Teaching guide

IDENTIFICATION DETAILS

Degree:	Architecture
Scope	Architecture, construction, building and urban planning, and civil engineering
Faculty/School:	Higher Polytechnic School
Course:	DESCRIPTIVE GEOMETRY
Type:	Basic Training
ECTS credits:	6
Year:	1
Code:	3713
Teaching period:	First semester
Subject:	Graphic Expression
Module:	Propaedeutical
Teaching type:	Classroom-based
Language:	Spanish
Total number of student study hours:	150

SUBJECT DESCRIPTION

The course aims to develop mental capacity in terms of spatial conception, strengthening the constructive imagination and training it in the reflection of three-dimensional space.
The professional needs of spatial vision and the concretion of the geometric components of architectural forms constitute the foundation, together with the difficulty of describing them, in languages other than purely graphic languages
This means of 'COMMUNICATION', which allows us to transfer and exchange ideas or images in a coherent way, depending on who they are communicated to and the entity of their content, requires the study and analysis of the various REPRESENTATION SYSTEMS, or graphic languages that will allow you to choose the most ideal one, expressing us correctly in a two-dimensional medium.
Just as the word in Scripture requires grammar, and sound in Music requires harmony, composition, etc., drawing

needs DESCRIPTIVE GEOMETRY or Representation Systems, such as DIHEDRAL and BOARDED (systems of operation, measurement and relationship of the forms of space) and the AXONOMMETRIC AND CONICAL systems (basically representative), the first of which has the virtue of being a transition between the two operatives and the second, purely figurative.

GOAL

Learn to look. The origin of everything that man has built and will build has been previously planned. For this reason, the now called technical drawing is the origin of all functional human creation, hence the interest aroused by its study. Acquire the spatial vision capacity necessary for the development of their profession. Study what is geometrically possible by employing material forms and achieving rigor in the geometric representation of bodies. Learn the possibilities of sensitive space and the criteria, more or less conventional, that we use for its flat representation. Understand the concept of Design for All as “design for human diversity, social inclusion and equality” from the perspective of geometry.

PRIOR KNOWLEDGE

To study this subject to obtain optimal use of the subject, you should have the level of knowledge of the 2nd year of Baccalaureate.

COURSE SYLLABUS

BLOCK I: DIHEDRAL SYSTEM BLOCK II: AXONOMETRIC SYSTEM BLOCK III: GEOMETRIC SHAPES. INTERSECTIONS AND SHADOWS BLOCK IV: BOARDED SYSTEM BLOCK V: CONICAL SYSTEM EU I: DIHEDRAL SYSTEM Basic geometric shapes Point, line and plane Relative positions of points, lines and planes. Movements. Plane changes, turns and deflections. BLOCK II: AXONOMETRIC SYSTEM Types Orthogonal axonometry BLOCK III: GEOMETRIC SHAPES. INTERSECTIONS AND SHADOWS Geometric shapes applied to architecture Intersections Shadows BLOCK IV: BOARDED SYSTEM General information. Applications. BLOCK V: CONICAL SYSTEM System elements Perspective view

EDUCATION ACTIVITIES

Theoretical classes: Master classes taught by the teacher.
Problem classes: Resolution by the teacher of as many problems as possible, proposing a set of them for the student to solve.
Tutored personal learning: Personalized student attention to review the contents explained in class, answer questions or discuss specific topics in order for the student to achieve the objectives set by the teacher.
Papers and debates: Preparation of papers in groups of students. The choice of the topic and the development of the work will be carried out under the supervision of the teacher. The works are presented in writing and an oral presentation is also made in class.

Teaching will be taught according to the system of theoretical classes and practical exercises. During the practical classes, theory content will be supported and developed. In addition, a series of group works will be proposed, of the blocks that require it.

Learning theory. Given the abstractness of dihedral language, especially when the student has not yet acquired spatial vision, we will resort to three-dimensional models, games with light and shadow and three-dimensional images, which help to understand spatial phenomena.
Notebook: The student will develop their own notebook for monitoring classes complemented by the drawings and notes that the student draws up in the study of the subject.

