

Teaching guide

IDENTIFICATION DETAILS

Degree:	Architecture		
Scope	Architecture, construction, building and urban planning, and civil engineering		
Faculty/School:	Higher Polytechnic School		
Course:	CONSTRUCTION I		
Type:	Compulsory	ECTS credits:	6
Year:	2	Code:	3721
Teaching period:	Third semester		
Subject:	Construction		
Module:	Technician		
Teaching type:	Classroom-based		
Language:	Spanish		
Total number of student study hours:	150		

SUBJECT DESCRIPTION

CONSTRUCTION I is the subject in which the future architect is faced for the first time with the problems presented by the physical materialization of the architectural idea.

- With a basic and fundamental theoretical approach that the student must internalize, contact is made with the phases of rough work that are common to most of the works and is done according to a real space-time planning of the work: from the modification of the physical support to adapt to the design of the floor plan to the adaptation of the façade of the building to the intended use.
- In this technical subject, almost everything is usually new for the student, so the student, in addition to achieving certain theoretical knowledge, must know how to apply it to combine, in an efficient, logical and appropriate way, the different pieces of the constructive puzzle.
- Construction I is a first step that, when convincingly completed, provides a level of basic knowledge with which to

face the next, more project-based construction courses.

It is intended that the student:

- Have a first contact with different construction processes that appear during the course of a work, in a sequential and linked process.
- Learn the constructive fundamentals (why and how they work) of the basic construction elements of a building (the foundation; the structure; the slabs; the roofs; the enclosures...).
- Learn the basic construction properties of fundamental materials (stone; brick; concrete; steel...).
- Clearly distinguish what they are for, when and why some materials or others are used and the different construction elements that are made with them.
- Know, study, understand and be able to combine elements, solutions and basic construction processes.

GOAL

Know and understand the typological structure of the main elements in the heavy-duty construction of buildings: foundation, structure, facades and roofs and the relationship that exists between them.

PRIOR KNOWLEDGE

As this subject is the initial course of the Construction module, there is no prerequisite for having passed any previous subject. In any case, for the best learning of construction, it is appropriate to have a minimum capacity to make freehand drawings (sketches) with pencil or ink, to know the scales, to know how to use rules, squares and cards, and to make them compatible with the use of computer programs for the graphic representation of construction objects in plan, section and elevation.

COURSE SYLLABUS

1. The natural terrain
2. Containment elements
3. Surface and deep foundations
4. Vertical structural elements
5. Horizontal structural elements
6. Covers
7. Concrete and steel

Earthmoving, clearing and embankments, containment, drainage, waterproofing. Retaining walls, gravity walls, flexoresistant walls and screen walls. Surface and deep foundation elements, footings, slabs and piles. Structural concrete and factory walls. Reticular structures made of wood, steel and concrete. Unidirectional and reticular forgings, slabs. Ramps, ladders and elevator boxes. The cover. Types, design, materials and sealing resources. The sloped roof. Materials and general design. Geometry of the water supply. The flat cover. Section types:

ventilated, inverted and 'conventional'. The sheet metal cover. Types, materials and general sealing solutions.

EDUCATION ACTIVITIES

1. Presentation of contents and activities by the teacher, commentary on recommended readings with student participation in the debate and resolution of doubts about the topics proposed in class. 2. Resolution, individually or in groups, on the blackboard or at the table, of exercises proposed in class to apply the fundamental knowledge received. 3. Correction in groups of the projects that students carry out in the classroom or at home and clarify in the light of the exercises of their classmates and the instructions of the teacher 4. I work in small groups to deepen the fundamental teaching principles and stimulate coordination capacity among students. 5. Personalized tutoring: Individual attention to the student with the objective of reviewing and discussing the topics presented in class and clarifying questions that the student cannot understand in their personal study. Group tutoring: Attention to a small group of students who need additional help to follow the subject. 6. Carrying out knowledge assimilation checks by topic and throughout the course. Non-liberatory. 7. Group design and development of works. 8. Study of the theoretical and practical contents of the program and preparation of recommended readings.

