Universitat de Lleida

DEGREE CURRICULUM

GRAPHIC EXPRESSION 1

Coordination: PEREZ LUQUE, GABRIEL

Academic year 2023-24

GRAPHIC EXPRESSION 1 2023-24

Subject's general information

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<tr><td>Subject name</td><td>GRAPHIC EXPRESSION 1</td></tr>
<tr><td>Code</td><td>101403</td></tr>
<tr><td>Semester</td><td>1st Q(SEMESTER) CONTINUED EVALUATION</td></tr>
<tr><td>Typology</td><td>
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<tr><th>Degree</th><th>Course</th><th>Character</th><th>Modality</th></tr>
<tr><td>Bachelor's Degree in Architectural Technology and Building Construction</td><td>1</td><td>COMMON/CORE</td><td>Attendance-based</td></tr>
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<tr><td>Course number of credits (ECTS)</td><td>6</td></tr>
<tr><td>Type of activity, credits, and groups</td><td>
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<tr><th>Activity type</th><td>PRAULA</td><td>TEORIA</td></tr>
<tr><th>Number of credits</th><td>3</td><td>3</td></tr>
<tr><th>Number of groups</th><td>1</td><td>1</td></tr>
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<tr><td>Coordination</td><td>PEREZ LUQUE, GABRIEL</td></tr>
<tr><td>Department</td><td>INDUSTRIAL AND BUILDING ENGINEERING</td></tr>
<tr><td>Teaching load distribution between lectures and independent student work</td><td>Theoretical credits (2)
Classroom 20h, 30h autonomous work (study)
Practical credits (4)
Classroom 40h, 60h autonomous work (practice)</td></tr>
<tr><td>Important information on data processing</td><td>Consult this link for more information.</td></tr>
<tr><td>Language</td><td>Catalan</td></tr>
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GRAPHIC EXPRESSION 1 2023-24

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
PEREZ LUQUE, GABRIEL	gabriel.perez@udl.cat	6	

Subject's extra information

The activity of the Technical Architect takes place largely to the field of projects either in the drafting and development, in its execution or in its subsequent operation and maintenance.

Since in this area, projects, information expressed graphically is often prioritized, it is essential that technical architect has a good knowledge in this communication language.

Basically the graphical expression must be used by the Technical Architect for the following purposes:

- First, as the way of expression between the Architect and third parties.
- Moreover, as a means of communication with himself, in the processes of design, in the research of alternative solutions.
- Finally, as a means of description and analysis of reality (making sketches and drawings of the current state of constructions, etc.).

It can therefore deduce that Graphic Expression is configured as a true universal graphic language.

Students will then begin to control their spatial vision, to be able to make fluently transfers from the three dimensions (real objects) to the two-dimensional (flat) and vice versa.

Suggestions

Practical course in which the study is based on the realization of all the exercises and practices requested, as well as consulting and realization of other exercises given in the recommended bibliography.

Prerequisites:
There are no prerequisites for this subject.

Learning objectives

- Knowing the operating of tools, materials and techniques of graphic expression and use them correctly and in the right time.
- To know the current CAD systems and to learn working in this type of system, combining it appropriately with the traditional systems of graphic expression
- Understanding the geometry as a set of concepts related through properties and laws.
- Reason and solve problems in graph and technical representation, using the standards established in a correct way.
- Representation of perspectives to facilitate the interpretation of three-dimensional forms and spaces projected and / or designed.
- Value the graphic language (Expression Graphic) as a means of communication in the work environment of the Building Engineer
- Express them fluently and property with the terminology of Graphic Expression, knowing at all times use the most appropriate graphic resource.
- Purchase the habit of working in an orderly, organized and accurate way.
- Developing the spatial vision and learn to represent three-dimensional shapes and spaces.
- Draw shapes and spaces, making transfers from the three-dimension to the two-dimension, and in the same

two-dimension.
- Correctly apply the regulations governing the technical graphic expression (standardized lettering, dimensioning, etc.)
- Correctly apply the concept of scale of drawing, in order to spend from most general to details without loss of rigor in the transmission of information
- To learn the use of the freehand drawing and sketching as a fundamental means of expression in the creative process and in the realization of ideas and forms
- To do sketches of uprisings, both for sites and existing buildings as well as of construction details, which represent the most important and significant elements. They must be understandable and proportionate as well as properly dimensioned and using the appropriate symbology.
- To know and to graphically specify the constructive solutions of different elements as well as the details of construction of a building project
- Determine the features and contents of the different planes of a construction project, according to its development planning. To specify both compositional and organizational criteria that must be taken into account for the project planes

Competences

Significant competences

University of Lleida strategic competences

- UdL3. Mastering ICT's.

Degree-transversal competences

- EPS5. Capacity of abstraction and of critical, logical and mathematical thinking.

Degree-specific competences

- GEE3. Capacity to apply the spatial representation methods, the development of the sketch, the proportionality, the language and the techniques of graphic representation of the elements and constructive processes.

Subject contents

- **Introduction**

  Theme 1. Geometry. Views dihedral

  First the purpose and concept of descriptive geometry and how to generate the different systems of representation is defined. Moreover, a review of the dihedral view methodology, given the importance of their further professional application, is also proposed.

  Theme 2. Geometry. Axonometric and Plan projection system

  A review of the axonometric representation will be done, without delving into the theoretical system, but applying it directly to examples from the world of construction. Finally, we will learn how to calculate intersections of sloping roofs of buildings by mena the aplication of Plan projection system, as well as to interpret topographic maps and to render the terrain and trace terrain profiles.

