Course guides
310708 - 310708 - Architectural Drawing

Unit in charge: Barcelona School of Building Construction
Teaching unit: 752 - RA - Departamento de Representación Arquitectónica.
Degree: BACHELOR’S DEGREE IN ARCHITECTURAL TECHNOLOGY AND BUILDING CONSTRUCTION (Syllabus 2019).
(Compulsory subject).
Academic year: 2021 ECTS Credits: 6.0 Languages: Catalan, Spanish

LECTURER

Coordinating lecturer: MANUEL VALVERDE BROS
Others: García Rodríguez, Francisco Javier
         Núñez Veciana, Noemí
         Sarro García, Pedro
         Valverde Bros, Manuel
         Esquinas Dessy, Jesús

PRIOR SKILLS

Have the subject of the semester 1A "Introduction to architectural drawing" approved

REQUIREMENTS

Simultaneously take the subject Workshop 2: Modeling Concepts (Bim)

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
1. FE-1 Ability to understand and make the graphical documentation of a project, to do data gathering, surveying of plans and geometric control of construction units.

Transversal:
3. TEAMWORK - Level 1. Working in a team and making positive contributions once the aims and group and individual responsibilities have been defined. Reaching joint decisions on the strategy to be followed.
TEACHING METHODOLOGY

Project Based Learning (PBL).

It is a strategy in which students develop projects.
PBL is based on the student being the center of learning and the teacher helping and facilitating this process. It is the student but what his learning needs discover when he faces the project.
Your learning needs can be covered by looking for the resources available at Athena, library, www, etc.

ABP’s objectives are:
Integrate knowledge and skills from various areas.
Develop high-level intellectual skills in Bloom’s taxonomy: application, analysis, synthesis and evaluation.
Promote autonomous learning and independent work.
Promote self-evaluation.

An ABP session includes all of these phases:
Presentation of the project.
Enumeration of the important points.
Search the resources available to the student.
Preparation of the first proposals.
Discussion of the first proposals with students and the teacher.
Choice of the solution to be developed.
Realization of the project.
Correction with the teacher during the project.
Delivery of the finished practice.
Correction of the practice by the teacher.
Delivery to the student of the corrected practice.

The duration of the session is conditioned by the complexity of the project.
See the different scheduled activities.

LEARNING OBJECTIVES OF THE SUBJECT

Introduce the student to the fundamental concepts of the basic project.
Get him to become familiar with the graphic representation of the planes that compose it.
That the student knows and masters drawing tools, for this the subject is divided into two differentiated parts.
In the first part, and using more traditional drawing tools (hand or cad drawing), we will study the zoning of 1 home, identifying the different existing areas and the regulations that define them.
In the second part of the subject, and taking advantage of the knowledge acquired by students in workshop 2, we will develop 1 project of 1 single-family house using Revit.
In the content guide, the Concepts to be studied in each part of the subject are developed.
Upon completion of the course, the student must be able to:
Identify, differentiate and interpret the graphic representation of the elements involved in an architectural project.
Choose and apply the most suitable representation system to use in each case.
List and apply regulations to a basic project.
Apply the design criteria in the different spaces of a residential building.
Choose and apply the most suitable dimensional control system in the project drawings.
Skillfully use graphic expression as a communication tool in their study and work environment.

STUDY LOAD

<table>
<thead>
<tr>
<th>Type</th>
<th>Hours</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours large group</td>
<td>18,0</td>
<td>12.00</td>
</tr>
<tr>
<td>Hours medium group</td>
<td>42,0</td>
<td>28.00</td>
</tr>
<tr>
<td>Self study</td>
<td>90,0</td>
<td>60.00</td>
</tr>
</tbody>
</table>

Total learning time: 150 h
## First part. 1.- Common space areas: Dining-living room

### Description:
- Study elements
  - Circulations and minimum steps.
  - Definition of spaces. Eating area. Sitting area
- Texts.
- Dimensioning.

### Specific objectives:
- 

### Related activities:
- 

### Full-or-part-time: 4h
Theory classes: 4h

## First part. 2.- Common space areas: Kitchen

### Description:
- Study elements
  - Modular furniture
  - Module references. Module reference table.
- Representation of kitchen furniture. Detail plane. General plane.
  - Furniture under bench.
  - Tall furniture and column.
  - Home appliances.
- Texts.
- Dimensioning.

### Full-or-part-time: 4h
Theory classes: 4h
First part. 3.- Private areas: Bedrooms

Description:
• Study elements
  o Relationship between spaces in the night area.
  o Definition
  o Typologies: main, double, single, suite
  o Areas within a bedroom
  o Analysis of conditions and needs
  o Distribution and uses.
• Ordinances.
  o Concept or definition.
  o Useful surface.
  o Minimum side.
  o Minimum height.
  o Lighting surface. Windows, balconies.
  o Passage openings. Doors.
• Design criteria: zoning, circulation, furniture, spaces for use.
• Representation of the carpentry in the detail plans.
• Texts.
• Dimensioning.

