



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 | | | |
| E-mail | claudio@uvigo.es | | | |
| Web | http://faitic.uvigo.es | | | |
| 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"> 1. Valorization. 2. Physico-chemical treatment. 3. Biological treatment. 4. Thermal treatment. 5. Landfilling. |
| Lesson 4: Treatment of industrial and municipal wastewaters. | <ol style="list-style-type: none"> 1. Characteristics of municipal and industrial wastewaters. 2. Wastewater treatment plant. 3. Sludge treatment. 4. Water treatment and reuse. |
| Lesson 3: Atmospheric pollution. | <ol style="list-style-type: none"> 1. Types and origin of atmospheric pollutants. 2. Dispersion of pollutants in the atmosphere. 3. Effects of the atmospheric pollution. 4. Treatment of polluting gas emissions. |
| Lesson 6: Sustainability. | <ol style="list-style-type: none"> 1. Sustainable development 2. Life cycle analysis and economy. 3. Ecological footprint and carbon footprint. 4. Introduction to the best available techniques (BAT). |
| Lesson 7: Environmental impact. | <ol style="list-style-type: none"> 1. Introduction to the evaluation of the environmental impact. |
| 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 practises | 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.

Recommendations

Subjects that it is recommended to have taken before

(*)Química: Química/V12G380V01205

Other comments

No comments
