

## SUBJECT TEACHING GUIDE

### 587 - Climate Change

#### Master's Degree in civil Engineering, Canal and Port Engineering

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Master's Degree in civil Engineering, Canal and Port Engineering			Type and Year	Optional. Year 1
Faculty	School of civil Engineering				
Discipline	CROSS CURRICULAR EDUCATION				
Course unit title and code	587 - Climate Change				
Number of ECTS credits allocated	3	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. CIENCIAS Y TECNICAS DEL AGUA Y DEL MEDIO AMBIENTE				
Name of lecturer	IÑIGO LOSADA RODRIGUEZ				
E-mail	inigo.losada@unican.es				
Office	E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 0. DESPACHO (0049)				
Other lecturers	ALEXANDRA TOIMIL SILVA				

### 3.1 LEARNING OUTCOMES

- Students will learn the relationships between climate change and the different fields of civil engineering and the opportunities that this field offers for the profession.
- Students will learn the fundamental principles of the physics of climate change.
- Students will acquire the ability to identify and evaluate qualitatively and quantitatively the effects of climate change on the natural and built environment.
- Students will learn the fundamentals of climate change risk assessment and how to apply the available methodologies and guidelines to assess such risks in different civil engineering sectors .
- Students will understand the concept of mitigation, the different mitigation measures applicable in the most important sectors of civil engineering, their evaluation and consequences.
- Students will understand the concept of adaptation, the typology of measures applicable in the most important areas of civil engineering, their evaluation and consequences.
- Students will become familiar with national and international climate change policies, learn to make a critical assessment of them and their consequences for the profession.

### 4. OBJECTIVES

- To understand the implications of climate change on civil engineering .
- Understand the physics of climate change
- Identify the positive and negative effects of climate change on natural systems and the built environment
- Acquire the ability to analyse the risks arising from climate change in key sectors of civil engineering
- Understand the main climate change mitigation strategies with special emphasis on key sectors of civil engineering.
- To understand and learn how to implement climate change adaptation in key sectors of civil engineering .
- To know the main international and national climate change policies , their governance and main financing channels.

### 6. COURSE ORGANIZATION

CONTENTS	
1	Introduction. Climate change and civil engineering
2	The physical science of climate change
3	Effects of climate change on the natural and built environment
4	Climate change risk assessments
5	Climate change mitigation
6	Climate change adaptation
7	Climate change policies, governance and finance

### 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Test-Multiple choice questions 10%	Activity evaluation with Virtual Media	No	Yes	10,00
Test-Multiple choice questions 10%	Activity evaluation with Virtual Media	No	Yes	10,00
Test-Multiple choice questions 10%	Activity evaluation with Virtual Media	No	Yes	10,00
Written report 20%	Work	No	Yes	20,00
Test-Multiple choice questions 10%	Activity evaluation with Virtual Media	No	Yes	10,00
Written report 30%	Work	No	Yes	30,00
Test-Multiple choice questions 10%	Others	No	No	10,00
<b>TOTAL</b>				<b>100,00</b>
<b>Observations</b>				
Observations for part-time students				
Part-time students may take the continuous evaluation as full-time students or may combine the delivery of the two reports with a final exam of the course material.				

### 8. BIBLIOGRAPHY AND TEACHING MATERIALS

#### BASIC

Toda la bibliografía se facilitará a los estudiantes mediante diferentes presentaciones , textos y guías nacionales e internacionales de los sectores relevantes