

SUBJECT TEACHING GUIDE

G794 - Air Pollution

Degree in Chemical Engineering

Academic year 2023-2024

| 1. IDENTIFYING DATA | | | | | |
|----------------------------------|--|------------------|--------------------|------------------|------------------|
| Degree | Degree in Chemical Engineering | | | Type and Year | Optional. Year 4 |
| Faculty | School of Industrial Engineering and Telecommunications | | | | |
| Discipline | Subject Area: Option B: Industrial Environmental Management Optional Module | | | | |
| Course unit title and code | G794 - Air Pollution | | | | |
| Number of ECTS credits allocated | 6 | Term | Semester based (1) | | |
| Web | | | | | |
| Language of instruction | Spanish | English Friendly | Yes | Mode of delivery | Face-to-face |

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|------------------|---|--|--|--|--|
| Department | DPTO. INGENIERIAS QUIMICA Y BIOMOLECULAR | | | | |
| Name of lecturer | IGNACIO FERNANDEZ OLMO | | | | |
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| Office | E.T.S. de Ingenieros Industriales y de Telecomunicación. Planta: - 5. DESPACHO I. FERNANDEZ OLMO (S5004A) | | | | |
| Other lecturers | MARTA RUMAYOR VILLAMIL | | | | |

3.1 LEARNING OUTCOMES

- The student must attain the following targets:

1. To establish the relationships between main air pollutants with their sources and effects
2. To consider the different air pollution control strategies
3. To know simplified procedures to estimate air pollutant emissions
4. To consider different air quality scenarios

4. OBJECTIVES

To reach a knowledge about:

1. Characterization, effects and sources of air pollutants
2. Strategies and diagnosis tools, air quality management and control

6. COURSE ORGANIZATION

CONTENTS

| | |
|---|---|
| 1 | Topic 1: Air pollution fundamentals: 1.1. Introduction and objectives 1.2. Receptor media analysis: the atmosphere 1.3. Air pollutants: classification, characteristics, sources and effects |
| 2 | Topic 2: Air pollution from anthropogenic origin: sources and control technologies 2.1. Air pollution from industrial activities 2.2. Urban air pollution 2.3. Air pollutants control technologies |
| 3 | Topic 3: Air pollution strategies and diagnostic and management tools 3.1. Atmospheric environment management strategies 3.2. Management tools: air pollution regulation 3.3. Diagnostic tools: air pollutants inventories 3.4. Air pollutants emission measurements 3.5. Dispersion of air pollutants 3.6. Air quality diagnostic and management |

7. ASSESSMENT METHODS AND CRITERIA

| Description | Type | Final Eval. | Reassessn | % |
|---|--------------|-------------|-----------|-------|
| The contents of topics 1 and 2 will be evaluated at the 8th week. In case of an off-site scenario, the evaluation will be based on short time-limited questionnaires and tasks. The minimum rate must be 4/10. It accounts for 35 % | Written exam | Yes | Yes | 35,00 |
| The contents of topic 3 will be evaluated at the 15th week. In case of an off-site scenario, the evaluation will be based on short time-limited questionnaires and tasks. The minimum rate must be 4/10. It accounts for 35 % | Written exam | Yes | Yes | 35,00 |
| A teamwork will be developed and publicly presented. In case of an off-site scenario, it will be presented by videoconference. It accounts for 30 % | Work | No | No | 30,00 |

TOTAL 100,00

Observations

Observations for part-time students

In the event that there are no alternative options that allow the part-time student to participate regularly in face-to-face teaching activities, the student may be subject to a single assessment process, consisting of taking an exam in the ordinary call.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Bueno, J.L. y col. "Contaminación e Ingeniería Ambiental: contaminación atmosférica". Ed. Ficyt. Oviedo (1997)

Heinsohn, R.J. y Kabel, R.L. "Sources and control of air pollution". Ed. Prentice Hall. New Jersey (1999)

Seinfeld J.H. y Pandis S.N. "Atmospheric Chemistry and Physics". Ed. John Wiley and Sons. New York (1998)