Universidad Zaragoza

Year : 2019/20

30702 - Architectural graphic expression 1

Syllabus Information

Academic Year: 2019/20
Subject: 30702 - Architectural graphic expression 1
Faculty / School: 110 -

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 (2 hours) 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.

1.2.Context and importance of this course in the degree

Architectural Graphic Expression I, is located in the context of the first year of the degree in architecture, is a basic subject, where general knowledge comparable to other degrees of the branch (Architecture, Engineering) is fully or partially acquired. The subject includes basic and classic themes of graphic expression: descriptive geometry, which in turn is related in vertical, with EGA 3 and Mathematics, is also related horizontally, with the subject of EGA 2 and EGA 4.

1.3.Recommendations to take this course

In the subject the representation systems are studied, the basis for understanding the architectural graphic representation, also for the content in geometry contributes to the development of mental structuring to obtain spatial vision.

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 basic training, for the vision of abstract form 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. You can choose to follow the continuous evaluation or global evaluation.

Continuous evaluation:

To pass by course it is necessary to approve the planned partial evaluation. The grade of the evaluation will be the average of the scoring practices (20%), the partial exam (10%) and the final exam (70%).

- **Scoring practices:** exercises to be carried out during school hours and outside school hours, weekly. Attendance at all practices and delivery of all proposed works is mandatory at the end of the session. Non-attendance at any of the sessions must be duly justified. In that case, the work corresponding to that session must be recovered outside of school hours and delivered in the following weeks (in any case before the final test).
- **Partial exam:** An intermediate test will be held in order to assess the knowledge and skills acquired by the student so far.
- **Final exam:** will have a variable number of exercises, between 4 and 6. The data of the exercise will be assessed, the solution mechanisms adopted, the different parts requested for resolution, the precision in the drawing, the cleaning in the sheet and the evaluation of the line in the process. In this exercise will be noted the assessment of

each exercise, which will be resolved in sheets provided by the teacher, the presentation or reading of the test implies that the student has submitted to the subject. To average with the scoring practices and the partial exam, it is required that the average score of both is> = 4.

Requirements to maintain the continuous evaluation: It is necessary to deliver all the practices in time, as well as the performance of the partial exam. Obtain an average score of> = 4 in the practices and the partial exam.

Overall evaluation:

For those who have not followed the course, they have the possibility to take a final exam.

The final exam will consist of the same questions as the continuous assessment and an extra exercise that will replace the practices. An average of> = 5 is required to pass the test.

The extraordinary exam of September will be of the same characteristics, the note of the scoring practices and the partial exam for those who have followed the course will be maintained.

4.Methodology, learning tasks, syllabus and resources

4.1.Methodological overview

The program is developed through lectures, supplemented with targeted practice groups work.

- **Theory classes:** 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 classes:** Practical exercises will be exposed that will be solved by the professor, where the concepts exposed in the theoretical classes will be put into practice. They will be exercises that will allow the correct resolution of the exercises proposed in the practical classes.
- **Practical classes:** There will be a series of exercises in time and realization controlled by the teachers of the subject. The results of the practices must be delivered at the end of the corresponding session. In addition weekly exercises will be proposed to perform at home and they should be delivered in the next practical session.

4.2.Learning tasks

The program offered to the student to help achieve the expected results includes the following activities:

- Theoretical activities.
- Practices directed, implemented in the classroom.
- Suggested practices for the student.
- Tutorials.

4.3.Syllabus

Part 0. Introduction: Systems of representation.

Part 1. Metric and projective geometry:

1.1 Projective geometry: is particular homographies, involution, homology, affinity, and investment.

Part 2. System of representation dihedral:

2.1. Point, line and plane. Intersections. Parallelism and perpendicularity.

2.2 Leeways, twists and turns of plane.

2.3 Angles and distances.

2.4 Polyhedra.

2.5 Pyramid, cone, Prism, cylinder, and sphere.

2.6 Intersections.

2.7 Shadows.

Part 3. Dimensional representation system:

3.1. Topography, hipsometria and cartography.

3.2. Point, line and plane. Intersections and depletion. Covers.

3.3 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.

The theoretical classes will take place on Mondays, divided into theoretical sessions (2 hours) and problem sessions (1 hour). The necessary knowledge of descriptive geometry will be taught.

