

29933 - Environmental engineering

Syllabus Information

Academic year: 2023/24

Subject: 29933 - Environmental engineering

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 435 - Bachelor's Degree in Chemical Engineering

ECTS: 6.0

Year: 4

Semester: First semester

Subject type: Compulsory

Module:

1. General information

The main goal of this subject is to provide students with the scientific and technical knowledge that will enable them to **identify and control water, air and soil pollution**, providing them with quality training in the field of environmental assessment, management and environmental planning, all aimed at the protection of health and the environment. The student will acquire training in **minimization techniques or measures and treatment technologies, especially in the industrial sector**.

These approaches and goals are closely aligned with the Sustainable Development Goals (SDGs) of the Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>) and certain specific objectives, such as: objectives 6.3, 6.4 and 6.6 of Goal 6, Objective 9.4 of Goal 9 and Objectives 12.2, 12.4, 12.5, 12.6 and 12.8 of Goal 12.

2. Learning results

- * **Recognize the pollutants** that can be generated and the effect or impact they have on the receiving environment (atmosphere, water and soil) .
- * Analyze an industrial activity and **identify the environmental problems** it may generate.
- * Plan a **pollution prevention and control** strategy in specific cases, in water, air and waste at a basic level .
- * Selecting the **most appropriate technique** for purification and/or pollution control in specific cases, as well as sizing effluent treatment facilities
- * Know the **basic regulations** related to environmental matters: discharges, atmosphere, waste, environmental impact assessment, integrated pollution control.
- * Know the basics of an **Environmental Management System** at a basic level.
- * Teamwork.

3. Syllabus

Unit 0. Introduction: Current environmental problems. Agenda 2030 and Sustainable Development Goals.

Block 1. WATER POLLUTION.

Block 2. ATMOSPHERIC POLLUTION.

Block 3. WASTE CONTAMINATION.

Block 4. INTEGRATED ENVIRONMENTAL MANAGEMENT TOOLS.

4. Academic activities

Participative master classes (30 hours)

Expository sessions of theoretical and practical content.

* **Problem solving classes and case studies** (15 hours)

Exercises and/or specific practical cases of direct or complementary application to what has been covered in the master classes will be carried out . They will also be used to monitor teaching work.

* **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 .

* **Teaching work** (10 hours)

It will consist of a **supervised practical work** during the four-month period.

* **Special practices**

Visits to facilities related to Environmental Engineering on a voluntary basis, as long as it is feasible . It is estimated that 5 hours will be dedicated to study and personal work.

* **Personal study and work** (80 hours)

* **Assessment tests** (5 hours)

5. Assessment system

The subject will be assessed in the **global** assessment modality by means of the following activities:

1. **Laboratory practicals and simulation (15% of the grade, minimum 5 out of 10)**

The assessment of each practice will be done through the delivery of reports and/or written tests.

2. **Practical work (15% of the grade, minimum 5 out of 10)**

The assessment of the work will be done through the presentation of the same in the format indicated by the teacher and/or the performance of written tests.

If the student has not passed any of these two activities during the semester, he/she will have the opportunity to pass them by taking an individual written test in the two official calls. The grade obtained is kept for the second call of the same academic year.

3. **Intermediate test (20% of the grade, minimum 5 out of 10)**

Individual written test on part of the contents of the subject.

4. **Final test (50% of the grade, minimum 5 out of 10)**

Individual written test on the rest of the contents of the subject not assessed in the intermediate test.

If the student does not pass the intermediate test, the final test will consist of a written test of all the contents of the subject, which represents 70% of the final grade (minimum 5 out of 10)