

IDENTIFICATION DETAILS

Degree:	Architecture			
Scope	Architecture, construction, building and urban planning, and civil engineering			
Faculty/School:	Higher Polytechnic School			
Course:	BUILDING TECHNOLOGY III			
Туре:	Compulsory	ECTS credits:		6
Year:	5	Code:		3751
Teaching period:	Ninth semester			
Subject:	Installations			
Module:	Technician			
Teaching type:	Classroom-based			
Language:	Spanish			
Total number of student study hours:	150			

SUBJECT DESCRIPTION

The general objectives of this course will be to acquire the basic concepts governing the facilities to be treated, apply them to buildings and develop a series of exercises in order to assimilate what has been learned

GOAL

The main objectives pursued in this course are:

- Understand the operation of each facility that services a building.
- Expose the architectural constraints resulting from the installation of the facilities.
- Relationship between each installation and energy savings.
- Carry out projects in which the student designs the necessary facilities.

PRIOR KNOWLEDGE

The student must have taken the subjects of Fundamental Mathematics, Applied Mathematics and Applied Physics

COURSE SYLLABUS

THEME I: AIR CONDITIONING AND VENTILATION

- 1. introduction
- 2. History of air conditioning
- 3. venting
- 4. Psychrometric diagram
- 5. Calculation of thermal loads
- 6. Air conditioning systems
- 7. Heat and cold production plant
- 8. Distribution network
- 9. Terminal units
- 9.1 Underfloor heating
- 9.2 Radiators
- 9.3 Fancoils
- 9.4 Inductors
- 9.5 Air conditioners ("all air" systems)
- 10. Choosing a system

EDUCATION ACTIVITIES

Teaching will be mainly taught through theoretical classes by the tenured teacher, complemented, when the subject so advises, with specialized talks by a specialist.

The exercises will take place in parallel to the theoretical classes. Individual and collective corrections will be made with the student's defense of the project, so as to encourage the public presentation of the work, and its discussion with the rest of the students.

As complementary activities, visits will be made to works in the execution phase.

DISTRIBUTION OF WORK TIME

TEACHER-LED TRAINING ACTIVITIES	INDIVIDUAL WORK
60 Horas	90 Horas

SKILLS

Basic Skills

Students must have demonstrated knowledge and understanding in an area of study that is founded on general

secondary education. Moreover, the area of study is typically at a level that includes certain aspects implying knowledge at the forefront of its field of study, albeit supported by advanced textbooks

Students must be able to apply their knowledge to their work or vocation in a professional manner and possess skills that can typically be demonstrated by coming up with and sustaining arguments and solving problems within their field of study.

Students must have the ability to gather and interpret relevant data (usually within their field of study) in order to make judgments that include reflections on pertinent social, scientific or ethical issues

Students must be able to convey information, ideas, problems and solutions to both an expert and non-expert audience

Students must have developed the learning skills needed to undertake further study with a high degree of independence

Capacity for analytical, synthetic, reflective, critical, theoretical and practical thought.

Capacity for oral and written expression.

Ability to solve problems and to take decisions.

Ability to apply procedures.

Capacity for interpersonal communication.

Capacity for ethical evaluation and commitment to ethical values.

An understanding of the problems involved in structural design, construction and engineering associated with building projects.

An adequate knowledge of the physical and various technological problems that may exist, and those pertaining to the function of buildings, with a view to providing them with internal conditions of comfort and of protection from adverse climatic factors.

An adequate knowledge of industries, organizations, regulations and procedures required in order to turn projects into buildings and to integrate blueprints into planning.

General Skills

Capacity for analytical, synthetic, reflective, critical, theoretical and practical thought.

Capacity for oral and written expression.

Ability to solve problems and to take decisions.

Ability to apply procedures.

Capacity for interpersonal communication.

Capacity for ethical evaluation and commitment to ethical values.

An understanding of the problems involved in structural design, construction and engineering associated with building projects.

