60 %	8	0.32	1, 4, 3, 6, 2, 7

## 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)
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- Crdale to Cradle Product Innvoation Institute [www.c2ccertified.org](http://www.c2ccertified.org)

## Software

Not relevant.