

COURSE NAME

Name: **THEORY OF STRUCTURES**

Code: 101133

Curriculum: **DEGREE IN CIVIL ENGINEERING**

Year: 2

Name of the module to which it belongs: COMMON MODULE FOR THE CIVIL BRANCH

Subject: THEORY OF STRUCTURES

Nature: OBRIGATORY Duration: FIRST SEMESTER

ECTS Credits: 6

Classroom hours: 60

Face-to-face classroom percentage: 40%

Non-contact hours: 90

FACULTY DETAILS

Name: FERNÁNDEZ LEDESMA, ENRIQUE (Coordinator)

Department: MECHANICS

Area: CONTINUOUS MEDIA MECHANICS AND THEORY OF STRUCTURES

Location of the office: Main building (Top floor)

E-Mail: efledesma@uco.es

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SKILLS

CB1	Have and understand specific knowledge of the study area of the Degree that gives skills for the exercise of the profession of Technical Civil Engineering.
CB2	Have and understand updated and cutting-edge knowledge related to the field of study of the degree of Technical Civil Engineering.
CB3	Be able to apply the knowledge acquired to their work or vocation in a professional manner. Prepare and defend arguments in the relevant knowledge area.
CB4	Solve problems within the study area of Civil Engineering.
CU2	Know and refine the user level of ITs.
CEC4	Ability to analyze and understand how the characteristics of structures influence their behavior. Ability to apply knowledge about the strength of structures to size them in keeping with existing regulations and using analytical and numerical calculation methods.

OBJECTIVES

- Calculate stresses and strains
- Calculate stresses in slices due to different forces
- Calculate the forces in isostatic structures (axial, shear and moments)
- Calculate the forces in hyperstatic structures (axial, shear and moments)
- Ability to analyze and understand how the characteristics of structures influence their behavior

CONTENTS:

1. Theoretical contents

. BASIC OF STRENGTH OF MATERIALS

Topic 1. INTRODUCTION. STRESS.

Topic 2. STRAIN

Topic 3. STRESS-STRAIN RELATIONSHIPS.

Topic 4. FUNDAMENTAL CONCEPTS IN STRENGTH OF MATERIALS.

Topic 5. STUDY OF AXIAL STRESS

Topic 6. STUDY OF BENDING MOMENT

Topic 7. STUDY OF SHEAR STRESS

Topic 8. DISPLACEMENT CALCULATION

II. ANALYSIS OF STRUCTURES

Topic 9. BASIC CONCEPTS

Topic 10. STATICALLY DETERMINATE STRUCTURES

Topic 11. STATICALLY INDETERMINATE STRUCTURES

2. Practical contents.

Practical exercises on the aforementioned topics.