28735 - Environmental Engineering

Información del Plan Docente

Academic Year	2017/18
Faculty / School	175 - Escuela Universitaria Politécnica de La Almunia
Degree	423 - Bachelor's Degree in Civil Engineering
ECTS	6.0
Year	
Semester	First semester
Subject Type	Compulsory
Module	---

1.General information

1.1.Introduction

1.2.Recommendations to take this course

1.3.Context and importance of this course in the degree

1.4.Activities and key dates

2.Learning goals

2.1.Learning goals

2.2.Importance of learning goals

3.Aims of the course and competences

3.1.Aims of the course

3.2.Competences

4.Assessment (1st and 2nd call)

4.1.Assessment tasks (description of tasks, marking system and assessment criteria)

5.Methodology, learning tasks, syllabus and resources

5.1.Methodological overview

Strong interaction between the teacher/student. This interaction is brought into being through a division of work and responsibilities between the students and the teacher. Nevertheless, it must be taken into account that, to a certain degree, students can set their learning pace based on their own needs and availability, following the guidelines set by the teacher.

28735 - Environmental Engineering

The current subject is conceived as a stand-alone combination of contents, yet organized into three fundamental and complementary forms, which are: the theoretical concepts of each teaching unit, the solving of problems or resolution of questions and laboratory work, at the same time supported by other activities **.**

The organization of teaching will be carried out using the following steps:

— **Theory Classes** : Theoretical activities carried out mainly through exposition by the teacher, where the theoretical supports of the subject are displayed, highlighting the fundamental, structuring them in topics and or sections, interrelating them.

— **Practical Classes** : The teacher resolves practical problems or cases for demonstrative purposes. This type of teaching complements the theory shown in the lectures with practical aspects.

— **Laboratory Workshop** : The lecture group is divided up into various groups, according to the number of registered students, but never with more than 20 students, in order to make up smaller sized groups.

— **Individual Tutorials** : Those carried out giving individual, personalized attention with a teacher from the department. Said tutorials may be in person or online.

5.2.Learning tasks

Involves the active participation of the student, in a way that the results achieved in the learning process are developed, not taking away from those already set out, the activities are the following:

— **Face-to-face generic activities** :

● **Theory Classes** : The theoretical concepts of the subject are explained and illustrative examples are developed as support to the theory when necessary.

● **Practical Classes** : Problems and practical cases are carried out, complementary to the theoretical concepts studied.

● **Laboratory Workshop** : This work is tutored by a teacher, in groups of no more than 20 students.

— **Generic non-class activities** :

● Study and understanding of the theory taught in the lectures.

● Understanding and assimilation of the problems and practical cases solved in the practical classes.

● Preparation of seminars, solutions to proposed problems, etc.

● Preparation of laboratory workshops, preparation of summaries and reports.

28735 - Environmental Engineering

● Preparation of the written tests for continuous assessment and final exams.

The subject has 6 ECTS credits, which represents 150 hours of student work in the subject during the trimester, in other words, 10 hours per week for 15 weeks of class.

A summary of a weekly timetable guide can be seen in the following table. These figures are obtained from the subject file in the Accreditation Report of the degree, taking into account the level of experimentation considered for the said subject is moderate.

Activity	Weekly school hours
Lectures	3
Laboratory Workshop	1
Other Activities	6

5.3.Syllabus

Topic 1 Introduction to the Environment. Normative
* Introduction. Environment and sustainable development. Concepts.
* Pollution.
* Relationships between Environmental and Economic Social Development.
* Urban Environment.
* Environment and Business.
* Terminology. Concept of Environmental Impact Assessment and Environmental Impact.
* Risk Society.
* Environmental Compliance.

Topic 2 Environment and company.
* The liability for environmental damage in the European Union
* The instruments of environmental policy
* The company and the environment
* The greening of the company
* Measure, assess and communicate the environmental performance of the company: The Environmental Accounting Business

Topic 3 Waste.
* Definition and terminology.
* Types of waste.
* Minimization techniques. Audits.
* Ecodesign.

* Changes in the process.
* Recycling
* Disposal or recovery.
* Treatments.
* Deposition.

Topic 4 Environmental Responsibility.
* Definition and terminology 0.-
* Environmental Liability Act (Scope)
* Liability regime
*Obligations and guarantees the operator.
* Sanctions

Topic 5 Air Pollution.
*Structure and composition of the atmosphere.
* Episodes of air pollution.
* Air pollutants.
* Control of air quality.

Topic 6 Noise Pollution
* Physical properties of sound.
* Measurement of noise.
* Sources of noise.
*Noise Maps.

Topic 7 Light pollution
* Properties of light sources.
* Measurement of light pollution.
* Sources of contamination.
* Control methods.

Topic 8 Soil Pollution

Topic 9 Environmental Management Systems.

Practical Contens

Each topic discussed in the previous section, carries associated practical exercises on real cases of application in several companies: engineering, industry and the free exercise of the profession.

5.4.Course planning and calendar

The dates of the final exams will be those that are officially published at http://www.eupla.es/secretaria/academica/examenes.html.

The planning orientation shown below

28735 - Environmental Engineering

— **Week 1** : Topic 1.

— **Week 2 and 3** : Topic 2.

— **Week 4, 5 and 6** : Topic 3 and 4

— **Week 7 and 8** : Topic 5.

— **Week 9 and 10** : Topic 6.

— **Week 11** : Topic 7.

— **Week 12** : Topic 8.

— **Week 13, 14 and 15** : Topic 9.

— **Week 15** : Topic 8.

5.5.Bibliography and recommended resources

- Conesa Fernández-Vítora, Vicente. Los instrumentos de la gestión ambiental en la empresa / Vicente Conesa Fernández-Vítora Madrid : Mundi-Prensa, 1997
- Margalef López, Ramón. Ecología / Ramón Margalef. - 7a. reimp. Barcelona : Omega, D.L. 1991
- Calomarde, José V.. Marketing ecológico / José V. Calomarde Madrid : Pirámide : ESIC, [2000]
- LaGrega, Michael D.. Gestión de residuos tóxicos : Tratamiento, eliminación y recuperación de suelos / Michael D. LaGreca, Phillip L. Buckingham, Jeffrey C. Evans Madrid : McGraw-Hill, D.L. 1996
- Contaminación ambiental : una visión desde la química / Carmen Orozco Barrenetxea ... [et al.] Madrid [etc.] : Thomson, D. L. 2002
- Domènech, Xavier. Química atmosférica : origen y efectos de la contaminación / Xavier Domènech . - 2a ed. Madrid : Miraguano, 1995
- Seoánez Calvo, Mariano. Ingeniería del medio ambiente : aplicada al medio natural continental : la contaminación del medio natural continental: aire, aguas, suelos, vegetación y fauna. Tecnologías de identificación, lucha y corrección : manual técnico para el empresario, el ingeniero, el gestor medioambiental y el enseñante / Mariano Seoánez Calvo ; con la colaboración especial de Irene Angulo Aguado y del equipo de expertos coordinado por el Dr. Seoánez . - 2ª ed. rev. Madrid [etc] : Mundi-Prensa, 1999

Material	Format
Topic theory notes	Paper/repository
Topic problems	
Topic theory notes	Digital/Moodle

28735 - Environmental Engineering

Topic presentations	E-Mail
Topic problems	
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Educational software	Web page