

28960 - Building installations

Syllabus Information

Academic year: 2023/24

Subject: 28960 - Building installations

Faculty / School: 201 - Escuela Politécnica Superior

Degree: 583 - Degree in Rural and Agri-Food Engineering

ECTS: 5.0

Year: 4

Semester: Second semester

Subject type: Optional

Module:

1. General information

The main objective of the subject is for the student to be able to technically justify, in compliance with current regulations, the design and sizing of the following building installations: cold water supply and distribution, domestic hot water production and distribution, water drainage and sanitation, fire protection, emergency electrical installation.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), contributing to some extent to their achievement: Goal 6: Clean water and sanitation. Specifically with targets 6.3 and 6.4.

2. Learning results

- Describe and know the technology and materials used in the following building installations: cold water supply and distribution, sanitary hot water production and distribution, water evacuation and sanitation, fire protection, emergency electrical installation.
- To apply the regulations to be complied with in relation to the following building installations: cold water supply and distribution, domestic hot water production and distribution, water evacuation and sanitation of water, fire protection, emergency electrical installation.
- To technically justify, in compliance with current regulations, the design and sizing of the following installations in the building: cold water supply and distribution, sanitary hot water production and distribution, water evacuation and sanitation, fire protection, emergency electrical installation.

Learning results 2 and 3 are aligned with SDG 6, targets 6.3 and 6.4.

3. Syllabus

MODULE 1. Cold water supply and distribution

1. Basic regulations.
2. Components of the installation.
3. Calculation of the installation.

MODULE 2. Domestic hot water production and distribution

1. Basic regulations.
2. Components of the installation.
3. Calculation of the installation.

MODULE 3. Water evacuation and sanitation

1. Basic regulations.
2. Components of the installation.
3. Calculation of the installation.

MODULE 4. Fire protection installation

1. Basic regulations.
2. Components of the installation.
3. Calculation of the installation.

MODULE 5. Emergency electrical installation

1. Basic regulations.
2. Emergency lighting.
3. Generating sets.
4. Calculation of the installation.

4. Academic activities

Lectures: 20 h

Theoretical-practical sessions in which the contents of the subject will be explained.

Problems and cases: 30 h

Sessions of problems and cases in which the contents of the subject will be developed.

Personal study: 72,5 h

Assessment tests. 2,5 h

5. Assessment system

The assessment system will be continuous assessment.

The continuous assessment will consist of two types of tests:

1. Assignments (A1), 6 in total, with case studies that students must submit on a specific date through the platform Moodle:

- Task 1 (T1). Sizing of a cold water supply network.
- Task 2 (T2). Sizing of DHW generation system.
- Task 3 (T3). Design and sizing of a rainwater drainage network.
- Task 4 (T4). Calculation of the intrinsic fire risk level in an agro-industrial building.
- Task 5 (T5). Calculation of the fire resistance of the elements of a fire sector.
- Task 6 (T6). Determination of the fire extinguishing means required in an agro-industrial building.

This activity (A1) will be evaluated from 0 to 10 points (NA1) and will constitute 60% of the final grade of the course. Each individual assignment will be weighted equally to obtain the grade for activity A1. All assignments must be submitted for to be evaluated on an ongoing basis.

2. Short-answer or multiple-choice written test (A2). It will consist of short theoretical-practical questions or with multiple-choice questions. This activity will be evaluated from 0 to 10 points (NA2) and will constitute 40% of the final grade of the subject.

It is necessary to obtain at least a 3.0 out of 10 in this activity to pass the subject. The test will be conducted without any supporting documentation.

Calculation of the final grade:

The final grade (CF) out of 10 points, will be obtained by applying the following equation:

$$CF = [0.6 \times \text{Note A1}] + [0.4 \times \text{Note A2}]$$

In order to pass ($CF \geq 5.0$) it is essential that: a) all the assignments of the A1 activity have been handed in; and b) A2 grade $\geq 3,0$

In the event that the above requirements are not met, the final grade will be obtained as follows:

- If $CF \geq 4$, the final grade will be: Fail (4.0)
- If $CF < 4$, the final grade will be: Fail (CF)

Students who do not pass the continuous assessment must take the global evaluation test in any of the following exams convocatorias

Overall final test

Students who do not pass the continuous assessment must take the global evaluation test in any of the following exam calls.

1. Short-answer or multiple-choice written test. (A1) It will consist of theoretical-practical questions of short development or multiple-choice questions. This activity will be evaluated from 0 to 10 points and will constitute 40% of the final grade of the subject . It is necessary to obtain at least a 3.5 out of 10 in this activity to pass the subject. The test will be conducted without any supporting documentation.
2. Written test of problems. (A2) It will consist of the development of several problems related to the contents of the subject. This activity will be evaluated from 0 to 10 points and will constitute 60% of the final grade of the subject . It is necessary to obtain at least a 4.0 out of 10 in this activity to pass the subject. The test may be taken with supporting documentation (notes, books, etc.). Computers, cell phones and internet access are not allowed.

The final grade for the subject (CF) will be:

$$CF = 0.4 \text{ Note A1} + 0.6 \text{ Note A2}$$

In order to pass ($CF \geq 5$) it is essential that: $NA1 \geq 3,5$, $NA2 \geq 4,0$

In the event that the requirements of the previous section are not met, the final grade will be obtained as follows:

If $CF \geq 4$, the final grade will be: Fail (4.0)

If $CF < 4$, the final grade will be: Fail (CF)

In each session the student must take 100% of the subject (evaluation activities 1 and 2).

Assessment criteria for continuous and global assessment:

- The concision and accuracy of the answers.
- The correct use of units in magnitudes.
- The approach to problem solving.
- The accuracy of the numerical results, as well as the order, presentation and interpretation of the results.
- Clarity in diagrams, figures and graphic representations.
- Spelling mistakes.

Alignment with the SDGs

In relation to the SDGs and in particular to targets 6.3 and 6.4, tasks 1 and 3 of assessment activity 1 are directly related and also part of the test questions of assessment activity 2.

Success rates in previous years

The success rates for the last three years have been: 2019/20: 100%; 2020/21: 100%; 2021/22: 100