

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

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)