

Course guide

340669 - CEAO - Computer-Assisted Structure Calculation

Last modified: 13/07/2023

Unit in charge: Vilanova i la Geltrú School of Engineering
Teaching unit: 737 - RMEE - Department of Strength of Materials and Structural Engineering.

Degree: BACHELOR'S DEGREE IN MECHANICAL ENGINEERING (Syllabus 2009). (Optional subject).

Academic year: 2023 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Garcia Vilana, Silvia

Others: Musté Rodríguez, Marta

Garcia Vilana, Silvia

PRIOR SKILLS

It is recommended to have completed the subject of RMA1, RMA2 and ESCI

TEACHING METHODOLOGY

This subject is mainly practical. In class, construction and biological structure practices will be carried out, as well as an individual project. At the beginning of class, the teacher will explain the practice to be done and then the students will work together to complete it. Time will be allocated in each class to work on the individual industrial ship project that each student must complete throughout the semester. At the end of the semester, students will orally present their project to their peers.

LEARNING OBJECTIVES OF THE SUBJECT

- To learn about different types of industrial buildings.
- To calculate the loads on a structure.
- To choose and size the profiles.
- To calculate the foundation.
- To create a budget based on measurements.
- To work with a professional structural design and calculation program (Cype Ingenieros).
- To study structures made of biological material.
- To characterize biological material (for example, bone).
- To determine the mechanical behavior of biological material using specific software.
- To determine stresses in biological material based on loads.
- To develop an individual project.

STUDY LOAD

Type	Hours	Percentage
Self study	90,0	60.00
Hours large group	45,0	30.00
Hours small group	15,0	10.00

Total learning time: 150 h



CONTENTS

title english

Description:

content english

Full-or-part-time: 13h 20m

Self study : 13h 20m

Individual Project

Description:

Realization of the structure project based on a real case. Location and site plans. Description of the industrial activity. Calculation report.

Objectives

Background

Report

Location

Urban regulations and geotechnical study

Industrial activity

Layout design

Structure design and justification

Load assumptions

Profiles, anchor plates, and foundation

Summary of measurements

Specifications

Budget

Conclusions

Full-or-part-time: 20h

Theory classes: 13h 20m

Guided activities: 6h 40m

title english

Description:

content english

Full-or-part-time: 13h 20m

Theory classes: 13h 20m

Mechanical behavior of biological material with specific software.

Description:

Study the structures of biological material.

Characterize biological material (for example, bone).

Determine the mechanical behavior of biological material with specific software.

Determine stresses in biological material from requests.

Full-or-part-time: 13h 20m

Theory classes: 13h 20m



GRADING SYSTEM
