

SUBJECT TEACHING GUIDE

G1153 - Sustainability in Building Construction Degree in Civil Engineering

Academic year 2021-2022

1. IDENTIFYING DATA					
Degree	Degree in Civil Engineering			Type and Year	Optional. Year 4
Faculty	School of civil Engineering				
Discipline	Optional Subjects: Curricular Itinerary 1				
Course unit title and code	G1153 - Sustainability in Building Construction				
Number of ECTS credits allocated	6	Term	Semester based (1)		
Web					
Language of instruction	Spanish	English Friendly	Yes	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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Other lecturers	ANGEL VEGA ZAMANILLO XABIER EDUARDO MORENO-VENTAS BRAVO IGNACIO LOMBILLO VOZMEDIANO CARLOS THOMAS GARCIA JOKIN RICO ARENAL ALEJANDRO ROLDÁN VALCARCE

3.1 LEARNING OUTCOMES

- Knowledge of the conditions , requirements and characteristics of the implementation of sustainable construction technologies to the sector.
- Domain applications of reusing, recycling and recovering of waste and by-products associated with construction.
- Analysis of the main sustainability indicators used in construction.

4. OBJECTIVES

- Develop the application of sustainability in the field of construction.
- Analyze the major international trends aimed at sustainable construction.
- Promote sustainable management of construction and demolition waste.
- Know the main techniques associated with sustainability in civil engineering.

6. COURSE ORGANIZATION

CONTENTS

1	INTRODUCTION TO SUSTAINABILITY: Presentation and historical context of sustainability; Discussion on Climate Change; Discussion on resilience; Discussion about overpopulation.
2	LIFE CYCLE: Life cycle analysis (LCA); Discussion about the cradle to the cradle; Carbon footprint and EPD; Discussion about the sand trade
3	WATER MANAGEMENT: Low impact development; Sustainable management of surface runoff; Permeable pavements and green roofs.
4	SUSTAINABLE MATERIALS: Industrial by-products; Recycled aggregates; Sustainable bituminous mixtures; Sustainable concrete.
5	SUSTAINABILITY EVALUATION: Sustainability assessment; Certificates of sustainability in building; Certificates of infrastructure sustainability; Other tools for assessing sustainability
6	CIVIL BIOENGINEERING: Landscape restoration; Walk through the Llamas Park; Civil bioengineering; Environmental monitoring.
7	Topic defense.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Assignments per lesson	Work	No	Yes	80,00
Defense of a topic	Work	No	No	20,00
TOTAL				100,00
Observations				
The evaluation of the subject is carried out entirely by assignments of different formats : conventional written works, punctual reports, tests at the end of class and presentation of a topic in class. Only for duly justified causes (eg health restrictions) the evaluation tests may be organized remotely, with prior authorization from the Center's Management.				
Observations for part-time students				
Part-time students are exempt from the requirement to attend practical classes in order to retrieve the reports of practices in case of failing that part of the subject.				

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

Aranda Usón, Alfonso.

Ecodiseño y análisis de ciclo de vida / Alfonso Aranda Usón, Ignacio Zabalza Bribián.

Editorial: Zaragoza : Prensas Universitarias de Zaragoza, 2010.

ISBN: 978-84-92774-95-1

Bustillo Revuelta, Manuel.

Manual de RCD y áridos reciclados / Manuel Bustillo Revuelta.

Editorial: Madrid : Fuego, [2010]

ISBN: 978-84-935279-7-6

Desarrollo sostenible para ingenieros / Karel Mulder, ed.

Edición: 1ª ed., reimp.

Editorial: Barcelona : UPC, 2007.

ISBN: 978-84-8301-892-7

McDonough, William.

Cradle to cradle : (de la cuna a la cuna) : rediseñando la forma en que hacemos las cosas / William McDonough, Michael

Braungart; con la colaboración de Fundación Tierra.

Editorial: Madrid : Mc Graw-Hill, D.L. 2005.

ISBN: 84-481-4295-0