

Academic Year/course: 2021/22

## 27239 - Environmental Technology

### Syllabus Information

**Academic Year:** 2021/22

**Subject:** 27239 - Tecnologías del medio ambiente

**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

### 2. Learning goals

### 3. Assessment (1st and 2nd call)

### 4. Methodology, learning tasks, syllabus and resources

#### 4.1. Methodological overview

The learning method used is based on the cooperative work of the teacher and the student. The method will follow the traditional approach based on lectures but supported by the active participation of the students.

The learning process will be developed in the area of environmental pollution: Water pollution, air pollution and waste.

Activities agenda and teaching documents will be posted in the learning platform moodle (<https://moodle.unizar.es/>)

#### 4.2. Learning tasks

The course includes the following learning tasks:

- Lectures, problems and cases discussion (41 h).
- Laboratory sessions (6 h)
- Special Practice session: Visit to a company (3 h).
- Self study and guided activities (69 h).
- Assessment task (3h).

#### 4.3. Syllabus

The course will address the following topics:

Theoretical lesson

- Topic 1. Water pollution
  - Legislation. Types, origins and effects of pollutants. Water characteristics.
  - Prevention measure.
  - Water treatment. General approach to treatment systems: Water line and sludge line.
  - Preliminary, primary, secondary and tertiary treatments. Sludge treatment: Anaerobic digestion.

- Topic 2. Air pollution
  - Legislation. Types, origins and effects of pollutants. Pollutants classification.
  - Prevention measure.
  - Control technologies.
- Topic 3. Waste
  - Legislation. Characterization and classification of waste.
  - Waste management.

Laboratory work

1. Water treatment.
2. Air treatment.
3. Waste treatment.

#### **4.4. Course planning and calendar**

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the Facultad de Ciencias web (<https://ciencias.unizar.es/grado-en-quimica-0>).

#### **4.5. Bibliography and recommended resources**

[http://biblos.unizar.es/br/br\\_citas.php?codigo=27239&year=2021](http://biblos.unizar.es/br/br_citas.php?codigo=27239&year=2021)