

## SUBJECT TEACHING GUIDE

### 597 - Renewable Energies

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

Academic year 2024-2025

1. IDENTIFYING DATA					
Degree	Master's Degree in civil Engineering, Canal and Port Engineering			Type and Year	Optional. Year 2
Faculty	School of civil Engineering				
Discipline	SPECIALITY IN WATER, ENERGY AND THE ENVIRONMENT				
Course unit title and code	597 - Renewable Energies				
Number of ECTS credits allocated	3	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. CIENCIAS Y TECNICAS DEL AGUA Y DEL MEDIO AMBIENTE				
Name of lecturer	ANDRES GARCIA GOMEZ				
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Other lecturers	CARLOS RICO DE LA HERA RAÚL GUANCHE GARCÍA				

### 3.1 LEARNING OUTCOMES

- Classify the different types of renewable energies according to their resource source .
- Describe the fundamental characteristics of the different types of renewable energies .
- Identify the advantages and disadvantages of using the different types of renewable energy .

#### 4. OBJECTIVES

- Know the different sources of renewable energy in use.
- Acquire the scientific-physical fundamentals of the various renewable energy sources.
- Understand the consequences and effects on the environment of the use of renewable energies.

#### 6. SUBJECT PROGRAM

##### CONTENTS

1	Introduction
2	Hydropower: run-of-river hydropower plants, storage hydropower plants, pumped storage hydropower plants
3	Solar energy: thermal solar energy and photovoltaic solar energy
4	Wind energy: onshore wind energy and offshore wind energy
5	Marine energies: wave energy and tidal energy
6	Bioenergy: biofuels and biogas
7	Other renewable energies: ocean thermal energy conversion and salinity gradient energy

#### 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Final exam	Written exam	Yes	Yes	40,00
Course work 1	Work	No	Yes	15,00
Course work 2	Work	No	Yes	15,00
Course work 3	Work	No	Yes	15,00
Group work	Work	No	No	15,00
<b>TOTAL</b>				<b>100,00</b>

##### Observations

As accorded by the relevant committees, as a general rule, and unless stated otherwise anywhere in this guide:

- A student cannot request a reexamination if the original grade obtained in the evaluation was not a fail .
- The reexamination activity will take the same form than the original evaluation activity.

Grades are measured on a numeric scale going from 0 to 10, where values smaller than 5 are a Fail.

Marks obtained in the course evaluation activities will be kept until the re-sit examination period.

Only for duly justified reasons (eg health restrictions) the assessment tests may be organized remotely, with prior authorization from the Center's Management.

##### Observations for part-time students

Part-time students will be subject to the same evaluation criteria as full-time students. The temporary distribution of activities will be adapted to the particular conditions of each student when necessary.

In accordance with the regulations of the evaluation processes, students enrolled part-time may undergo a single evaluation process that will consist of a written exam of the whole of the course on the date established for this purpose by the Center's Management.

The student enrolled part-time must, at the beginning of the subject, communicate in writing to the professor in charge the evaluation option that he wishes to follow, continuous evaluation or single evaluation.

**8. BIBLIOGRAPHY AND TEACHING MATERIALS****BASIC**

Breeze, P., Vieira, A., et al. (2009). Renewable Energy Focus Handbook. Elsevier.

Twidell, J., Weir, T. (2006). Renewable Energy Resources. Taylor & Francis.

Cuesta, L. y Vallarino, E. (2000). Aprovechamientos Hidroeléctricos. Ed. Colegio de Ingenieros de Caminos, Canales y Puertos. Colección Senior. Madrid.