

SUBJECT TEACHING GUIDE

M2144 - Construction and Installations

Master's Degree in Environmental Engineering and Management

Academic year 2022-2023

| 1. IDENTIFYING DATA | | | | | |
|----------------------------------|---|------------------|--------------------|------------------|------------------|
| Degree | Master's Degree in Environmental Engineering and Management | | | Type and Year | Optional. Year 1 |
| Faculty | School of civil Engineering | | | | |
| Discipline | Complement in Training | | | | |
| Course unit title and code | M2144 - Construction and Installations | | | | |
| Number of ECTS credits allocated | 3 | Term | Semester based (1) | | |
| Web | | | | | |
| Language of instruction | Spanish | English Friendly | No | Mode of delivery | Face-to-face |

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| Department | DPTO. TRANSPORTES Y TECNOLOGIA DE PROYECTOS Y PROCESOS |
| Name of lecturer | DANIEL CASTRO FRESNO |
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| Office | E.T.S. de Ingenieros de Caminos, Canales y Puertos. Planta: + 1. DESPACHO DANIEL CASTRO FRESNO (1011) |
| Other lecturers | JOSE RAMON IBAÑEZ DEL RIO ALMUDENA DA COSTA GARCIA ANDRES GARCIA GOMEZ IGNACIO LOMBILLO VOZMEDIANO FRANCISCO JAVIER BALBAS GARCIA CARLOS THOMAS GARCIA |

3.1 LEARNING OUTCOMES

- Apply basic technical vocabulary and terminology in the field of construction and installations
- Identify the characteristics of the main construction materials
- To know and apply at a basic level the theory of resistance of materials , and specifically, the design of walls and retaining structures.
- To understand and apply at a basic level the mechanics of fluids applied to piping and pumping.
- To know the basic aspects of electrical engineering applied to construction and installations.

4. OBJECTIVES

The main objective of the subject for the student is to know the basic technical vocabulary and terminology used in construction and installation projects, as well as to provide them with a basic knowledge of the main characteristics of construction materials, their mechanical and physical properties.

In addition, the students must know, at a basic level, the operation of surface foundation and rigid containment structures and other aspects of fluid mechanics applied to piping and pumping and electrical engineering applied to construction and installations.

6. COURSE ORGANIZATION

| CONTENTS | |
|----------|--|
| 1 | 1. Introduction to construction elements |
| 2 | 2. Introduction to building materials. Sustainable materials. |
| 3 | 3. Introduction to electrical installations |
| 4 | 4. Introduction to fluid mechanics: pipes and pumps. |
| 5 | 5. Introduction to resistance of materials |
| 6 | 6. Introduction to geotechnics and foundation and containment structures |

7. ASSESSMENT METHODS AND CRITERIA

| Description | Type | Final Eval. | Reassessn | % |
|--|--|-------------|-----------|---------------|
| Partial tests by modules | Written exam | No | Yes | 65,00 |
| Practical cases | Others | No | Yes | 20,00 |
| Module 1 evaluation with virtual support. | Activity evaluation with Virtual Media | No | No | 15,00 |
| TOTAL | | | | 100,00 |
| Observations | | | | |
| <p>Only for duly justified reasons (eg sanitary restrictions) the evaluation tests may be organized remotely, with prior authorization from the Center's Management.</p> <p>Note: According to RD 1125/2003 on the European credit system and the qualification system in university degrees of an official nature and valid throughout the national territory, the Results obtained by the student in each of the subjects of the study plan will be graded based on the following numerical scale from 0 to 10, with an expression of one decimal place, at which you can add its corresponding qualitative rating: 0.0-4.9: Fail (SS) 5.0-6.9: Pass (AP) 7.0-8.9: Good (NT) 9.0-10: Excellent (SB).</p> | | | | |
| Observations for part-time students | | | | |
| <p>The student who follows the subject part-time must take a single exam, which will consist of a 1st part (85%) in relation to the partial written tests by modules and a 2nd part (15%) in relation to the practical cases corresponding to module 5.</p> | | | | |

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

- Calavera Ruiz, José (2001). Muros de contención y muros de sótano. Ed. INTEMAC, Madrid. ISBN 84-88764-10-3. 377 p.
- Calavera Ruiz, José. (2015). Cálculo de estructuras de cimentación. Ed. INTEMAC, Madrid. ISBN 84-88764-09-X. 653 p Eurocódigo EC-7
- Resistencia de Materiales. Manuel Vazquez. Editorial Noela. ISBN 978-84-88012-05-0
- Maquinaria General En Obras Y Movimientos De Tierra (Tratado de procedimientos generales de construcción)
- Materiales para ingeniería civil. M.S. Mamlouk, J.P. Zaniewski. ISBN: 978-84-8322-510-3
- Materiales para la ingeniería 2: Introducción a la microestructura, el procesamiento y el diseño. M.F. Ashby, D.R.H. Jones. ISBN: 978-84-291-7256-0.
- García, C. J. 2011. Conducciones y bombeos. Conceptos teóricos y ejercicios. Librería Técnica Bellisco. Madrid.
- Escribá, D. 1988. Hidráulica para ingenieros. Editorial Bellisco.
- Mayol, J.M. 1997. Tuberías. Tomo I: Materiales, cálculos hidráulicos, cálculos mecánicos. Librería Editorial Bellisco. Madrid