  Theme 3. Projects. Graphical documentation of projects

  First a session regarding the basic rules of proper application of graphic expression, which the student must know (formats, title block, labelling, representation scales, dimensioning, etc.) will be held.

  This theme aims to give students an overview of the graphical documentation that is part of a project,

setting the basis for further subjects such as Projects as well as the Final Project.

A look through the different project plans that make up a building project as well as a civil construction project will be done, deepening in the suitable compositional criteria of these plans in order to guaranty that the included information is transmitted with the highest efficiency.

Although time and knowledge of the students at this stage of the degree are limited, in practice exercises of this theme, students begin to make some of the plans that are part of a project, from easy premises for a draft of a project.

Theme 4. Projects. 2D CAD (AutoCAD)

In parallel to the development of the above mentioned agenda, two of the four hours per week of the course, will be dedicated throughout the whole semester to learn a CAD system, specifically AutoCAD, because it is the most widespread software in the field of architecture.

The educational project imply that during the first weeks of the semester, coinciding with the themes of freehand drawing, will be engaged to know and learn AutoCAD drawing tool.

Once acquired the basic knowledge on AutoCAD, the two hours will be connect to the other two hours in order to carry out all the practice exercises by mean AutoCAD.

The educational project envisages that all classes of the subject will be made in computer classroom, since the practices of different themes (sketches, representing construction elements, and plans) will be completed in electronic format.

Methodology

The classes have both a theoretical component, in which the program items will be followed, and also a practical component in which the exercises will be performed on traditional drawing board, related to corresponding theory in each class.

Since the time available is limited, students will have some printed course notes in which they will find all the theoretical concepts covered in class.

Each chapter will be followed by series of exercises that will help the students to further practice the different concepts and techniques explained in class.

For the realization of by hand drawing practices, for example dihedral views exercises, axonometric representations as well as freehand and technical sketches; the work format will be primarily in A3 and A4.

For practical training by means computer drawing, in either 2D or 3D, students can work in the computer lab digital, which will have the necessary software updated.

The software currently used within the subjects of graphic expression, for the Degree in Architectural Technology and Building Construction, are AutoCAD and Revit, both from Autodesk.

Learning of these digital representation technologies requires many hours of practice, which is why many of the practices that should be developed by students must be done regardless of the hours of work available in the classroom, in understanding that this commitment involves already learning and therefore some time to study the subject.

Different deadlines for the practices will be established, in order to ensure a progressive learning of the subject, thus fulfilling the continuous training and evaluation.

TEACHING METHODS
Training activities
1. Lectures: In the lectures the contents of the subject are presented orally by a lecturer without the active

participation of students.
2. Practices classroom / laboratory: Let you apply and configure a practical level, the theory of a field of knowledge in a particular context.
3. Assessment tests (examination)
4. Work: Individual and group
5. Study: Independent work of students to consolidate the concepts of the subject.

Evaluation systems

1. Written tests
2. Practical tests
3. Practices

Development plan

Week	9-11 h	11-13 h	PR	Deliverables
2	T1.Introduction - Dihedral views	T1.Introduction - Dihedral views	PR1. Dihedral views	
3	T2.Axonometric	T2.Axonométric	PR2.Axonometric	
4	T3. Dimensioned drawings	PR3. Dimensioned drawings	PR3. Dimensioned drawings	PR1. Dihedral views
5	T4. Normalization + PR. Normalization	T6.CAD.Theory + PR4.CAD	PR4.CAD	PR2.Axonometric
6	T5. Graphical documentation of projects	T6.CAD. Theory + PR4.CAD	PR4.CAD	PR3. Dimensioned drawings
7	T5. Graphical documentation of projects	T6.CAD. Theory + PR5.CAD	PR5.CAD	PR4.CAD
8	T6.CAD. Theory	PR5.CAD	PR5.CAD	
9	First exam 1			
10	T6.CAD. Theory	PR5.CAD	PR5.CAD	PR5.CAD
11	T6.CAD. Theory	PR6.CAD	PR6.CAD	
12	T6.CAD. Theory	PR6.CAD	PR6.CAD	
13	T6.CAD. Theory	PR6.CAD	PR6.CAD	
14	T6.CAD. Theory	PR6.CAD	PR6.CAD	
15	T6.CAD. Theory	PR6.CAD	PR6.CAD	PR6.CAD
16,17	Second exam 2			
18	Tutoring			
19	Recovery			

Evaluation

Evaluation

Monitoring and evaluation will be conducted according to a system of continuous assessment, where the final grade will consist of the sum of the percentages of different evaluation blocks.

Recovery:

During the 19th week it can be recover / improve the grade of the subject, following the guidelines of the Academic Degrees Framework of EPS, through a recovery test, which will have equal value and content to the theoretical contents (50%).

Alternative evaluation

The practical evaluation blocks can be handed in until the date of the recovery of the subject (50%)

During the 19th week it can be recover / improve the grade of the subject, following the guidelines of the Academic Degrees Framework of EPS, through a recovery test, which will have equal value and content to the theoretical contents (50%).

Avaluation block	%	Dates
Exam 1	20	Week 9
Exam 2	30	Week 16,17
PR1. Dihedral wiews + PR2.Axonometric + PR3. Dimensioned drawings	15	Week 4, 5, 6
PR4.CAD + PR5.CAD	15	Week 7, 10
PR6.CAD	20	Week 15

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