An adequate knowledge of the physical and various technological problems that may exist, and those pertaining to the function of buildings, with a view to providing them with internal conditions of comfort and of protection from adverse climatic factors.

An adequate knowledge of industries, organizations, regulations and procedures required in order to turn projects into buildings and to integrate blueprints into planning.

Specific skills

Ability to: Conceive, calculate, design, integrate into buildings and urban complexes and execute water supply, treatment and evacuation facilities, heating and air conditioning. (T)

Ability to apply technical and construction standards.

Ability to maintain facilities.

LEARNING RESULTS

The student, after having completed installations III (air conditioning), will have the ability to solve a basic air conditioning project by calculating thermal loads, selecting the appropriate system for heating/cooling and dimensioning the different equipment

The student, after having completed installations III (air conditioning), will have the ability to interpret in a general way the Regulations for Thermal Installations in Buildings (RITE) as well as the Technical Building Code (CTE)

The student, after having completed installations III (air conditioning) you will be able to have an overview of the operation of the air conditioning system as well as its maintenance criteria

LEARNING APPRAISAL SYSTEM

Approved per course: continuous evaluation. The following requirements must be met:

- Class attendance: at least 80% of classes.

- Practical exercises: 60%. All exercises delivered promptly on the agreed date. The grade for each practice will be higher than 4, and the final average score of all exercises must be equal to or greater than 5.

- Theoretical exam: 40%. At least a score of 3.0 must be obtained.

- All practices with a score lower than 4.0 must be repeated. If it is not repeated and a grade higher than 4.0 is obtained, the student will not pass per course.

- If you submit any of the internships later than the agreed date, or have a class attendance of less than 80%, the exam will count 60% and the exercises 40%.

- Exercises delivered out of date will have a penalty of 2.5 points.

Ordinary call: same conditions as evaluation per course.

Extraordinary call: same conditions as evaluation per course.

Plagiarism, as well as the use of illegitimate means in evaluation tests, will be sanctioned in accordance with those established in the Evaluation Regulations and the University's Coexistence Regulations.

ETHICAL AND RESPONSIBLE USE OF ARTIFICIAL INTELLIGENCE

1.- The use of any Artificial Intelligence (AI) system or service shall be determined by the lecturer, and may only be used in the manner and under the conditions indicated by them. In all cases, its use must comply with the following principles:

a) The use of AI systems or services must be accompanied by critical reflection on the part of the student regarding their impact and/or limitations in the development of the assigned task or project.

b) The selection of AI systems or services must be justified, explaining their advantages over other tools or methods of obtaining information. The chosen model and the version of AI used must be described in as much detail as possible.

c) The student must appropriately cite the use of AI systems or services, specifying the parts of the work where they were used and describing the creative process followed. The use of citation formats and usage examples may be consulted on the Library website(<u>https://www.ufv.es/gestion-de-la-informacion_biblioteca/</u>).

d) The results obtained through AI systems or services must always be verified. As the author, the student is responsible for their work and for the legitimacy of the sources used.

2.- In all cases, the use of AI systems or services must always respect the principles of responsible and ethical use upheld by the university, as outlined in the <u>Guide for the Responsible Use of Artificial Intelligence in Studies at UFV</u>. Additionally, the lecturer may request other types of individual commitments from the student when deemed necessary.

3.- Without prejudice to the above, in cases of doubt regarding the ethical and responsible use of any AI system or service, the lecturer may require an oral presentation of any assignment or partial submission. This oral evaluation shall take precedence over any other form of assessment outlined in the Teaching Guide. In this oral defense, the student must demonstrate knowledge of the subject, justify their decisions, and explain the development of their work.

BIBLIOGRAPHY AND OTHER RESOURCES

Basic

ENRIQUE TORRELLA AIR CONDITIONING MANUAL AMV EDITIONS

Additional

LUIS JUTGLAR FERROLI HEATING MANUAL

Page 7