

Solid and hazardous waste management

1. **Course number and name :** 020GDSCS5 Solid and hazardous waste management

2. **Credits and contact hours:** 4 ECTS credits, 2x1:15 contact hours

3. **Name of instructor:** Marina Daccache

4. **Instructional materials:**

- PowerPoint slides

5. **Specific course information**

a. Catalog description:

This waste management course offers students a thorough understanding of core principles, waste generation methods, environmental and health impacts, and a range of management options including sanitary landfills, material recovery, energy recovery, waste minimization, thermal treatment, chemical/physical/biological treatment, site remediation, and waste sorting/recycling facilities. By examining current and future trends, students will be equipped to develop and implement effective strategies for reducing environmental effects, advancing circular economy practices, and contributing to global sustainability.

b. Prerequisites: None

c. Required/ Selected Elective/Open Elective: Selected Elective

6. **Specific objectives for the course**

a. Specific outcomes of instruction:

- Understand the fundamental principles of waste management.
- Examine waste production methods.
- Study the environmental and health effects of waste.
- Explore waste management options (sanitary landfills, material recovery, energy recovery, waste minimization, thermal treatment, chemical/physical/biological treatment, site remediation).
- Study the management of hazardous and specific types of waste.

b. PIs addressed by the course:

PI	2.2
Covered	x
Assessed	x

7. **Brief list of topics to be covered**

- Introduction to Waste Management
- Definitions and classification of waste
- Introduction to approaches and strategies for solid waste management and Case studies

- Waste disposal and valorization
- Public landfills, sanitary landfills, and effluent treatment
- Case study and landfill design
- Thermal treatment of waste
- Medical waste management
- Industrial and hazardous waste management
- Management of specific waste types (e.g., e-waste, radioactive waste)