



## IDENTIFYING DATA

### (\*)Tecnoloxía medioambiental

Subject	(*)Tecnoloxía medioambiental			
Code	V12G320V01604			
Study programme	(*)Grao en Enxeñaría Eléctrica			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Mandatory	3rd	2nd
Teaching language	Spanish Galician English			
Department				
Coordinator	Cameselle Fernández, Claudio			
Lecturers	Cameselle Fernández, Claudio Moure Varela, Andrés			
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General description	Subject that belongs to the Block of Common Subjects of the Industrial Technologies. It is part of the curricula of all Degrees of Industrial Engineering. The main objective is to achieve a basic knowledge about the Treatment and management of solid wastes, wastewaters and pollutant emission to the atmosphere. It includes also the concepts of pollution prevention and sustainability.			

## Competencies

Code	
A7	(*)CG7 Capacidade para analizar e valorar o impacto social e ambiental das solucións técnicas.
A29	(*)RI10 Coñecementos básicos e aplicación de tecnoloxías ambientais e sustentabilidade.
B1	(*)CT1 Análise e síntese.
B2	(*)CT2 Resolución de problemas.
B3	(*)CT3 Comunicación oral e escrita de coñecementos na lingua propia.
B9	(*)CS1 Aplicar coñecementos.
B10	(*)CS2 Aprendizaxe e traballo autónomos.
B17	(*)CP3 Traballo en equipo.

## Learning aims

Expected results from this subject	Training and Learning Results
Ability to analyze and determine the social and environmental impact of the technical solutions to environmental problems	A7
Basic knowledge and application of environmental technologies and sustainability	A29
Analysis and synthesis	B1
Problem solving	B2
Oral and writing communication	B3
Knowledge application to practical and real cases	B9
Autonomous work and learning	B10
Work in teams	B17

## Contents

Topic	
Lesson 1: Introduction to the environmental technology.	1. Material cycle economy. 2. Generation of waste. Types and classification of wastes. 3. Codification of wastes.
Lesson 2: Management of waste and effluents.	1. Urban waste management. 2. Industrial waste management. Industrial waste treatment facilities. 3. Regulations.

Lesson 3: Treatment of urban and industrial wastes.	<ol style="list-style-type: none"> <li>1. Valorization.</li> <li>2. Physico-chemical treatment.</li> <li>3. Biological treatment.</li> <li>4. Thermal treatment.</li> <li>5. Landfilling.</li> </ol>
Lesson 4: Treatment of industrial and municipal wastewaters.	<ol style="list-style-type: none"> <li>1. Characteristics of municipal and industrial wastewaters.</li> <li>2. Wastewater treatment plant.</li> <li>3. Sludge treatment.</li> <li>4. Water treatment and reuse.</li> </ol>
Lesson 3: Atmospheric pollution.	<ol style="list-style-type: none"> <li>1. Types and origin of atmospheric pollutants.</li> <li>2. Dispersion of pollutants in the atmosphere.</li> <li>3. Effects of the atmospheric pollution.</li> <li>4. Treatment of polluting gas emissions.</li> </ol>
Lesson 6: Sustainability.	<ol style="list-style-type: none"> <li>1. Sustainable development</li> <li>2. Life cycle analysis and economy.</li> <li>3. Ecological footprint and carbon footprint.</li> <li>4. Introduction to the best available techniques (BAT).</li> </ol>
Lesson 7: Environmental impact.	<ol style="list-style-type: none"> <li>1. Introduction to the evaluation of the environmental impact.</li> </ol>
Seminar 1: Codification of wastes	Practical exercises of waste codification.
Seminar 2: Mass balances in the environmental processes.	Practical exercises of balances of municipal and industrial waste.
Practice 1: Water quality.	Essays of water quality.
Practice 2: Wastewater treatment.	Wastewater treatment plants.
Practice 3: Polluted effluents.	Treatment of polluted effluents.
Seminar 3: Dispersion of contaminants in the atmosphere.	Air quality and gas dispersion models.

## Planning

	Class hours	Hours outside the classroom	Total hours
Master Session	20	40	60
Troubleshooting and / or exercises	14	28	42
Seminars	6	12	18
Laboratory practises	6	12	18
Short answer tests	2	4	6
Reports / memories of practice	1	1	2
Other	1	3	4

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

## Methodologies

	Description
Master Session	Teaching in the classroom
Troubleshooting and / or exercises	Problem solving
Seminars	Solving practical problems
Laboratory practises	Laboratory teaching

## Personalized attention

Methodologies	Description
Seminars	Follow-up of the students work. questions. Sources of information.
Laboratory practises	Follow-up of the students work. questions. Sources of information.

## Assessment

	Description	Qualification
Short answer tests	Partial exam	20
Reports / memories of practice	Report of practices	10
Other	Final exam	70

## Other comments on the Evaluation

Minimum mark in the final exam: 40%

## Sources of information

Kiely, **Ingeniería Ambiental: fundamentos, entornos, tecnología y sistemas de gestión**, McGraw-Hill,  
Wark and Warner, **Contaminación del aire: origen y control**, Limusa,  
Castells et al., **Reciclaje de residuos industriales: residuos sólidos urbanos y fangos de depuradora**, Díaz de Santos,

Other books in environmental engineering.

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## Recommendations

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### Subjects that it is recommended to have taken before

(\*)Química: Química/V12G380V01205

### Other comments

No comments