The practical 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 subject. The results of the practices must be delivered at the end of the corresponding session. In addition weekly exercises will be proposed to perform at home and they should be delivered in the next practical session.

The session calendar is specified in a pdf that is provided to students on the first day of the course and will be available on the Moodle platform.

An intermediate test will be held towards the middle of the semester 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 master classes and will be agreed with the rest of the subjects of the first course.

The final evaluation test of the subject in the calls of February and September are published prior to the start date of the course on the EINA website.

4.5.Bibliography and recommended resources

The specific resources of the subject 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 subject are available in the library:

Alonso Arroyo, J. A. (1998). Ejercicios de Geometría Descriptiva en Sistema Diédrico. Ed. Autor-Editor. ISBN 978-84-605624-3-6.

Domenech Romá, J. (2000). Fundamentos del Sistema Diédrico. Ed. Llorens. ISBN 978-84-858-7811-6.

Domenech Romá, J. (2003). Poliedros regulares. Alicante: Ed. Club Universitario. ISBN 978-84-845-4266-7.

Franco Taboada, J.A. (2011). Geometría Descriptiva para la representación arquitectónica. Volumen 1, Fundamentos. Ed.Andavira. ISBN 978-84-840-8626-0

Franco Taboada, J.A. (2012). Geometría Descriptiva para la representación arquitectónica. Volumen 2, Geometría de laforma arquitectónica. Ed. Andavira. ISBN 978-84-840-8629

Izquierdo Asensi, F. (2008). Geometría Descriptiva I (Sistemas y perspectivas). Madrid: Ed. Dossat. ISBN 978-84-933668-7-2.

Izquierdo Asensi, F. (2001). Ejercicios de Geometría Descriptiva I (Sistema Diédrico). Madrid: Ed. Izquierdo Ruiz de la Peña, Francisco Javier. ISBN 978-84-9221-096-1.

Izquierdo Asensi, F. (1994) Ejercicios de Geometría Descriptiva II (Sistemas Acotado y Axonométrico). Madrid: Ed. Paraninfo. ISBN 978-84-237-0800-4.

Gonzalez Monsalve M, Palencia Cortés J. (1996). Dibujo Técnico. Sistema Diédrico, Sistema Acotado, SistemaAxonomético, Perspectiva Caballera, Sistema Cónico. ISBN 84604045

Rodríguez de Abajo, F. J. (2007). Geometría Descriptiva. Tomo I. Sistema Diédrico. San Sebastián: Ed. Donostiarra. ISBN: 978-84-706335-3-9.

Rodríguez de Abajo, F. J. (1993). Geometría Descriptiva. Tomo II. Sistema de Planos Acotados. San Sebastián: Ed. Donostiarra. ISBN: 978-84-7063-182-9.

Sánchez Gallego, J. A. (1997). Geometría Descriptiva. Sistemas de Proyección Cilíndrica. Barcelona: Ed. UPC. ISBN 978-84- 830-1221-5.

Santisteban, A. (1993). Sistema Diédrico: 200 problemas tipo (comentados y resueltos). Ed. Capitel. ISBN 978-84-748706-0-2.

Suárez González, J.; García Cuervo, D.; Gancedo Lamadrid, E. (2008). Ejercicios de Sistema Diédrico. Oviedo: Ed. Universidad de Oviedo. ISBN 978-84-8317-645-0.

Taibó Fernández, A. (1983). Geometría Descriptiva y sus aplicaciones. Tomo I. Albacete: Ed. Tebar-Flores. ISBN 978-84-7360-041-X.

Taibó Fernández, A. (1983). Geometría Descriptiva y sus aplicaciones. Tomo II. Albacete: Ed. Tebar-Flores. ISBN 978-84-7360-042-8.

Zorita Carrero, I. (2003). Geometría Descriptiva. Sistema Diédrico. Sistema Acotado (Manuale S UEX nº 34). Ed. Universidad de Extremadura. ISBN 978-84-772357-8-1.

Materials

- Pens or pencils of different hardness or thickness of mine, from tougher mine as 2 H soft 2B and diameter of 0.5 mm.
- Paper: A3
- Compass.
- Square, small straight edges.
- Bevel, small straight edges.
- Meter, scale ruler