Universidad Zaragoza

Academic Year/course: 2022/23

25881 - Strength of Materials

Syllabus Information

Academic Year: 2022/23
Subject: 25881 - Strength of Materials
Faculty / School: 110 - Escuela de Ingeniería y Arquitectura
Degree: 558 - Bachelor's Degree in Industrial Design and Product Development Engineering
ECTS: 6.0
Year: 3
Semester: First semester
Subject Type: Compulsory
Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. It is based on participation and the active role of the student favors the development of communication and decision-making skills. A wide range of teaching and learning tasks are implemented, such as lectures, guided assignments, laboratory sessions, autonomous work, and tutorials.

Students are expected to participate actively in the class throughout the semester.

Classroom materials will be available via Moodle. These include a repository of the lecture notes used in class, the course syllabus, as well as other course-specific learning materials.

Further information regarding the course will be provided on the first day of class.

4.2. Learning tasks

This is a 6 ECTS course which includes the following learning tasks:

- Lectures. The professor will explain the theoretical contents of the course and solve illustrative applied problems. These problems and exercises can be found in the problem set provided at the beginning of the semester. Lectures run for 3 weekly hours. Although it is not a mandatory activity, regular attendance is highly recommended.

- Laboratory sessions. Sessions will take place every 2 weeks (6 sessions in total) and the last 2 hours each. Students will work together in groups, actively doing tasks such as practical demonstrations, measurements, calculations, and the use of graphical and analytical methods.

- Guided assignments. Students will complete assignments, problems, and exercises related to concepts seen in laboratory sessions and lectures. They will be submitted at the beginning of every laboratory sessions to be discussed and analyzed. If assignments are submitted later, students will not be able to take the assessment test.

- Autonomous work. Students are expected to spend about 70 hours to study theory, solve problems, prepare lab sessions, and take exams.

- Tutorials. The professor's office hours will be posted on Moodle and the degree website to assist students with questions and doubts. It is beneficial for the student to come with clear and specific questions.

- Evaluation.

4.3. Syllabus

The course will address the following lectures:

Lecture 1: Introduction to Strength of Materials: Rigid and deformable bodies. Concept of stress.

Lecture 2: Axial loading of beams.

Lecture 3: Axial, shear and bending-moment diagrams.

Lecture 4: Torsion.

Lecture 5: Stresses in beams.

Lecture 6: Columns.

Lecture 7: Bolted joints.

4.4. Course planning and calendar

Further information concerning the timetable, classroom and other details regarding this course will be provided in the first day of class or please refer to the Escuela de Ingeniería y Arquitectura (http://eina.unizar.es/)

4.5. Bibliography and recommended resources

https://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=25881