

28617 - Structures II: Reinforced Concrete

Syllabus Information

Academic Year: 2020/21

Subject: 28617 - Structures II: Reinforced Concrete

Faculty / School: 175 - Escuela Universitaria Politécnica de La Almunia

Degree: 422 - Bachelor's Degree in Building Engineering

ECTS: 6.0

Year: 2

Semester: Second semester

Subject Type: Compulsory

Module: ---

1.General information

1.1.Aims of the course

The subject and its expected results respond to the following approaches and objectives:

To become familiar with the work prior to the constructive activity itself, that is, to prescribe tests to be performed, to understand and evaluate the results obtained, to relate the results with the most appropriate construction techniques for the correct execution of the project.

1.2.Context and importance of this course in the degree

The subject of Structures II, is part of the Degree in Technical Architecture taught by EUPLA.

This subject provides additional useful training in the performance of technical architect for

The need of the subject within the curriculum of the present degree is more than justified and

1.3.Recommendations to take this course

No requirements of previous knowledge, beyond those marked by the Ministry of Education and Science. This subject aims to provide the student with the knowledge of the design and the dimensioning

2.Learning goals

2.1.Competences

Upon passing the course, the student will be more qualified to Generic capacities

G01. Organization and planning.

G02. Solve problems.

G03. Take decisions.

G04. Oral and written communication.

G05. Analysis and synthesis.

G06. Information management.

G07. Teamwork.

G08. Critical thinking.

G09. Multidisciplinary teamwork.

G10. Work in an international context.

G11. Adapt to new situations.

G12. Leadership aptitude.

G13. Adapt to social and technological innovations.

G14. Reason and present their own ideas.

G15. Communicate with words and pictures.

- G16. Search, analyze and select information.
- G17. Self-learning.
- G18. Understand advanced aspects of the study area.
- G19. Apply their knowledge in solving problems and think out arguments in the study area.
- G20. Search and interpret data, analyze and think about relevant topics.
- G21. Transmit information and ideas to all kinds of public.
- G22. Acquire learning techniques to expand their studies later.

Specific competences

- CE9. Ability to rule on the causes and manifestations of building injuries, propose solutions to avoid or correct pathologies, and analyze the life cycle of elements and construction systems.
- CE15. Aptitude for the pre-dimensioning, design, calculation, verification and project of reinforced concrete and metal structures and to direct their material execution.

2.2.Learning goals

The student, to pass this course, must achieve the following goals ...

Capacity for the design and dimensioning of elements and structures of reinforced concrete and metal.

2.3.Importance of learning goals

Through the achievement of the relevant learning results, the necessary capacity is obtained. It is intended that the student obtain a good level of the second phase of a project of structure.

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

The student must demonstrate that they have achieved the expected learning outcomes through the following assessment activities:

Continuous assessment

Throughout the course there will be several mandatory exercises. Its value is 30% of the total course. The teacher will propose the practical exercises, which the students must do during the determined time. Students will deliver the practice on the date scheduled for their evaluation. Once delivered, the practice will be resolved in class.

The continuous assessment will be completed with a theoretical-practical test whose value is 70% of the total of the course. Students whose average mark is equal to or greater than 5.0 points will pass the course in continuous assessment.

It will also be necessary to have attended 80% of the face-to-face activities.

Final assessment

Students who do not pass the course in continuous assessment will have to take a theoretical-practical final test, which will be scored from 0 to 10 and it will be necessary to obtain a minimum score of 5 points to pass the course.

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. A wide range of teaching and learning tasks are implemented, such as theory sessions, practice sessions, workshops, and autonomous work and study.

A strong interaction between the teacher/student is promoted. This interaction is brought into being through a division of work and responsibilities between the students and the teacher. Nevertheless, it must be taken into account that, to a certain degree, students can set their learning pace based on their own needs and availability, following the guidelines set by the teacher.

4.2.Learning tasks

This course is organized as follows:

- **Theory sessions:** The theoretical concepts of the course are explained and illustrative examples are developed as support to the theory when necessary.
- **Practice sessions:** Problems and practical cases are carried out, complementary to the theoretical concepts studied.
- **Workshops:** This work is tutored by a teacher, in groups of no more than 20 students.

- **Autonomous work and study.**

- Study and understanding of the theory taught in the lectures.
- Understanding and assimilation of the problems and practical cases solved in the practical classes.
- Preparation of seminars, solutions to proposed problems, etc.
- Preparation of laboratory workshops, preparation of summaries and reports.
- Preparation of the written tests for continuous assessment and final exams.

4.3.Syllabus

This course will address the following topics:

Topic 1	SAFETY CRITERIA. THEORY OF THE CONDITIONS LIMITS
Topic 2	CHARACTERISTICS OF THE MATERIALS. CONCRETE AND STEEL
Topic 2	SECTION CALCULATION BY THE CLASSIC METHOD. MAXIMUM MOMENT. CALCULATION OF SECTIONS IN DEPLETION
Topic 4	BASIC HYPOTHESES ON THE LAST LIMITED STATES. PIVOT DIAGRAM.
Topic 5	CALCULATE A FLEXION. CALCULATE BENDING FLEXION
Topic 6	SHEAR FORCE
Topic 7	ANALYSES OF THE BULGE
Topic 8	TWIST
Topic 9	LIMITED STATES OF SERVICE. FISURATION DERFORMATIONS
Topic 10	ASSEMBLY OF REINFORCED CONCRETE ELEMENTS.
Topic 11	ASSEMBLY OF REINFORCED CONCRETE ELEMENTS.
Topic 12	WROUGHT UNIDIRECCIONES OF REINFORCED CONCRETE
Topic 13	ASSEMBLY OF METAL ELEMENTS.
Topic 14	ASSEMBLY OF METALLIC ELEMENTS
Topic 15	ASSEMBLY OF METALLIC ELEMENTS

4.4.Course planning and calendar

This course has 6 ECTS credits, which represents 150 hours of student work in the subject during the trimester, in other words, 10 hours per week for 15 weeks of class. This includes 3 hours of lectures, 1 of workshop and 6 of other activities every week.

Calendar of evaluation.

Name	Start	Deadline	Resolution	Grades
Practice 1	3 week	4 week	4 week	5 week
Practice 2	7 week	8 week	8 week	9 week
Practice 3	12 week	13 week	13 week	14 week
(1st call)				
(2nd call)				

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the Faculty of EUPLA website and Moodle.

4.5. Bibliography and recommended resources

http://biblos.unizar.es/br/br_citas.php?codigo=28617&year=2020