

## 28744 - Projects

### Syllabus Information

**Academic year:** 2023/24

**Subject:** 28744 - Projects

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

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

**ECTS:** 6.0

**Year:** 4

**Semester:** First semester

**Subject type:** Compulsory

**Module:**

### 1. General information

The subject *Projects* brings students closer to the knowledge that enables them to write the documentation required by any construction project within the field of civil engineering. The subject identifies and applies the legal aspects of the Law of Public Sector Contracts and other sectorial legislations that condition the form and content that this type of projects must have, as well as the obligations and responsibilities of the engineering services companies that bid for these works, as well as of the project technicians that develop the projects.

This theoretical knowledge is applied in practice through the drafting of the documents that make up a project: report with its annexes, plans, technical specifications, measurements and budget. As is specifically dealt with in other subjects of the degree, neither the Health and Safety Study nor the Environmental Impact Studies are included.

It also deals with Technical Reports, showing the different types and nuances that differentiate them, from the most theoretical aspects to the practice with the drafting of some examples, this being one of the facets most performed by the one of the facets most performed by engineering professionals.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 ( from <https://www.un.org/sustainabledevelopment/es/>), such that the acquisition of the learning results of the subject provides training and competence to contribute to some extent to their achievement:

- Goal 4: Quality Education.
- Goal 5: Gender Equality.
- Goal 9: Industry, innovation and infrastructure;

### 2. Learning results

- To know the general aspects of engineering projects
- To know the general aspects of the law on public sector contracts and other sectorial laws governing the contents of projects.
- To know the particularities of service contracts in the public sector and their application to the public tender of project drafting.
- To know the differentiation between the different types of studies developed in civil engineering
- Objectivize the decision between different alternatives to choose the best of the options
- Theoretical knowledge of the documentation required for a project
- Draw up civil engineering plans, applying the formal aspects to be applied, and differentiating according to their typology.
- To know the structure and content of the Technical Specifications of a project
- Define work units within a project based on the work to be carried out
- Obtain skills in the breakdown of the work units, calculating prices and yields of labor, machinery and materials needed in order to obtain their valuation
- Take measurements of the work units contemplated in the project
- To know the particularities for the preparation of price tables
- Obtain the budget broken down by chapters and the general budget of a project
- To become familiar with the contents of a report and its various annexes
- Knowing the different types of technical reports, practicing in their drafting

### 3. Syllabus

#### TOPIC 1. GENERAL ASPECTS OF THE ENGINEERING PROJECT

1.1. Civil works as an instrument of society

1.2. Conditions to be met by civil works

- 1.3. The conception of civil works and their materialization: types of studies according to the Road Law and the Railway Law.
- 1.4. Concept and definition of project
- 1.5. The life of the civil work and its implications during its conception and design
- 1.6. Basic elements to consider in a civil works project
- 1.7. Law on compulsory expropriation

## TOPIC 2. THE PROJECT DEVELOPMENT CONTRACT IN THE PUBLIC SECTOR

- 2.1. Legislation on public sector contracting
- 2.2. Process / sequence of bidding and awarding of contracts
- 2.3. Project development as a type of contract
- 2.4. Ability to contract for the development of a project
- 2.5. Preparatory actions for the works contract
- 2.6. Awarding of project development contracts
- 2.7. Special rules for service contracts

## TOPIC 3. PREVIOUS STUDIES: FEASIBILITY STUDIES

- 3.1. Introduction
- 3.2. Objectives of feasibility studies
- 3.3. General methodologies
- 3.4. Decision support tools
- 3.5. Multi-criteria decision models. General aspects
- 3.6. Weighted average method
- 3.7. PRESS Method
- 3.8. Other multi-criteria methods

## TOPIC 4. STANDARDIZATION OF PROJECT DOCUMENTS

- 4.1. Introduction
- 4.2. Basic concepts of standardization
- 4.3. Process of elaboration of a UNE standard
- 4.4. Nature and purpose of the collegiate visa
- 4.5. Origin and rationale for the 157000 series family of standards
- 4.6. The AEN / CTN 157 "Projects" Committee
- 4.7. The UNE 157001 standard
- 4.8. The family of standards derived from UNE 157001
- 4.9. Conclusions

## TOPIC 5. PLANS

- 5.1. Introduction
- 5.2. Design generation
- 5.3. Formal expression
- 5.4. Delineation
- 5.5. General content
- 5.6. Specific content by type of plans

