

SUBJECT TEACHING GUIDE

517 - Resilient and Sustainable Built Environment

Erasmus Mundus Joint Master Degree in Sustainable Design, Construction and Management of the Built Environment

Academic year 2023-2024

1. IDENTIFYING DATA			
Degree	Erasmus Mundus Joint Master Degree in Sustainable Design, Construction and Management of the Built Environment	Type and Year	Compulsory. Year 2
Faculty	School of civil Engineering		
Discipline			
Course unit title and code	517 - Resilient and Sustainable Built Environment		
Number of ECTS credits allocated	6	Term	Semester based (1)
Web			
Language of instruction	English	Mode of delivery	Face-to-face

Department	DPTO. TRANSPORTES Y TECNOLOGIA DE PROYECTOS Y PROCESOS		
Name of lecturer	JORGE RODRIGUEZ HERNANDEZ		
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Office	E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 1. CUBICULO I+D (grupo Prof. Ballester) (1010A)		
Other lecturers	MARIA ESTHER GONZALEZ GONZALEZ MARIA HELENA PÓVOAS CORVACHO		

3.1 LEARNING OUTCOMES
- Understand the importance of the resilience applied to the built environment
- Be acquainted with the techniques to deal with extreme temperatures in the built environment.
- Be acquainted and apply the water sensitive urban design techniques.
- Describe the main tools for urban management and apply GIS for decision-making.
- Understand the smart city concept and its implications in the resources and energy management.

4. OBJECTIVES

Discuss the main challenges that the built environment (buildings and infrastructures of any kind that compounds cities and human facilities) is facing (e.g., sustainability, resilience and needed adaptation to the Climate Change).

Study the resilience concept and adaptation techniques (e.g., Sustainable Urban Drainage Systems (SUDS), Low Impact Development (LID) and Water Sensitive Urban Design (WSUD)).

Analyse and discuss the possible actions to implement in the built environment, taking suitable decisions with a clear list of criteria and priorities.

6. COURSE ORGANIZATION

CONTENTS

1	Resilient built environment: risks and actions.
2	Sustainable built environment management: Low impact development (LID), Water Sensitive Urban Design and Cool Pavements.
3	Urban management and Smart cities: GIS and tools for decision-making.
4	Climate adaptive urban environment: heat island effect, resources and energy.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Practical exercises	Work	No	Yes	60,00
Continous classroom evaluation	Others	No	Yes	40,00
TOTAL				100,00
Observations				
Observations for part-time students				
Practical exercises will be the 100% in the case of partial dedication students.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Rockefeller Foundation (2017) 100 Resilient Cities. Resources. <http://www.100resilientcities.org/resources>
 Berkeley Lab (2017) Heat Island Group. Publications. <https://heatland.lbl.gov/publications>
 CIRIA (2017) Guidance on the construction of SuDS (C768) <https://www.ciria.org/>
 UrbanGIS (2017) International Workshop on Smart Cities and Urban Analytics <https://wp.nyu.edu/urbangis/>
 SmartCity (2017) Expo World Congress. Circular Economy <http://www.smartcityexpo.com/en/>