

SUBJECT TEACHING GUIDE

507 - Laboratory and Experimental Analysis in Coastal Engineering

Erasmus Mundus Joint Master Degree in Coastal Hazards - Risks, Climate Change Impacts and Adaptation

Academic year 2024-2025

1. IDENTIFYING DATA					
Degree	Erasmus Mundus Joint Master Degree in Coastal Hazards - Risks, Climate Change Impacts and Adaptation			Type and Year	Optional. Year 1
Faculty	School of civil Engineering				
Discipline					
Course unit title and code	507 - Laboratory and Experimental Analysis in Coastal Engineering				
Number of ECTS credits allocated	1	Term	Semester based (1)		
Web					
Language of instruction	English	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. CIENCIAS Y TECNICAS DEL AGUA Y DEL MEDIO AMBIENTE				
Name of lecturer	MARIA EMILIA MAZA FERNANDEZ				
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Other lecturers					

3.1 LEARNING OUTCOMES
- Students will know the main advantages and disadvantages of experimental methods used in hydraulics: numerical, physical experimentation in the laboratory and field experimentation.
- Students will be able to perform dimensional analysis of the most common processes in hydraulics and will know the most common dimensionless numbers used in the scaling of these processes.
- Students will be able to design physical model tests of flow and stability of coastal structures subjected to wave and current action.
- Students will be familiar with the most common measurement techniques in physical modeling in the laboratory.

4. OBJECTIVES

- Students will learn the main capabilities and limits of physical modeling in the laboratory.
- Students will be able to recognize the most relevant parameters of the study, being able to select the appropriate scaling laws.
- Students will be able to set the basis for an experimental campaign considering the different steps needed to plan it.
- Students will be familiar with the most common laboratory measurement systems.

6. SUBJECT PROGRAM

CONTENTS

1	Introduction to experimental approaches.
2	Dimensional analysis, pi theorem, scaling, errors in physical modeling, and types of physical models
3	Definition and planning of a experimental campaign and measurement techniques.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Practical Exercise 1	Work	Yes	Yes	50,00
Practical Exercise 2	Work	Yes	Yes	50,00
TOTAL				100,00
Observations				
Observations for part-time students				
Same as the ones applied to students in full-time basis, but with flexibility in the Practical Exercises delivery.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Steven A Hughes (World Scientific). Physical Models and Laboratory Techniques in Coastal Engineering