

Academic Year/course: 2022/23

30702 - Architectural graphic expression 1

Syllabus Information

Academic Year: 2022/23

Subject: 30702 - Architectural graphic expression 1

Faculty / School: 110 - Escuela de Ingeniería y Arquitectura

Degree: 470 - Bachelor's Degree in Architecture Studies

ECTS: 6.0

Year: 1

Semester: First semester

Subject Type: Basic Education

Module:

1. General information

1.1. Aims of the course

The subject and its expected results respond to the following approaches and objectives:

Approach of the subject

The theoretical classes are taught on Mondays, divided into theoretical sessions (1 hour) and problems (1 hour) in which the teacher with the help of technical and computer media exposes the dihedral system, bounded representation and projective geometry, explaining the theoretical knowledge of the system, teaching the use of the tools to solve practical cases, such as the change of plane, the turn or the descent and also solve general practical cases. This theoretical session is complemented with the practical classes of proposed exercises, which are seen in class, in a personalized way and adapted to the level of learning shown at each moment by the student.

Objectives

To be able to:

- Develop and interpret adequately the integral graphic documentation of the execution projects of buildings and actions on the territory, in what refers to spatial configurations.
- Express yourself graphically in the representation systems that are universally used in the field of building and territorial actions.
- Learn to accurately represent two-dimensional projections, objects that have three.
- Deduce from the two-dimensional representation of objects, their forms, measurements and positions relative to space.
- Apply this knowledge to the representation of architectural forms.
- Develop the spatial vision-understanding capacity necessary for the architect's profession.
- Enable for the representation of the shapes, location, measurements and two-dimensional proportions of objects in space.
- Empower the proper interpretation of graphic documentation relating to an architectural project, in terms of plants, elevations and sections.

As a basic course, no Sustainable Development Goals related to the 2030 Agenda are specifically included. However, the contents of the course are essential to support the subsequent knowledge of the rest of the degree, which do relate more directly to the SDGs and the 2030 Agenda.

1.2. Context and importance of this course in the degree

Architectural Graphic Expression 1 is located in the context of the first year of the degree in architecture; it is a basic course, whose general contents are fully or partially shared with other technical studies (Engineering). The disciplinary object of the course, descriptive geometry, is in turn related to other courses of the degree in architecture such as: Mathematics, EGA 3, EGA 2, EGA 4. It contributes to the development of mental structuring for spatial vision and, through the representation systems, it constitutes the basis of the architectural graphic representation.

1.3. Recommendations to take this course

No specific recommendations are made, except to have the appropriate technical drawing equipment.

2. Learning goals

2.1. Competences

Attending to the card of the degree approved by ANECA the competences that the student must acquire in the subject are the following:

- Understand the relationships between people and buildings and between buildings and their surroundings, as well as the need to relate buildings and spaces located between them according to needs and the human scale.C.G.G.7.
- Combining generalist and specialized architectural knowledge to generate innovative and competitive proposals in the professional activity. C.T.2
- Communicate and transmit knowledge, skills and abilities. C.T.4
- Apply the graphic procedures for the representation of spaces and objects. EC. 1.OB.
- To know adequately and applied to architecture and urbanism spatial representation systems.C.E. 3.OB.
- Adequate knowledge and applied to architecture and urban planning of: Metric and projective geometry. C.E.5.OB.
- To know adequately and applied to the architecture and urbanism the techniques of graphic survey in all its phases, from the drawing of notes to the scientific restitution. EC. 6.OB.
- Adequate knowledge and applied to the architecture and urbanism of: The bases of topography, hypsometry and cartography and land modification techniques. EC. 9.O

2.2. Learning goals

The student, to overcome this subject, must demonstrate the following results:

- Describe and interpret the different systems of spatial representation: dihedral, conical, axonometric and bounded system.
- Apply the necessary methodology to solve projective geometry problems of two-dimensional representation.
- Analyze the resolution of roofs and terrains proposed in a limited system, such as intersections, meetings, clearings and embankments.
- Identify the nomenclature and simple elements used in the dihedral system: point, line and plane.
- Classify the types of operations to solve problems on perpendicularity, parallelism, intersections, turns, abatements and plane changes in the dihedral system.
- Demonstrate the spatial representation in the dihedral system, by solving the problems of intersections of complex figures and shadows, such as the one that throws one body on another.

