

Academic Year/course: 2022/23

28633 - Technical Projects I

Syllabus Information

Academic Year: 2022/23

Subject: 28633 - Technical Projects I

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

Degree: 422 - Bachelor's Degree in Building Engineering

ECTS: 6.0

Year: 4

Semester: First 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:

The specific objectives of the course are:

- ? Ability to develop projects
- ? Ability to understand the regulatory framework
- ? Learning about the different methods of presenting projects
- ? Ability to interpret a project
- ? Learning about the role and responsibilities of the designer
- ? Learning about the techniques and tools for writing a demolition project

These approaches and objectives are in line with the following Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda (<https://www.un.org/sustainabledevelopment/es/>), in such a way that the acquisition of the course learning outcomes provides training and competence to contribute to their achievement to some degree.

- (3) Good Health and Well-being.
- (4) Quality Education.
- (6) Clean Water and Sanitation.
- (7) Affordable and Clean Energy.
- (9) Industry, Innovation and Infrastructure.
- (11) Sustainable Cities and Communities.
- (12) Responsible Consumption and Production.
- (13) Climate Action.

1.2. Context and importance of this course in the degree

The course is programmed in the 4th year of the Degree in Technical Architecture. Therefore, students have the sufficient knowledge to take the subject without particular difficulties, other than those of the course, itself.

After the completion of this course, along with the subject of Projects II, students must be able to deal with any type of projects in the field of construction, whatever their nature and circumstances are.

1.3. Recommendations to take this course

There are no previous knowledge requirements, other than those scheduled by the education council for the access to a University degree in Building Engineering.

It is recommended to have passed all the courses of the Area of Technical Drawing and Projects, studied previously in the Degree: Technical Drawing applied to Building, Descriptive Geometry and Graphic Expression of Constructive Technologies. Also, it is recommended to have passed the courses of Building I, II and III and, finally, the courses on Structures and Installations.

2. Learning goals

2.1. Competences

Upon passing the subject, the student will be more competent to ...

Apply the advanced tools necessary for the resolution of the parts involved in the technical project and its management. They will have the ability to make technical projects of works and constructions that do not require an architectural project, as well as interior design and decoration projects. They will be able to technically analyze, review and control the graphic documentation and other Project documents.

Likewise, they will be able to write documents that are part of multidisciplinary implementation projects. Ability to analyze execution projects and their transfer to the execution of works. Aptitude for the integral management and optimization of building projects and ability to diagnose technical and legal defects in building projects, suggest solutions to avoid or correct them and analyze, check, control, review, audit and verify advanced regulatory and technical aspects of the project .

The student will have knowledge of the roles and responsibilities of the agents involved in the building and of their professional or business organization. Administrative procedures, management and processing and professional organization and basic procedures in the fields of building and development.

2.2. Learning goals

The student, to pass this subject, must demonstrate the following outcomes ...

The competences of the degree that the course contributes to achieve, as well as the learning outcomes are the following:

Generic Competences:

- G01. Organizational and planning skills
- G02. Ability to solve problems
- G03. Ability to make decisions
- G04. Aptitude for oral and written communication in the native language
- G05. Ability for analysis and synthesis
- G06. Ability to manage information
- G07. Ability to work in a team
- G08. Ability for critical thinking
- G09. Ability to work in an interdisciplinary team
- G10. Ability to work in an international context
- G11. Improvisation and adaptation ability to face new situations
- G12. Leadership aptitude
- G13. Positive social attitude towards social and technological innovations
- G14. Ability to think, discuss and present your own ideas
- G15. Ability to communicate through speech and image
- G16. Ability to search, analyze and select information
- G17. Ability for independent learning.
- G18. Possessing and understanding knowledge in an area of study that starts at the base of general secondary education, and is usually found at a level that, although supported by advanced textbooks, also includes some aspects that involve knowledge from the avant-garde from their field of study.
- G19. Apply their knowledge to their work or vocation in a professional way and possess the competencies that are usually shown through the production and defense of arguments and problem solving within their area of study.
- G20. Ability to collect and interpret relevant data (usually within their area of study) to make judgments that include thinking about relevant issues of a social, scientific or ethical nature.
- G21. Transmit information, ideas, problems and solutions to a specialized and non-specialized audience.
- G22. Develop those learning skills necessary to undertake further studies with a high degree of autonomy.