Full-or-part-time: 4h
Theory classes: 4h

First part. 4.- Private areas: Bathrooms - Toilets

Description:
• Zoning of a home. Relationship between zones.
• Service spaces. Bathrooms.
  o Definition.
  o Situation inside the home. Orientation. Relationship with other spaces.
  o Typologies: Full bathroom, toilet.
  o Analysis of the conditions and needs.
• Ordinances and regulations.
  o Minimum surface.
  o Minimum height.
  o Lighting surface.
  o Home ventilation. CTE.
  o Passage openings. Doors.
• Design criteria: zoning, spaces for use, circulations, openings.
• Type of toilets.
• Representation of walls.
  o Interior walls.
  o Facade walls.
• Texts.
  o Annotation. Location of walls, toilets and openings

Full-or-part-time: 4h
Theory classes: 4h
First part. 5.- Vertical communication elements: Stairs

**Description:**
- Concepts and definitions.
- Elements of a ladder.
  - Slope line.
  - Minimum step.
  - Scale box.
- Typologies according to the forms. Straight Curves Mixed.
- Regulations and ordinances.
  - Minimum scope.
  - Formula of the ideal step.
  - Flight of stairs. Minimum number of steps.
  - Rest. Landings between floors. Landing.
  - Maximum height to save.
  - Eye of scale.
  - Railings.
  - Staircase lighting.
- Recommendations for the design of the staircase.
- Graphical representation of the ladder. Graphic conventions.
- Introduction to the vertical section of the ladder.
  - Type of section.
  - Choice of the section plane.
- Texts.
- Dimensioning.

**Full-or-part-time:** 4h
Theory classes: 4h

Second part. 1.- Situation and Location

**Description:**
- Concept and purpose.
- Scale of the location and site plan.
- Information about the environment and orientation.
- Information needed to draw the plans.
- Legends. Texts. Box

**Specific objectives:**
-

**Related activities:**
-

**Full-or-part-time:** 4h
Theory classes: 4h
Second part. 2.- Map with urban data

Description:
- Concept and purpose of site management.
- Condition of the building's situation within the site: Orientation, accesses, views, prevailing winds, topography of the land, user needs, urban regulations, garden, etc.
- Site plan.
  - Plan and vertical sections.
  - Textures and patterns.
  - Scale of representation.
  - Levels with respect to the reference plane 0.00.
- Urban regulations.
  - Minimum plot.
  - Employment.
  - Buildable coefficient.
  - Separations to the boundaries of the plot.
  - Maximum regulatory height.
  - Compliance with the urban planning certificate.
- Texts. Box.
- Dimensioning.

Specific objectives:
- 

Related activities:
- 

Full-or-part-time: 4h
Theory classes: 4h

Second part. 3.- Plants

Description:
- Design of the floors of the house based on the knowledge acquired in the first part of the subject.

Specific objectives:
- 

Related activities:
- 

Full-or-part-time: 4h
Theory classes: 4h
Second part. 4.- Cover

Description:
• Roof concept.
• Definitions and nomenclature.
• Types of roofs.
• Ordinances and regulations related to roofing
  o Maximum slope.
  o Maximum eaves flight.
  o Cover material.
  o Color.
• Cover study. Bounded system.
• Graphical representation of the roof solution
  o Eaves.
  o Cover material. Patterns and textures.
  o Representation of the facade line.
• Texts on the roof plan.
• Dimensioning in the roof plan.

Specific objectives:
-

Related activities:
-

Full-or-part-time: 4h
Theory classes: 4h

Second part. 5.- Longitudinal and transverse sections

Description:
• Concept and purpose of the section plan.
• Definitions. Elements of the section plan. Section plan. Displacement plan
• Type of vertical sections. Longitudinal. Transversal.
• Criteria for the correct choice of the section plan.
• Ordinances and regulations to be reflected in the vertical section plane.
  o Maximum regulatory height.
  o Light between roofs and roof thickness.
  o Heights of windowsills, railings, windows, balconies, etc.
  o Flight of balconies, eaves, etc.
  o Roof slope.
• Graphics in the section plane.
  o Sectioned elements.
  o Representation of the land.
  one more.
• Texts in the section plan. Box.
• Dimensioning in the vertical section plane.
• Level dimensions

Specific objectives:
-

Related activities:
-

Full-or-part-time: 4h
Theory classes: 4h
Second part. 6.- Elevations

Description:
- Concept of the facade plan.
- Definitions.
- Composition of the facade.
- Regulations and ordinances related to the facade.
- Aesthetics of the environment, composition, materials, colors and textures.
- Graphic representation of facades. Line values.
  o Edges: contours, projecting elements, openings, carpentry.
  o Materials: exploded views, textures.
  o Plots: textures. Colors.
- Texts on the facade plan. Box.

Specific objectives:

Related activities:

Full-or-part-time: 4h
Theory classes: 4h

ACTIVITIES

A1 SKETCH AND PLAN OF A HOUSE.

