

## 27239 - Environmental Technology

### Syllabus Information

**Academic year:** 2024/25

**Subject:** 27239 - Environmental Technology

**Faculty / School:** 100 - Facultad de Ciencias

**Degree:** 452 - Degree in Chemistry

**ECTS:** 5.0

**Year:** 4

**Semester:** Second semester

**Subject type:** Optional

**Module:**

### 1. General information

The objective of this subject is to develop the skills and abilities necessary to apply technological measures for the prevention and correction of pollution.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the Agenda 2030 of the United Nations

- Goal 4, Objective 4.7
- Goal 6, Objective 6.3
- Goal 7, Objective 7.3
- Goal 8, Objective 8.4
- Goal 9, Objective 9.4
- Goal 11, Objective 11.6
- Goal 12, Objectives 12.2, 12.3, 12.4, 12.5, 12.6 and 12.8
- Goal 13, Objective 13.3
- Goal 14, Objective 14.1

### 2. Learning results

In order to pass this subject, the students shall demonstrate they has acquired the following results:

- Identifies the environmental problems that a given industrial activity can generate.
- Proposes, in general terms, strategies to avoid/reduce the emission of pollutants into the environment.
- Evaluates the emission of pollutants based on the main characterization parameters.
- Selects treatment equipment for a particular type of emission.
- Applies basic environmental regulations to specific industrial chemical processes.
- Prepares reports.

### 3. Syllabus

B0. Introduction to the environmental problem. Legislation. Practical classes.

B1. Water pollution

- Types, origins and effects of contaminants. Water characterization.
- Water pollution remediation techniques: Physical, biological and chemical operations.

B2. Waste

- Definitions. Types of waste.
- Waste management. Waste Treatment. Landfill.

B3. Atmospheric pollution

- Types, origin and effects of contaminants. Classification of contaminants: Primary and Secondary.
- Air pollution correction techniques: Separation of particulate matter and gases and vapours.

### 4. Academic activities

1. Participative master classes (29 hours). The fundamentals of the syllabus of the subject will be taught.

2. Face-to-face classes of problem solving and case studies (12 hours). In these classes problems will be solved, supervised by the teacher. Also in these classes the students will present the results of the tutored work.

3. Practical laboratory classes (6 h). Three laboratory practices related to the three blocks of the subject will be carried out (3 sessions of 2 hours).
3. Individual study and supervised work (70 non face-to-face hours).
4. Visits to companies (3 h). A visit to an industrial facility will be conducted.
5. Final evaluation (5 hours). Written tests will be conducted to evaluate the knowledge attained by the student.

## **5. Assessment system**

### **Continuous Assessment**

The following activities will be evaluated:

1. Practical classes and visits (15 %)

The practical classes include 3 group laboratory sessions and the resolution of a case study (1 session). The practical classes and the external visit to a company will be evaluated through questionnaires.

2. Work (35 %)

The student will carry out and present a group work throughout the teaching period.

3. Exam (50 %)

The student will take two individual written tests during the teaching period. The tests will include questions of the contents taught. To address such questions, no documentation, other than that provided in the examination, will be permitted.

To pass the subject by continuous evaluation it is necessary to achieve a minimum grade of 5 points out of 10 in the weighted average of all activities. The weighted average will only be applied when a minimum grade of 4 out of 10 points has been obtained in each of the activities 1, 2 and 3.

### **Overall test**

Students who do not opt for or do not pass the continuous evaluation or who want to improve their grade, will take a global exam on the dates marked in the official calendar of exams.

## **6. Sustainable Development Goals**

- 6 - Clean Water and Sanitation
- 7 - Affordable and Clean Energy
- 11 - Sustainable Cities and Communities