

Academic Year/course: 2022/23

## 28749 - Undergraduate Dissertation

### Syllabus Information

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**Academic Year:** 2022/23

**Subject:** 28749 - Undergraduate Dissertation

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

**Degree:** 423 - Bachelor's Degree in Civil Engineering

**ECTS:** 12.0

**Year:** 4

**Semester:** Second semester

**Subject Type:** End of Grade Dissertation

**Module:**

## 1. General information

### 1.1. Aims of the course

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

The TFG is carried out during the last year of the degree and is an essential requirement to obtain the Graduate Degree in Civil Engineering. With the completion of the TFG the student puts in value the knowledge acquired during the teaching phase of the degree, in addition to expressing in a practical way the competences and skills that have been obtained in previous courses, being able to define all this as the main objectives of the TFG.

In general, the TFG must train for the search, management, organization and interpretation of relevant data in its area of study, to make judgments that include reflection on relevant issues of a social, scientific, technological or ethical nature, and to facilitate the development of critical, logical and creative thinking and judgment.

With the completion of the TFG, the student takes one last step in their incorporation into the world of work or higher studies. For this, the student will have the support of a tutor or director teacher who will guide and guide him throughout his development. The student must demonstrate with an original work that he is able to tackle a complex subject in a rigorous and synthetic way.

The student will individually carry out design work, research, etc. related to any of the subjects studied throughout the degree, at the proposal of the same, and prior approval by the coordination of the degree.

Once completed and deposited, the TFG will have to be presented and defended in public exhibition before a university court. The student will have time to make a presentation with the support means they consider appropriate. They must present the objectives, methodology, results, content and conclusions of their TFG, answering questions, clarifications, comments and suggestions that the members of the Tribunal may ask.

Internships in companies will be encouraged and facilitated so that students can take the corresponding TFG in a professional setting. By professional field is understood laboratory, company or institution of the field of specialization of the degree, being able therefore, to have a research, professional, technological orientation, etc.

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: Objective 4: Quality education; Objective 5: Gender equality.

### 1.2. Context and importance of this course in the degree

The TFG is part of the Degree in Civil Engineering taught by the EUPLA, framed within the Subject and Module called End of Degree Work. It is a fourth-year subject located in the eighth semester and is compulsory, with a teaching load of 12 ECTS credits.

It is important to note that the TFG is related to the specific technologies of the Degree in Civil Engineering, so it will never be validated with TFG obtained in other mentions.

This subject implies a very important impact in the acquisition of the competences of the degree, in addition to providing useful and specific training in the performance of the functions of the Civil Engineer.

The need for the subject within the study plan of this degree is essential, since it is the last one to obtain the Graduate Degree in Civil Engineering.

### 1.3. Recommendations to take this course

The development of the Final Degree Project (TFG) brings into play knowledge and strategies from subjects related to the different areas common to all areas of Civil Engineering (Numerical methods, Structures, Geotechnics, Hydraulic Engineering and Hydrology, etc.), and, in particular with the specific areas of the Civil Construction Mention (Foundations, Engineering of prefabricated elements, Building Engineering, Maritime and Coastal Engineering, Construction of Transport infrastructure, etc.).

In relation to the above, in all the courses of the degree and in advance, subjects related to these subjects are taken, providing the basic knowledge to be able to carry out this work without any type of restriction.

To complete the Final Degree Project, it is an essential requirement to have passed all the subjects of the degree, as well as the fulfillment of the requirements established in the regulations for Final Degree Projects of the University of Zaragoza, and of the Polytechnic University School de la Almunia (EUPLA): <https://eupla.unizar.es/asuntos-academicos/trabajo-fin-de-grado>

## 2. Learning goals

### 2.1. Competences

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

As stated in the compulsory competence E11 of the EUPLA Civil Engineering Degree Report, the main competence of this subject is related to the ability to individually carry out, present and defend an original work consisting of: a project in the field of specific Civil Engineering technologies of a professional nature in which the skills acquired in the teaching are synthesized and integrated.

In addition, as generic competences the student will acquire:

- E11. Original exercise to be carried out individually and presented and defended before a university court, consisting of a project in the field of specific technologies of Civil engineering of a professional nature in which the skills acquired in the teaching are synthesized and integrated
- G02. Capacity to solve problems.
- G03. Ability to make decisions.
- G04. Aptitude for oral and written communication of the native language
- G05. Capacity for analysis and synthesis
- G06. Ability to manage information
- G08. Capacity for critical reasoning
- G09. Ability to work in an interdisciplinary team
- G10. Ability to work in an international context
- G13. Positive social attitude towards social and technological innovations
- G16. Ability to search, analyze and select information
- G17. Capacity for independent learning.
- G19. Apply their knowledge to their job or vocation in a professional way and possess the competencies that are usually demonstrated through the elaboration 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 reflection on 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.
- G23. Know and understand respect for fundamental rights, equal opportunities between women and men, universal accessibility for people with disabilities, and respect for the values of the culture of peace and democratic values.
- G24. Promote entrepreneurship.
- G25. Knowledge in information and communication technologies.