Learning to practice. Since geometric knowledge is a concept that, like mathematics, is necessary to learn through its development in exercises, the practical classes will have the format of a practical exercise supervised by the teachers. In them, students will develop practical exercises, which will be collected and graded on time.
In addition, in these classes, concepts that would not have been sufficiently developed in theory classes can be expanded.

Group work. In addition to classical theoretical-practical teaching, complementary support work will be proposed, which will be explained, delivered in practical class and corrected during tutoring hours.
Teamwork will be encouraged in these cases.
All blocks will be based on the digital edition of the course, with the Canvas platform, including reference documentation, collection of exercises, notes, web links, and suggestions for the development of the subject.

Training activities, as well as the distribution of working time, can be modified and adapted depending on the progress of the course.

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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.

Aptitude to create architectural projects that meet both aesthetic and technical requirements.

General Skills

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Specific skills

Appropriate and applied knowledge to architecture and urban planning of spatial representation systems.

Appropriate and applied knowledge of metric and projective geometry to architecture and urban planning.

Appropriate and applied knowledge to architecture and urban planning of graphic survey techniques in all its

phases, from drawing notes to scientific restitution.

LEARNING RESULTS

Read with ease a topography defined by its level curves

Learn what perspective and axonometry are and how they change when their elements are altered

Graphically solve spatial problems, mastering the dihedral system as a basis for the planimetric representation of architecture

Representation and application in different systems.

Study of the geometric properties of lines and surfaces.

LEARNING APPRAISAL SYSTEM

Two written exams will be taken to evaluate the learning of the contents presented in the theoretical and problem classes. A partial exam takes place in the middle of the semester and frees up material for the final exam as long as the grade is equal to or greater than 5 points out of 10. If this grade is not passed in the final exam, the student will be examined for all the theoretical contents of the subject. Preparation and presentation of papers: The oral and written presentation of the works carried out in a group and supervised by the teacher will be evaluated. Participation in the development of classes, in debates and attendance at seminars: Active participation during master classes and intervention in debates on specific topics raised in class will be positively evaluated. Delivery of the proposed practices: The evaluation of the proposed problems allows us to know the pace of learning and to influence, in a general way and also in particular, on the possible knowledge gaps presented by the student. The continuous evaluation process will have the following parameters: Theory exams, regular call... 50% Written exams will be taken to evaluate the learning of the contents presented in the theoretical classes, problems, papers and debates. A partial exam may be taken in the middle of the semester with the possibility of freeing up material for the final exam (exclusively for the ordinary exam). You must pass with a minimum of 5 out of 10 both partials in order to pass. Preparation and presentation of internships. All internships must be submitted in order to pass both ordinary and extraordinary exams. The oral and written presentation of the works carried out and supervised by the teacher will be evaluated. Carrying out exercises and participation in the Workshop... 40% Participation in the development of classes, in debates and attendance at seminars: Active participation during classes and intervention in debates on specific topics raised in class will be evaluated positively... ..10% In extraordinary call:: 60% Exam (must be approved) + 40% Practical exercises. The exams will be carried out in person, if they cannot be taken in person, they will be carried out remotely. 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. The exams will be carried out in person, if they cannot be taken, the possibility of taking them remotely would be studied.

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

Crespo Anuza, José and Ustarroz Irizar, Iñaki Descriptive Geometry. Problems solved in the dihedral system Self-publishing

Crespo Ganuza, José and Ustarroz Irizar, Iñaki Descriptive Geometry. Problems solved in the dihedral system. Self-publishing

Additional

Insua Cabana, Mercedes Elements Descriptive Geometry Editorial Grafema, 2008

Damisch, Hubert The Origin of Perspective Alianza Editorial S.A., Madrid 1997

VVAA Descriptive Geometry Exercises Editorial Bellisco