

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 2023-2024

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	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. COURSE ORGANIZATION

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