

29937 - Waste Management and Environmental Impact

Syllabus Information

Academic year: 2023/24

Subject: 29937 - Waste Management and Environmental Impact

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 435 - Bachelor's Degree in Chemical Engineering

ECTS: 6.0

Year: 4

Semester: Second semester

Subject type: Optional

Module:

1. General information

The goal of this subject is to provide the student with scientific and technical knowledge in relation to the complete management of hazardous and non-hazardous waste as well as in relation to the Environmental Impact Assessment (EIA), intensifying the training acquired in the subject "Environmental Engineering", a compulsory subject taught in the first semester of the fourth year of the Chemical Engineering degree. This training can be applied in the various professional environments related to both subjects, and very specifically in the industrial sector. As this is an extension subject of the knowledge of Environmental Impact Assessment and Waste Management previously acquired, it is highly recommended to have knowledge of environmental technologies at the level of those acquired in the compulsory subject "Environmental Engineering".

These approaches and goals are closely aligned with some of the Sustainable Development Goals, SDGs, of the 2030 Agenda (<https://www.un.org/sustainabledevelopment/es/>) and certain specific targets, such as: Objective 3.3 (SDG 3), Objective 9.4 (SDG 9), Objective 11.3 (SDG 11), Objective 12.2 and 12.5 (SDG 12), Objective 14.1 (SDG 14) and Objective 15.1 (SDG 15).

2. Learning results

- Know how to correctly plan the management of hazardous and non-hazardous waste.
- Be able to dimension facilities for the recovery, recycling, valorization and disposal of waste.
- Know how to assess the severity of the impacts produced by human activities on the various components of the environment, determining their admissibility according to sustainability criteria .
- Be able to participate in the elaboration of an environmental impact study working in multidisciplinary teams .

3. Syllabus

Block 1. Waste management

1. Introduction. General concepts.
2. Urban waste management.
3. Industrial waste management.
4. Sewage sludge management.
5. Packaging waste management.
6. Special waste management.

Block 2. Environmental Impact Assessment (EIA)

1. Introduction to the concept of Environmental Impact Assessment.
2. Environmental impact. Concept and characteristics.
3. Administrative procedure for Environmental Impact Assessment.
4. The Environmental Impact Study.

4. Academic activities

- **Participative master classes** (30 hours). Expository sessions of theoretical and practical content.
- **Problem classes and case resolution** (15 hours). Exercises or specific practical cases of will be carried out in direct or complementary application to what has been covered in the master classes.
- **Practical laboratory and simulation classes** (10 hours). Experimental practices will be carried out in the laboratory as well as simulation practices through the use of computer tools. These practical sessions correspond to the contents of Block 1: Waste management.
- **Teaching assignments** (25 hours). Completion of various types of exercises and assignments: resolution of real case

studies , questionnaires, analysis and discussion of cases, dimensioning of installations, etc. They can be done individually or as a teams.

- **Special practices.** Visits to facilities related to the contents of the subject are voluntary, as long as it is feasible to do so. It is estimated a dedication of 5 hours that would be counted as hours of study and personal work.
- **Personal study and work** (65 hours)
- **Assessment tests** (5 hours)

5. Assessment system

The subject will be assessed by the continuous assessment system by means of the following activities:

1.-Laboratory practice and simulation (10% of the grade, minimum 5 out of 10). The assessment of each practice will be carried out through the delivery of reports and/or written tests.

2.-Teaching assignments (45% of the grade, minimum 5 out of 10). The assessment will be carried out through the presentation of the teaching assignments in the format indicated by the faculty and/or the completion of written tests.

3.-Written test (45% of the grade, minimum 5 out of 10). Individual written test on the contents of the subject.

The student who does not pass these activities during the teaching period will have the opportunity to pass them by means of an individual written test in the two official calls.