## TOPIC 6. TECHNICAL SPECIFICATIONS

- 6.1. Introduction
- 6.2. Subject specifications
- 6.3. Structuring of the specifications
- 6.4. Scope of the specifications
- 6.5. Regulations
- 6.6. Description of the work
- 6.7. Materials

- 6.8. Installations and equipment
- 6.9. Execution of the work
- 6.10. Quality control
- 6.11. Measurement and valuation
- 6.12. Other requirements
- 6.13. Special conditions of the work

#### TOPIC 7. MEASUREMENTS, VALUATION AND BUDGET

- 7.1. Introduction
- 7.2. Work units
- 7.3. Measurements
- 7.4. Price calculation
- 7.5. Price lists
- 7.6. Budget

#### TOPIC 8. MEMORY AND ANNEXES

- 8.1. Project documents and their interrelation
- 8.2. Document number 1 of the project
- 8.3. Memory
- 8.4. The annexes
- 8.5. Some case studies
- 8.6. Final considerations

#### TOPIC 9. THE QUALITY PLAN IN A PROJECT

- 9.1. Quality concept
- 9.2. ISO 9000 Standard
- 9.3. Quality assurance plan for a construction site
- 9.4. Project quality plan
- 9.5. Final considerations

#### TOPIC 10. TECHNICAL REPORTS

- 10.1. Preliminary considerations
- 10.2. Types of reports
- 10.3. Regulations
- 10.4. Contents

### 4. Academic activities

Theory lectures: 15 hours

Sessions in which the contents of the subject will be explained

Practice lectures: 5 hours

Sessions on how to deal with the development of practical tasks

**Tutored internships:** 30 hours

Elaboration of the different practices with resolution of doubts in class and help in the use of computer tools.

**Teaching assignments.** 55 hours

Preparation of different theoretical and practical contents of the course to be presented in class

**Personal study:** 35 hours

Assessment tests. 10 hours

Evaluation tests and exposition and defense of contents elaborated by the students, both theoretical and practical.

### 5. Assessment system

#### CONTINUOUS ASSESSMENT

**Written evaluation tests.** 35% of the final grade

There will be written tests with a theoretical approach, being evaluable all the contents exposed in class until the moment of the test in class up to the moment the test is taken.

**Practical work.** 65% of the final grade

The completion of a series of papers will be evaluated, being valued both the contents and its presentation and defense in class. The percentages with respect to the grade for this practical section are as follows:

WORK TO BE DEVELOPED	contents	defense %
Drafting of the Report and its Annexes	10	10
Preparation of Plans	10	10
PPTP and PCA analysis	10	10
Preparation of Measurements and Quotation and price justification	10	10
Writing a Technical Report	10	10

The work that is not delivered in the formats established in each practice, will be penalized with a 10% reduction of the grade initially obtained.

The delivery of the work after the established date will result in a reduction of the grade obtained by the student:

25% if delivered within 24 hours after the established date

35% if delivered within 48 hours of the established date

50% if delivered within 72 hours of the established delivery date

Deliveries will not be accepted more than 96 hours after the established date

In order to pass the subject through this assessment system, a minimum grade of 3.5 points must be obtained in each of the sections, being this grade also the minimum required to be able to compensate and calculate the average.

#### **OFFICIAL CALL. GLOBAL ASSESSMENT**

**Written evaluation tests.** 35% of the final grade

Written test with a theoretical approach, being evaluable all the topics of the subject.

**Practical work.** 65% of the final grade

The completion of a series of papers will be evaluated, both in terms of content and the presentation and defense of the work presented.

It must be taken into account that the delivery date for all the practical assignments must be at least 7 calendar days before the day of the official call.

The defense of these works will be carried out as a priority on the same day of the official call of the subject, if this is not possible due to the high number of registrations, new dates will be agreed upon with the affected students, which must be close to the official call.

Failure to submit the work on the established date (7 days before the call), will result in a grade of NOT SUBMITTED in that call.

The work will count with the following percentages with respect to the grade of this practical section:

WORK TO BE DEVELOPED	contents	defense %
Drafting of the Report and its Annexes	10	10
Preparation of Planes	10	10
Preparation of Measurements and Budget and price justification.	10	10
Writing a Technical Report	10	10

In order to pass the subject through this assessment system, a minimum grade must be obtained in each of the following subjects the minimum grade required to be able to compensate and calculate the average is also 3.5 points.