Specific Competences:

CE27. Aptitude for the development of market studies, valuations and appraisals, real estate feasibility studies, expert appraisal and economic appraisal of risks and damages in the building.

CE28. Ability to produce technical projects of works and constructions, which do not require an architectural project, as well as demolition and decoration projects.

CE29. Ability to write documents that are part of multidisciplinary execution projects.

CE30. Ability to analyze execution projects and their transfer to the execution of works.

CE31. Knowledge of the roles and responsibilities of the agents involved in the building and of their professional or business organization. Administrative, management and processing procedures.

CE32. Knowledge of professional organization and basic procedures in the field of building and promotion.

2.3. Importance of learning goals

In the design of the Degree as a whole, the courses of Projects I and II are taken in the last year of the degree. Both aim to ensure that students are able to face any type of project in the field of construction, having sufficient tools and the necessary knowledge to come up with any technical solutions, in a reasoned, justified, and coherent manner, in parameters of equity, constructive logics, saving of material, human and economic resources, as well as sustainability and energy and consumption saving.

These courses are the at the base of the correct Production of the Final Degree Projects.

The correct choice of the essays and practice tasks to develop in both courses as well as an adequate work that leads to obtaining final results.

3. Assessment (1st and 2nd call)

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

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

At the beginning of the course the student will choose one of the following two assessment methodologies:

- Class Attendance: With a compulsory attendance of more than 85% of the total learning process hours.
- Class Non-attendance: With less than 85% of attendance hours

The development of the course is mainly practical, preparing the students for a hypothetical real situation of professional activity. In the course of the learning process, a complete technical project is developed and defined, which will be carried out with the theoretical explanations simultaneously. Each one of the parts, units and sections to be developed are checked in workshop-type classes and are continuously evaluated.

The final assessment will include the entire project, with the different parts, and with the improvements that have been made throughout the course.

Those who cannot attend the course regularly are given the chance to follow it through the MOODLE platform, and carry out the work and the project independently, with the help of tutorials.

The assessment of the project accounts for 70% of the grade.

Class participation accounts for 10% of the grade.

A theoretical test of the Techniques of Demolition and Management of RCDs will be carried out, accounting for 20% of the final grade.

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, tutorials, and autonomous work and study.

The approach, methodology and assessment of this guide are intended to be the same for any teaching scenarios. They will be adapted to the social-health situation at any particular time, as well as to the instructions given by the authorities concerned.

4.2. Learning tasks

This course is organized as follows:

- **Theory sessions**, where teachers explain and implement the contents of the course, which coincide with the contents of various projects and building work.
- **Practice sessions**, theory will be put into practice with specific cases building projects. These sessions have a double typology:
 - **Workshops**: development of the work done. Working individually or in groups according to the practice. Monitoring and supervision of the work by teachers.

- **Exhibitions and debates:** Explanation of the work performed, arguing solutions and establishing a debate and dialogue among students. Of the topics presented, each student must be able to recognize those sections that apply in the various practical cases of a specific project. Each project has specific specifications. It is proposed to develop, in parallel to the theory, a prototype of a project, and go working and completing all documentation necessary for each case, knowing how to discern those contents that are applicable in each case, finding the optimal solution, justifying them.

4.3. Syllabus

This course will address the following topics:

1. DOCUMENTATION THAT A PROJECT MUST CONTAIN:

1. LITERAL DOCUMENTATION:

1. REPORT
2. TERMS AND CONDITIONS SPECIFICATION
3. MEASUREMENTS
4. BUDGET
5. WASTE MANAGEMENT
6. HEALTH AND SAFETY

2. GRAPHIC DOCUMENTATION AND DRAWINGS:

1. SITUATION, LOCATION, URBANIZATION
2. LAYOUT AND FOUNDATIONS
3. DISTRIBUTION FLOORS AND LEVELS
4. ELEVATIONS AND SECTIONS
5. CONSTRUCTIVE DETAILS
6. CARPENTRY, LOCKSMITHERY, OTHERS
7. STRUCTURE DRAWINGS
8. INSTALLATION DRAWINGS
9. JUSTIFICATION OF THE LEGISLATION
10. SAFETY STUDY DRAWINGS

