

## SUBJECT TEACHING GUIDE

### G749 - Elasticity and Resistance of Materials II

#### Degree in Mechanical Engineering

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Degree in Mechanical Engineering			Type and Year	Compulsory. Year 3
Faculty	School of Industrial Engineering and Telecommunications				
Discipline	Subject Area: Elasticity and Strength of Materials Module: Specific Mechanical Technology				
Course unit title and code	G749 - Elasticity and Resistance of Materials II				
Number of ECTS credits allocated	6	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. INGENIERIA ESTRUCTURAL Y MECANICA				
Name of lecturer	MIGUEL IGLESIAS SANTAMARIA				
E-mail	miguel.iglesias@unican.es				
Office	E.T.S. de Ingenieros Industriales y de Telecomunicación. Planta: - 2. DESPACHO (S2043)				
Other lecturers					

### 3.1 LEARNING OUTCOMES

- To recognize the strengths and weaknesses of the different methodologies studied

### 4. OBJECTIVES

To be familiar with the procedures used to determine the stress, strain and deformation in structural elements.  
To be able to determine and evaluate deflections in the structural elements

**6. COURSE ORGANIZATION**

CONTENTS	
1	Statically indeterminate beams.
2	Bending, torsion, axial forces combination. Yield criteria.
3	Energy methods in strength of materials. Castigliano. Maxwell-Betti.
4	Buckling. Euler formulae.

**7. ASSESSMENT METHODS AND CRITERIA**

Description	Type	Final Eval.	Reassessn	%
First exam (parts I and II)	Written exam	No	Yes	50,00
Second exam (parts III and IV)	Written exam	Yes	Yes	35,00
.	Work	No	Yes	15,00
TOTAL				100,00
Observations				
hhh				
Observations for part-time students				
.				

**8. BIBLIOGRAPHY AND TEACHING MATERIALS**
**BASIC**

- Apuntes de clase
- C. Hoppe Atienza – A. M. De Juan de Luna. Teoremas Energeticos. Teoría y problemas. U.C.
- Carlos Hoppe. Vigas Continuas y Gerber: Teoría y Problemas. Universidad de Cantabria
- Timoshenco. Resistencia de Materiales. Thomson España