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.

Ability to solve problems and to take decisions.

Ability to apply procedures.

General Skills

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

Ability to solve problems and to take decisions.

Ability to apply procedures.

Specific skills

Ability to apply technical and construction standards.

Knowledge of the safety and hygiene project on site.

LEARNING RESULTS

Know and be able to solve basic earthmoving problems

Know the usual earth containment systems and be able to use and combine them to solve simple or common cases

Know the usual types, be able to design simple foundation designs and correctly draw construction details

Know the basic types and be able to draw simple construction details of horizontal and vertical supporting structures made of concrete and steel.

Know the basic types and be able to draw simple construction details of roofs.

Know the most significant risks that arise during the execution of building works as well as the preventive measures of general application for the elimination or reduction and control of them.

LEARNING APPRAISAL SYSTEM

Construction I is proposed as a subject in which the student, given that he accesses it without previous constructive experience, must internalize both theoretical and practical knowledge. Therefore, to pass the subject, you must be able to demonstrate, equivalently, that you have acquired the fundamental and corresponding theoretical knowledge, and that these are known to be applied in a practical way. The student will demonstrate, with their willingness and attention in the classroom, their corrected exercises, their interest and general attitude towards their learning, if they are qualified in the competencies that they are expected to develop in this module. Continuous evaluation will be encouraged, giving weight to the final grade the way students interact with their classmates, their interest and attitude towards the subject (measurable in presence and participation in class) and the evolution during the course. During the course there will be no external internships, those proposed will be done in the classroom. During the course, one or two individual autonomous tests will be carried out, which will participate, at a percentage of 20% each, in the final grade. Failure to attend any of these tests results in a score of zero points (0). These tests are not content releases for the ordinary call exam. The final evaluation test will also be individual and depending on the number of tests taken during the course, your score will be 60% (if two tests have been taken) or 80% (if only one test has been taken) of the final grade in the ordinary call. In the qualification of the extraordinary call, no percentage of previous tests carried out will be applied. Any of these tests (intermediate or final) may include questions that the student must answer using simple sketches. The pass is achieved with a score of 5.00. The objective of reviewing the test score for the ordinary and extraordinary calls is to verify that there has not been an error in the sum of partial grades and therefore of the final grade; it is not a tutorial on the contents evaluated, nor does it serve to verify 'what has been failed'. It will take place on the day it is convened and requires the physical and individual presence of the student. First-time students are required to attend class. Only 20% of faults are allowed and these are not justifiable. Students who exceed this 20% of non-attendance lose the right to the exam in the ordinary call, and may be examined in the extraordinary call. Those students who, for good reason, and with the authorization of the degree director, are exempt from attending class, may be eligible for both ordinary and extraordinary calls. Mobile phones will always be kept safe and quiet or turned off during classes. The use of tablets or personal computers is also not allowed in them. Computers and other electronic equipment may only be used in cases where the teacher expressly allows it and for purposes related to learning the subject or prior reporting due to disability. Students who misuse their computer, tablet or mobile phone during class will be subject to the application of the disciplinary rules in force. In the same way, taking photographs and recording videos or audios during classes without the teacher's express consent is prohibited. Plagiarism, as well as the use of illegitimate means in evaluation tests, will be sanctioned in accordance with the university's Evaluation Regulations and 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(https://www.ufv.es/gestion-de-la-informacion_biblioteca/).
- 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 [Guide for the Responsible Use of Artificial Intelligence in Studies at UFV](#). 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

José Luis González and other Keys to Architectural Construction. Volume I Principles 2008

José Luis González and other Keys to Architectural Construction. Volumes II and III. Items 2008

Miscellaneous. Ed Munillalería Construction Treaty. 2002

Miscellaneous Systems. U.P. de Valencia Learning to Build Architecture 2008

Eduardo Torroja Institute of Construction and Construction Lexical Cement 2009

Additional

Miscellaneous. Construction Site Safety and Health Manual 2010

Ching, F. Visual Dictionary of Architecture 1997