2. RUIN CONCEPT AND STATE OF RUIN (Regulations)

THE DEMOLITION PROCESS

1. PREVIOUS WORKS

1. Preliminary Inspection
2. Drafting of the Demolition Project
3. Preliminary Works on Site

2. DEMOLITION EXECUTION

1. Manual demolition
2. Mechanical Demolition

3. PARTIAL DEMOLITIONS AND SPECIAL ELEMENTS

4. SAFETY IN THE DEMOLITION PROCESS

1. HAZARDS
2. EQUIPMENT AND PROTECTION SYSTEMS
3. REGULATIONS IN THE DEMOLITION PROCESS

5. PIT-PROPPING AND PROPPING

6. FACADE STABILIZATION

7. DEMOLITION WITH EXPLOSIVES

8. DEMOLITION OF REINFORCED CONCRETE ELEMENTS

1. EXPANSIVE MORTARS
2. GAS EXPANSION
3. ABRASION TECHNIQUES
4. MERGING TECHNIQUES

9. HAZARDOUS MATERIALS AND WASTE IN DEMOLITIONS

1. LEAD PAINTS
2. FLAMMABLE GASES
3. LEAD

10. ASBESTOS

1. DEFINITION
2. USE
3. HEALTH HAZARDS
4. PROCEDURES FOR ASBESTOS REMOVAL
5. LEGISLATION AND REGULATIONS

11. WASTE MANAGEMENT

1. LEGISLATION
2. TERMINOLOGY
3. THE STUDY OF WASTE MANAGEMENT

4.4. Course planning and calendar

Classroom sessions Calendar and presentation of assignments

The development plan of the course is explained below

Weeks	Classroom Theory Sessions	Project Development
1	COURSE PRESENTATION PROJECT DOCUMENTS	Presentation of the Project to be developed
2	RUIN CONCEPT AND STATE OF RUIN	Background Search
3	THE DEMOLITION PROCESS	On-site Building Measurement. Sketch Drafting.
4	PARTIAL DEMOLITIONS AND SPECIAL ELEMENTS	Location Plan Drafting. Situation and Urban Services.
5	SAFETY IN THE DEMOLITION PROCESS	Layout Floor Plan Drafting
6	PIT-PROPPING AND PROPPING	Level Floor Plan Drafting
7	FACADE STABILIZATION	Structure Analysis and Structure Plans Drafting
8	DEMOLITION WITH EXPLOSIVES	Elevation and Section Plan Drafting
9	DEMOLITION OF REINFORCED CONCRETE ELEMENTS	Analysis of the building from the plans made and determination of the procedure chosen for the demolition

10	HAZARDOUS MATERIALS AND WASTE IN DEMOLITIONS	Drawing up of Illustrative Plans of the Demolition Process.
11	ASBESTOS	Presentation and correction Report and Specification
12	WASTE MANAGEMENT	Presentation and correction Waste Management.
13	PARTIAL ASSESSMENT TEST	Presentation and correction Measurements and budgets
14	FINAL PRESENTATIONS	Final Presentations
15	FINAL PRESENTATIONS	Final Presentations and submission

The presentation of works will be announced to the students either during the development of the classroom activities, on the EUPLA website, or via the Moodle platform: <http://moodle.unizar.es>.

The learning follow-up will be carried out in the Continuous Assessment mode, so the activities and dates will be announced as the course develops, with enough time in advance.

1. Start of the course: Presentation of the course and its development
2. End of classes: End of continuous assessment and submission of all assignments, practices, or other assessment tests
3. Official Call:
 1. Remedial of those parts failed or opportunity of upgrading the marks
 2. Course Final Exam Date

These dates will not be known until the start of the course and the final approval of the official calendar.

4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=28633>