2.3. Importance of learning goals

The importance lies in its contribution, as a basic training, to the abstract vision of architectural forms.

3. Assessment (1st and 2nd call)

3.1. Assessment tasks (description of tasks, marking system and assessment criteria)

The student must demonstrate that he has achieved the expected learning outcomes through the following assessment activities. Each student can choose to follow the continuous evaluation or the global evaluation.

Continuous evaluation:

The grade will be the average of the practices (10%-20% each one) and the partial exam (20%). It is mandatory to carry out all the practices and tests to maintain the continuous evaluation. A minimum score may be required in each of the parts.

- **Practices:** Practices related to the weekly agenda will be carried out. To be evaluated, they must be delivered on time, except for duly justified cause.
- **Partial exam:** An intermediate test will be held in order to assess the knowledge and skills acquired by the student so far.

Overall evaluation:

For those who have not followed the course, there is the possibility to take a final exam (100%).

The assessment contemplates the correct data input, the solution mechanisms adopted, the completion of the different parts requested, the precision in the drawing, the cleaning in the sheet and the lineweights used in the process.

Extraordinary evaluation:

The extraordinary evaluation will be a final exam (100%).

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures, problem-solving sessions, practice sessions, and tutorials.

4.2. Learning tasks

This course is organized as follows:

- **Lectures and Problem-solving:**
 - **Lectures:** In them the general contents are exposed. The elaborated syllabus is previously provided to the students through the Moodle platform and in reprography. It is recommended that students take their own notes, in addition to those provided by the teacher, to complete the teaching material.
 - **Problem-solving:** Practical exercises will be exposed that will be solved by the professor, where the concepts exposed in the lectures will be put into practice. They will be exercises that will allow the correct resolution of the exercises proposed in the practice sessions.
- **Practice sessions:** There will be a series of exercises in time and realization controlled by the teachers of the course. Practices that must be delivered at the end of the corresponding session will be combined with exercises to do at home and be delivered on a certain date.

4.3. Syllabus

This course is organized as follows:

Topic 0. Introduction: Systems of representation.

Topic 1. System of representation dihedral:

- 1.1. Point, line, and plane. Intersections. Parallelism and perpendicularity.
- 1.2. Leeways, twists and turns of plane.
- 1.3. Angles and distances.
- 1.4. Polyhedra.
- 1.5. Pyramid, cone, Prism, cylinder, and sphere.
- 1.6. Intersections.
- 1.7. Shadows.

Topic 2. Dimensional representation system:

- 2.1. Topography, hypsometric and cartography.
- 2.2. Point, line, and plane. Intersections and depletion. Covers.
- 2.3. Lines, surfaces and land.

4.4. Course planning and calendar

The lectures and the weekly practice sessions are given according to the established schedule, published previously to the start date of the course on the EINA website.

Lectures will take place on Mondays, divided into theory sessions (1 hour) and problem-solving sessions (1 hour). The necessary knowledge of descriptive geometry will be taught.

The practice sessions will take place on Tuesdays (2 hours). The students will be divided into small groups, where a series of proposed exercises will be carried out, in time and realization controlled by the teachers of the course. To carry out these practices, students will be introduced to the handling of CAD tools, at an initiation level.

An intermediate test will be held towards the middle of the term in order to evaluate the knowledge and skills acquired by the student until that moment. The dates and place of completion of the intermediate test will be announced in the lectures and will be agreed with the rest of the courses of the first year.

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the College of Higher Engineering and Architecture (EINA) website (<https://eina.unizar.es/>) and Moodle.

4.5. Bibliography and recommended resources

The specific resources of the course will be arranged in digital format in the platform Moodle with access to the students enrolled.

For guidance purposes only, some titles related to the contents of the course are available in the library:

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=30702>