

SUBJECT TEACHING GUIDE

511 - Water Waves and Sea-Level

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	Compulsory. Year 1
Faculty	School of civil Engineering		
Discipline			
Course unit title and code	511 - Water Waves and Sea-Level		
Number of ECTS credits allocated	5	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	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	JAVIER LOPEZ LARA MELISA MENENDEZ GARCIA		

3.1 LEARNING OUTCOMES

- Identify and characterize the most relevant drivers in the generation of coastal dynamics
- Define and evaluate the most relevant characteristics of the marine climate required for engineering applications in including risk management
- Identify and model wave transformation processes
- Assess and model sea level components
- Understand and model the most relevant processes in the surf zone
- Understand and model tsunamis

4. OBJECTIVES

To provide a solid foundation in the understanding and modeling of the relevant coastal processes driving coastal risks

6. COURSE ORGANIZATION

CONTENTS	
1	Introduction and observations
2	Short- and long-term wave analysis
3	Linear wave theory and wave propagation
4	Sea level
5	Surf zone hydrodynamics
6	Tsunamis
7	Paper on selected topics-Assignment

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Mid-term 1 (27%): Includes multiple-choice theoretical questions and a problems set Contents: Observations, short- and long-terms wave analysis	Written exam	No	Yes	27,00
Mid-term 2 (27%): Includes multiple-choice theoretical questions and a problems set Contents: linear wave theory and wave propagation	Written exam	No	Yes	27,00
Final Exam (27%): Includes multiple-choice theoretical questions and a problems set Contents: sea level, surf zone hydrodynamics and tsunamis Students who have failed parts of the previous mid-terms will have the opportunity to retake them here	Written exam	Yes	No	27,00
Homework assignments-problem sets: 9%	Others	No	No	9,00
Paper on selected topic: 10%	Work	No	No	10,00
TOTAL				100,00
Observations				
Observations for part-time students				
Does not apply to this program				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Losada, I.J and Lara, J.L. (2022). Class notes and power point presentations

Bosboom, J. and Stive, M.J.F. (2022). Coastal Dynamics. TU Delft Open.

Dean, R.G. and Dalrymple, R.A. (1992). Water Wave Mechanics for Engineers and Scientists. Advances Series on Ocean Engineering, Vol 2. World Scientific

Pugh, D. and Woodworth, P (2014). Sea-level Science. Cambridge University Press.