



Teaching Guide

Identifying Data					2024/25
Subject (*)	Environmental Engineering	Code	730G03017		
Study programme	Grao en Enxeñaría Mecánica				
Descriptors					
Cycle	Period	Year	Type	Credits	
Graduate	1st four-month period	Second	Obligatory	6	
Language	SpanishGalician				
Teaching method	Face-to-face				
Prerequisites					
Department	Enxeñaría Naval e IndustrialQuímica				
Coordinador	Robles Iglesias, Raúl	E-mail	raul.robles@udc.es		
Lecturers	Robles Iglesias, Raúl Rodríguez Guerreiro, Maria Jesus	E-mail	raul.robles@udc.es maria.guerreiro@udc.es		
Web	campusvirtual.udc.gal/login/index.php				
General description	This subject aims to develop skills that allow students to know and identify the problem of air, water and soil pollution. Control of atmospheric pollution, liquid discharge treatments: ARU and ARI. and RSU and RSI treatment systems. The legal and environmental management aspects in the company will allow its application in the labor world.				

Study programme competences / results

Code	Study programme competences / results
A16	CR10 - Coñecementos básicos e aplicación de tecnoloxías ambientais e sustentabilidade.
B2	CB02 - Que os estudantes saiban aplicar os seus coñecementos ao seu traballo ou vocación dunha forma profesional e posúan as competencias que adoitan demostrarse por medio da elaboración e defensa de argumentos e a resolución de problemas dentro da súa área de estudo
B3	CB03 - Que os estudantes teñan a capacidade de reunir e interpretar datos relevantes (normalmente dentro da súa área de estudo) para emitiren xuízos que inclúan unha reflexión sobre temas relevantes de índole social, científica ou ética
B5	CB05 - Que os estudantes desenvolvan aquelas habilidades de aprendizaxe necesarias para emprenderen estudos posteriores cun alto grao de autonomía
B6	B3 - Ser capaz de concibir, deseñar ou poñer en práctica e adoptar un proceso substancial de investigación con rigor científico para resolver calquera problema formulado, así como de comunicar as súas conclusións ?e os coñecementos e razóns últimas que as sustentan? a un público tanto especializados como leigo dun xeito claro e sen ambigüidades
B7	B5 - Ser capaz de realizar unha análise crítica, avaliación e síntese de ideas novas e complexas
B8	B7 - Deseñar e realizar investigacións en ámbitos novos ou pouco coñecidos, con aplicación de técnicas de investigación (con metodoloxías tanto cuantitativas como cualitativas) en distintos contextos (ámbito público ou privado, con equipos homoxéneos ou multidisciplinares etc.) para identificar problemas e necesidades
C1	C3 - Utilizar as ferramentas básicas das tecnoloxías da información e as comunicacións (TIC) necesarias para o exercicio da súa profesión e para a aprendizaxe ao longo da súa vida.
C2	C4 - Desenvolverse para o exercicio dunha cidadanía aberta, culta, crítica, comprometida, democrática e solidaria, capaz de analizar a realidade, diagnosticar problemas, formular e implantar solucións baseadas no coñecemento e orientadas ao ben común.
C4	C6 - Valorar criticamente o coñecemento, a tecnoloxía e a información dispoñible para resolver os problemas cos que deben enfrontarse.
C6	C8 - Valorar a importancia que ten a investigación, a innovación e o desenvolvemento tecnolóxico no avance socioeconómico e cultural da sociedade.

Learning outcomes

Learning outcomes	Study programme competences / results



Coñecer de forma básica a aplicación de tecnoloxías medioambientais	A16	B2 B3 B5 B6 B7 B8	C1 C2 C4 C6
Coñecer de forma básica a aplicación de sustentabilidade	A16	B2 B3 B7	C4 C6

Contents	
Topic	Sub-topic
The following topics develop the contents established in the verification report card, which are:	Waste, water and atmosphere Contamination Management of environmental problems in the company
SECTION 1. WASTE	Topic 1. Solid Urban Waste Topic 2. Industrial Waste
SECTION 2. ATMOSPHERE	Topic 3. Atmosphere. Structure and properties Topic 4. Meteorology of air pollution Topic 5. Composition of the atmosphere Topic 6. Chemistry of the troposphere. Air pollution Topic 7. Air pollutants Topic 8. Control of industrial emissions into the air
SECTION 3. WATERS	Topic 9. Wastewater. Introduction and types Topic 10. Treatments of a wastewater treatment plant
SECTION 4. ENVIRONMENTAL MANAGEMENT	Topic 11. Management of the company's environmental problems

Planning				
Methodologies / tests	Competencies / Results	Teaching hours (in-person & virtual)	Student?s personal work hours	Total hours
Guest lecture / keynote speech	A16 B5 B6 C1	33	33	66
Supervised projects	B3 B7 C2 C4	9	15	24
Laboratory practice	B8 C6	10	15	25
Mixed objective/subjective test	B2 B3	0	10	10
ICT practicals	A16 B3 B7 C1 C4	1	4	5
Problem solving	B2 B3 B7	7	7	14
Field trip	B2 C6	2.5	2.5	5
Personalized attention		1	0	1

(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.