### 2.2. Learning goals

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

Being able to carry out, under their own responsibility and individually, and under the direction of one or more teachers, the development of a job, consisting of an exercise in integrating the training content received and the skills acquired, as well as complexity and scope in such a way that it is possible to prove that their work capacity is at the level required of a professional capable of integrating into the labor market.

Carry out the presentation and defense in public, before a university court of the work done.

### 2.3. Importance of learning goals

This subject has a marked engineering character, that is, it offers training with application content and immediate development in the labor and professional market.

## 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

The evaluation activity will measure the acquisition of the subject's competences through the learning outcomes defined above.

The TFG will be evaluated based exclusively on the intrinsic quality of the work carried out, regardless of its modality of execution, its duration, or the place of execution (university, company, etc.).

After the defense of the TFG, the court will meet to evaluate and decide the grade to assign to the student, based on the documentation provided, the novelty of the subject, the presentation and defense made.

The delivery and defense dates will be the official dates published in:

<https://eupla.unizar.es/asuntos-academicos/trabajo-fin-de-grado/fechas-de-propuestas-deposito-y-defensa-de-tfg>

## 4. Methodology, learning tasks, syllabus and resources

### 4.1. Methodological overview

The learning process that has been designed for this subject is based on the following:

In a strong tutor or director / student interaction. This interaction is materialized through a distribution of work and responsibilities between students and teachers. However, it will have to be taken into account that to a certain extent the students will be able to set their learning rhythm according to their needs and availability, following the guidelines set by the tutor to the director.

The subject of TFG will have a permanent follow-up through the virtual classroom of moodle, platform through which the students will make the deliveries of the different milestones that make up the TFG, the directors will make the observations, recommendations and qualifications of the different works as well as it will be a place of exchange of opinions between students and teachers.

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

**The program offered to the student to help him achieve the expected results includes the following activities ...**

**The following activities will be available:**

- **Face-to-face activities:** There is no regulated teaching as such.
- **Autonomous directed activities:** These activities will be directed by the tutor or director of work, as well as the writing of the same will be carried out under the supervision of said tutor or director.
- **Non-face-to-face activities:** They may be face-to-face and / or virtual, being able to be carried out both with the tutor or director and with each of the specialist teachers of the different subjects.

The course consists of 12 ECTS credits, which represents 300 hours of student work in the course during the semester, that is, 20 hours per week for 15 school weeks.

### 4.3. Syllabus

It does not have a specific program

### 4.4. Course planning and calendar

Calendar of face-to-face sessions and presentation of works

It will be marked by the tutor or director of the TFG, with a personalized character, depending on the evolution of the work itself, appropriate in any case to the dates of the calls that are set in each academic year.

The dates of the calls will be those officially published at

<https://eupla.unizar.es/asuntos-academicos/acceso-y-matricula/plazos-de-matricula>

#### **Contents**

Contents of the subjects essential to obtain the learning results

The content of the TFG will depend on its type

The documents necessary for the drafting of any TFG as a technical project are:

#### **IMPLEMENTATION PROJECT:**

- a. Memory and its Annexes.
  - b. Specifications.
  - c. Measurements and budgets.
  - d. Blueprints
- and. Work planning.

#### **HEALTH AND SAFETY STUDY:**

- a. Memory and its Annexes.
- b. Specifications.
- c. Measurements and budgets.
- d. Blueprints

In the case of an experimental or research TFG, the structure will be as follows:

- a. Foreword
- b. Introduction
- c. State of the art
- d. Materials and methods
- e. Results
- F. Drawings (if applicable)
- g. Conclusions
- h. Bibliography

#### **Means**

materials

The student will have at his disposal a series of templates and support material for the preparation of the works that comprise it, as well as for completing the requirements for presentation and defense. This material will be hosted on the Moodle platform of this classroom and at the address: <https://eupla.unizar.es/asuntos-academicos/trabajo-fin-de-grado>

Given the research or professional development and / or innovative nature of the TFG, there are no actual face-to-face sessions. However, the tutor or director will have at the student's disposal a schedule of tutorials to solve any type of "problem" that arises when preparing said work.

On the other hand, the maximum deadlines for the completion of the TFG included in the Permanence Regulations and in the Evaluation Regulations of the University of Zaragoza, and the deadlines and dates established for the deposit and defense of End of Work must be taken into account. EUPLA degree, officially published in:

<https://eupla.unizar.es/asuntos-academicos/acceso-y-matricula/plazos-de-matricula>

#### **4.5. Bibliography and recommended resources**

There is no bibliography associated with this subject.