

## 28615 - Installations I

### Syllabus Information

**Academic year:** 2023/24

**Subject:** 28615 - Installations I

**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

Goals:

Achieve that the student acquires knowledge about regulations, diagrams, layout, modeling, calculation and control of the building's fluid transport installations.

These approaches and goals are aligned with the following Sustainable Development Goals (SDGs) of the United Nations' Agenda 2030 [in](#) such a way that the acquisition of the learning results of the subject provides training and competence to contribute to some extent to their achievement:

- Goal 6.2. By 2030, achieve access to adequate and equitable sanitation and hygiene services for all and end open defecation, paying special attention to the needs of women and girls and people in vulnerable situations.

Goal 6.4. By 2030, significantly increase the efficient use of water resources in all sectors and ensure the sustainability of freshwater abstraction and supply to address water scarcity and significantly reduce the number of people suffering from water scarcity.

### 2. Learning results

At the end of the subject, the student will be able to apply the specific regulations on installations to the process of the building. Likewise, they will have the capacity to prepare manuals and maintenance plans and manage their implementation in the building, to constructively develop the building's installations, to control and plan their execution and to verify the service and reception tests, as well as their maintenance. They will also know how to conceive, design, define, detail and technically and technologically solve construction elements, processes and systems. In the same way, the student will have the capacity to analyze and carry out projects of evacuation of buildings.

### 3. Syllabus

Unit 1. **Cold water installations.**

1.1. Regulations.

1.2. Design.

1.3. Testing and execution.

1.4- Case studies:

- Design and calculation in single-family housing.
- Design and calculation of a complete installation in a residential building.
- Calculation of pressure group.

Unit 2. **Sanitary hot water installations.**

2.1- DHW production systems.

2.2- Regulations.

2.3- Case studies:

- Calculation of boilers for individual and collective installation.
- Calculation of piping and installation elements.

Unit 3. **Sanitation facilities.**

3.1- Regulations.

3.2- Design.

3.3- Testing and execution.

3.4- Case studies:

- Calculation of small drainage networks, downspouts, collectors, manholes, service connections and ventilation.

#### Unit 4. Heating installations.

4.1- Regulations

4.2- Heating systems and components.

4.3- Case studies:

- Introduction to CTE HE-1: Calculation of thermal envelope transmittances.
- Calculation of thermal loads.

#### Practical contents

A Revit model of a building will be provided and the student will be required to develop the following installations.

Practice 1. Cold water and DHW of a residential building.

Practice 2. Renovation of a residential building.

Practice 3. Calculation of thermal transmittances and loads.

#### 4. Academic activities

The learning process is based on the following:

- **Classroom classes:** the classes consist of solving practical cases of installations by the student.
- **Practical classes in a computer classroom:** They will be used to perform a complete case study of a building.
- **Individual tutoring:** may be face-to-face or virtual.

**The approach, methodology and assessment of this guide is designed to be the same in any teaching setting. They shall be adjusted to the socio-sanitary conditions of each moment, as well as to the indications given by the competent authorities**

#### 5. Assessment system

##### Continuous assessment

Compulsory attendance to at least 80% of the classroom activities (internships, technical visits, classes, etc.) The qualifying and mandatory activities will be:

**Written assessment tests:** there will be two individual tests. The final grade will be the arithmetic mean of the two tests, as long as there is no unit grade below 4 out of 10.

**Practices:** 4 practices. They will consist of a report, calculations and model of the installation. A deadline of will be established for each practice. The final grade will be the arithmetic average of the 4 practices, as long as there is not a unit grade below 4 out of 10.

**Making an oral presentation:** an oral presentation of one of the practices will be made.

In order to obtain the final passing grade, each of the activities presented must have a grade equal to 5 or higher

Assessment activity	Weighting
Written assessment tests	30 %
Practices - model	45 %
Practices - memory and calculations	20 %
Oral presentation of an practice	5 %

##### Global assessment.

Qualifying activities:

**Written assessment tests:** consists of the resolution of exercises of theoretical and/or practical application of similar characteristics to those solved during the conventional development of the subject, carried out during a period of three hours . It represents 30% of the final grade.

**Practices:** The student must deliver the reports, calculations and model one week before the global exam of assessment. It accounts for 70% of the final grade.

Assessment activity	Weighting
Written assessment tests	30 %
Practices - model	50 %
Practices - memory and calculations	20 %

The student will have passed the subject based on the sum of the scores obtained in the different activities, developed, contributing each one of them with a minimum of 50%.