Methodologies	
Methodologies	Description
Guest lecture / keynote speech	Oral presentation complemented by the use of audiovisual media and the introduction of some questions aimed at students, in order to transmit knowledge and facilitate learning. The master class is also known as a lecture, expository method or Lecture. This last modality is usually reserved for a special type of lesson given by a teacher on special occasions, with content that implies an original elaboration based on the almost exclusive use of the word as a way of transmitting information to the audience.



Supervised projects	Methodology designed to promote the autonomous learning of students, under the tutelage of teachers and in varied settings (academic and professional). It is primarily concerned with learning how to do things. It is an option based on the assumption by students of responsibility for their own learning. This teaching system is based on two basic elements: independent student learning and monitoring of that learning by the tutor.
Laboratory practice	Methodology that allows students to learn effectively through practical activities, such as demonstrations, exercises, experiments and research
Mixed objective/subjective test	Exam that integrates standard questions and objective type questions. As for the former, it includes open-ended questions of development, the latter can combine multiple-choice, ranking, short-answer, discrimination, completion and association questions.
ICT practicals	Practice-based learning method for theoretical subject content using ICT resources (demonstrations, simulations, etc.) ICT is an excellent medium for practical knowledge applications and information processing, and a key aid to student learning and skills development.
Problem solving	Technique through which a specific problem situation has to be solved, based on the knowledge that has been worked on, which may have more than one possible solution
Field trip	Activities developed in a context external to the university academic environment (companies, institutions, organizations, monuments, etc.) related to the field of study of the subject. These activities focus on the development of skills related to direct and systematic observation, information gathering, product development (sketches, designs ...)

Personalized attention

Methodologies	Description
Problem solving	Traballos tutelados: Recoméndase a asistencia a titorías personalizadas. Nelas o/a alumno/a recibirá orientación sobre o xeito de iniciar e levar a cabo o traballo de acordo aos criterios que se indicarán.
Guest lecture / keynote speech	
Supervised projects	Presentación oral: Realizarase con apoio de diapositivas ou o material que consideren oportuno e cada alumno/a do grupo dispoñerá dun determinado tempo para esta.
Field trip	
Laboratory practice	Prácticas de Laboratorio: O/A alumno/a será convocado/a con anterioridade a través do Campus Virtual. As prácticas realizaranse no laboratorio de Tecnoloxía Química e Medio Ambiente (Edificio Talleres Tecnolóxicos), salvo que se indique o contrario.
Mixed objective/subjective test	
ICT practicals	
	En caso de dispensa académica o/a alumno/a porase en contacto coas profesoras para acordar as mellores datas para realizar cada unha das actividades previstas na materia, dentro sempre das posibilidades que permitan os horarios.

Assessment

Methodologies	Competencies / Results	Description	Qualification
Supervised projects	B3 B7 C2 C4	A amplitude do guión As fontes consultadas A exposición oral	25
Laboratory practice	B8 C6	Realización de prácticas Elaboración informe	5
Mixed objective/subjective test	B2 B3	Exame	70
Others			



Assessment comments



Comprehensive evaluation

Mixed assessment: All

students are required to pass a mixed assessment (objective and developmental). Those who score above 4 on this assessment are eligible for further evaluation through additional activities such as assignments and laboratory practices.

Evaluation of other activities

Laboratory practices: Attendance

and completion of laboratory practices are mandatory to pass the course. In cases of justified absence, students must take a specific exam for the practices either during the first or second evaluation opportunity. Passing this exam is necessary to qualify for course approval.

Assignments and presentations: Completion and presentation of assignments are not mandatory for passing the course. If not completed, the assigned grade will be zero.

Evaluation opportunities

First and second opportunity: The overall grades for the first and second opportunities are calculated as a weighted average of the grades from the mixed assessment, assignments, and practices, using the weights specified in the methodologies table, provided that a score of 4 or higher (out of 10) has been achieved on the mixed assessment. If this condition is not met, the student will be graded based on the score obtained in the mixed assessment. For the second opportunity, only the mixed assessment can be retaken; grades for assignments and practices obtained during the course will be maintained.

Advanced call for examination: For students opting for the advanced examination call, both laboratory practices and the mixed assessment will be considered, with the latter accounting for 95% of the final grade, while the laboratory practices will make up the remaining 5%.

Academic dispensation

In cases of authorized academic dispensation, for either the first or second opportunity, the grade achieved on the exam will constitute 100% of the final

grade.

Academic integrity

All

normative aspects related to academic dispensation, dedication to study, retention, and academic fraud will be governed in accordance with the current academic regulations of the University of La Coruña.

