

28610 - Installations: the Basics

Syllabus Information

Academic year: 2023/24

Subject: 28610 - Installations: the Basics

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

Degree: 422 - Bachelor's Degree in Building Engineering

ECTS: 6.0

Year: 2

Semester: First semester

Subject type: Basic Education

Module:

1. General information

Objectives: to achieve that the student acquires basic and practical knowledge about the calculation of the different facilities of fluid transport, electromechanical installations, electrical installations, thermodynamics and acoustics that are integrated in the building building.

These approaches and goals are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), specifically, the learning activities planned in this subject will contribute to the achievement of objective 4.4 of Goal 4.

This subject is previous to the subjects of Installations I and Installations II, where the competences necessary for the student to be able to plan and design the installations of a residential building are established. In addition, does not have any normative prerequisite, although its development requires knowledge of Mathematics I and Mathematics II.

2. Learning results

1. Knowledge of the theoretical foundations and basic principles applied to building installations, fluid mechanics, hydraulics, electricity and electromagnetism, calorimetry and hygrometry and acoustics.
2. Ability to dimension, calculate and apply simple building installation systems.

3. Syllabus

1 THEORETICAL CONTENTS

Didactic unit 1: Basic concepts of thermodynamics. First principle of thermodynamics for closed systems.

Thermodynamic properties of pure substances. Second Law of Thermodynamics. Applications of Thermodynamics.

Didactic unit 2: Fluid statics. Fluid dynamics.

Didactic unit 3: Electric field. Magnetic field. Electromagnetic induction.

2 PRACTICAL CONTENTS

Some of the topics presented in the previous section are associated with related practices, either through practical assumptions, interpretation and commentary of readings associated with the subject matter and/or work leading to the obtaining of results and their analysis and interpretation. As the topics are developed, these practices will be presented, either in class or through the Moodle platform.

4. Academic activities

The written assessment tests will be related to the following topics:

Test 1. Didactic unit 1, approximately week 6.

Test 2. Didactic unit 2, approximately week 10.

Test 3. Didactic unit 3, approximately week 15.

Generic face-to-face activities:

Theoretical and practical classes: The theoretical concepts of the subject will be explained, practical examples will be developed and will solve problems as a support to the theory.

Generic non face-to-face activities:

- Study and assimilation of the theory presented in the lectures.
- Resolution of proposed problems, etc.
- Preparation of written tests and final exams.

5. Assessment system

1. Split assessment system.

- Exercises, theoretical questions and proposed works (20%):

Exercises, problems, practical cases, theoretical questions, etc. will be proposed to be solved individually. In order for this grade to be taken into account, the work must be handed in on the due dates and all seminars must be attended.

All the activities will contribute in the same proportion to the total grade of the block, being valued from 0 to 10 points.

- Written assessment tests (80%): There will be a total number of three, spread over the entire semester, with a duration of two hours. The final grade for this activity will be given by the arithmetic mean of these tests, always and when there is no unit grade lower than 3 points, in which case the activity will be failed. The three tests will consist of two applied theory questions each of which will contribute 10% of the grade and three problems which will contribute 80% of the grade.

2. Global final assessment.

- Exercises, theoretical questions and proposed works (20%): they may be carried out in the split assessment.
- Written exam (80%): This test will contain exercises representative of the topics, as specified in the split assessment system.