

30170 - Environmental engineering

Syllabus Information

Academic year: 2024/25

Subject: 30170 - Environmental engineering

Faculty / School: 179 - Centro Universitario de la Defensa - Zaragoza

Degree: 563 - Bachelor's Degree in Industrial Organisational Engineering

ECTS: 4.5

Year: 2

Semester: Second semester

Subject type: Compulsory

Module:

1. General information

The objectives of the course are to provide knowledge about environmental issues, to train in techniques for pollution minimization and environmental management, and to understand the basic existing environmental regulations. The course provides environmental knowledge that enables students to be responsible for managing an organization's environmental aspects, focusing on the prevention, minimization, and remediation of environmental pollution. Such knowledge can assist future Army Officers in carrying out their mission, thereby contributing to the development of peace and security.

2. Learning results

- Recognize and assess the effect that the pollutants cause in the receptor medium: atmosphere, water and soil.
- Analyze any industrial activity and identify the environmental problems which could be generated by that activity.
- Plan a strategy to prevent and control the pollution produced in some specific cases.
- Select the proper technique for the control of the pollution in some concrete cases.
- Analyze the environmental impact of different industrial activities.
- Know the fundamentals of an environmental management system in an industrial activity.
- Know the basic normative related with the environment (wastewater, atmosphere, wastes, environmental impact and integrated pollution control) and the obligations derived from it.

3. Syllabus

Topic 1. Environmental Management System (EMS)

Topic 2. Chemical engineering concepts applied to the environment

Topic 3. Water pollution

Topic 4. Atmospheric pollution

Topic 5. Waste pollution

4. Academic activities

The general methodology of the course is based on theoretical and practical activities on various topics related to environmental pollution. It aims for students to achieve the anticipated learning outcomes and acquire habits applicable during their professional and personal lives.

This includes lectures, seminars, laboratory practices, written tests, and non-presential activities such as problem-solving, preparation of theoretical-practical assignments, and personal study. Audiovisual and written materials provided through the Moodle platform will be utilized.

5. Assessment system

Continuous evaluation procedure :

The student will need to demonstrate that they have achieved the anticipated learning outcomes by successfully completing the assessment instruments grouped into the parts indicated below, which will be carried out throughout the semester:

Theoretical-practical exams (ExTeo). Weighting 35%.

Problem-solving exam (ExProb). Weighting 45%.

Laboratory practices (Prac). Weighting 10%.

Active learning activities (Act). Weighting 10%.

IMPORTANT: The score obtained in the theoretical-practical exams and the problem-solving exam must be greater than or equal to 4 in order to pass the course by continuous assessment.

Global evaluation test:

Students who do not pass the course by continuous assessment, or who, having passed, wish to improve their grade, will be entitled to take the Global Test.

This Global Test will consist of three parts:

Theoretical-practical exam (ExTeo) to assess the theory part (40%).

Problem-solving exam (ExProb) to assess the problem-solving part (50%).

Practical exam (ExPrac) to assess the practice part (10%).

IMPORTANT: The score obtained in the theoretical-practical exam and the problem-solving exam must be greater than or equal to 4 in order to pass the course in the Global Test.

	weight	LR1	LR2	LR3	LR4	LR5	LR6	LR7	LR8
Theoretical-practical exams (ExTeo)	35%	x	x	x	x		x	x	x
Problem-solving exam (ExProb)	45%					x			
Laboratory practices (Prac)	10%	x	x			x			
Active learning activities (Act)	10%	x	x	x	x		x	x	x

6. Sustainable Development Goals

7 - Affordable and Clean Energy

13 - Climate Action

15 - Life on Land