Description:
Consistent practice in the realization of the sketch and the plan of the house of each student.
The plan of the house will be made to scale 1/50.
The practice will be done individually.

Specific objectives:
At the end of the practice, the student must be able to:
Make a sketch with the level of detail, representation of carpentry, appropriate to the scale of the plan that will be made later.
Reach a correct level of proportion and stroke.
Know and apply line values and graphic conventions.
Know how to take measurements using commonly used measurement tools. Flexometer and laser distance meter.
Knowing how to dimension a floor plan: knowing how to draw the dimension and reference lines, the most appropriate symbol at the point of their intersection, and correctly drawing and positioning the text of the figure that corresponds to the measurement taken.

Material:
Statement of sketch and scale drawing practice and utensils.
Notes on the topic available in PDF format to ATENEA.

Delivery:
Resolution of the practices by the student, which the teacher will return the following week corrected so that he can compare with the correct solution.
General reflection in the classroom on the most notable common mistakes and the associated learning objectives that should be reinforced.
It represents a part of the continuous evaluation.

Full-or-part-time: 6h
Practical classes: 2h
Self study: 4h
A2 INDIVIDUALIZED DESIGN OF THE DIFFERENT ZONES OF A HOUSE BASED ON AN EXISTING DISTRIBUTION

Description:
Study of a project consisting of a reform of an existing house developed on one floor and within a multi-family building. The plan and the vertical section of the house will be studied on a 1/50 scale. At the end, a descriptive report of the project will be made.
Correction by the teaching staff.

Specific objectives:
At the end of the activity, the student should be able to:
Make a descriptive memory of the project.
Master and apply the concept of orientation.
Apply the regulations and criteria for the distribution of spaces.
Zoning and distributing spaces within a house developed on one floor.
Distribute each of the pieces according to its use.
Represent walls, carpentry, toilets, kitchen furniture, furniture, coatings, etc.
Represent ventilation and smoke extraction installations.
Narrow down the different projections.
Calculate useful, lighting and built surfaces.
Add complementary information to the plans through legends, notes, etc.

Material:
Exercise statement, drawing utensils and calculator to carry out the practices.
Notes on the topic available in PDF format to ATENEA.

Delivery:
Resolution of the practices by the student, which the teacher will return the following week corrected so that he can compare with the correct resolution.
General reflection in the classroom on the most notable common mistakes and the associated learning objectives that should be reinforced.
It represents a part of the continuous evaluation.

Full-or-part-time: 17h 30m
Theory classes: 1h
Laboratory classes: 8h
Guided activities: 0h 30m
Self study: 8h
A3 SCALE OF A SINGLE-FAMILY BUILDING.

Description:
Consistent practice in solving a scale within a single-family house developed on several floors. The plants and vertical sections necessary to define the scale must be resolved. The practice will be done individually.

Specific objectives:
At the end of the practice, the student must be able to:
Know and know how to apply the design criteria and regulations corresponding to a scale of a single-family home (restricted use area) developed on several floors.
Know how to correctly represent the different projections that will define the scale.
Know and correctly use the graphical conventions of representation of a scale.
Knowing how to limit the different projections of a staircase.

Material:
Exercise statement, drawing utensils and calculator to carry out the practices.
Notes on the topic available in PDF format to ATENEA.

Delivery:
Resolution of the practices by the student, which the teacher will return the following week corrected so that he can compare with the correct solution.
General reflection in the classroom on the most notable common mistakes and the associated learning objectives that should be reinforced.
It represents a part of the continuous evaluation.

Full-or-part-time: 4h 50m
Theory classes: 0h 20m
Guided activities: 0h 30m
Self study: 4h

A4 PARTIAL TEST.

Description:
Individual test in the classroom. Resolution of questions related to the learning objectives of part of the contents of the subjects of the subject (04:00 h).
Once the correction has been made and in the next session the teacher carries out a general reflection in the classroom on the most common mistakes and the associated learning objectives that must be reinforced

Specific objectives:
At the end of the test, the student must have achieved the specific objectives of the activities carried out up to the time of the test.

Material:
Statements of the questions, drawing utensils and calculator to carry out the test.

Delivery:
Resolution of the test.
It represents 25% of the final grade for the course.

Full-or-part-time: 8h
Practical classes: 4h
Self study: 4h
A5 SINGLE-FAMILY HOUSE.

Description:
Study of a project of an isolated single-family building.
This practice will be done as a team.
The building will consist of a ground floor and several upper floors with an internal staircase.
The roof will be sloped.
The plants, the vertical section and an elevation of the house will be studied, at 1/50 scale.
The kitchen will be studied by making the floor plan and a vertical section on a 1/20 scale.
At the end, a descriptive report of the project will be made.
Correction by the teaching staff.

Specific objectives:
At the end of the activity, the student should be able to:
Make a descriptive memory of the project.
Know and know how to apply the urban parameters of the card.
Master and apply the concept of orientation.
Apply the regulations and criteria for the distribution of spaces.
Zoning and distributing spaces within a single-family home developed on several floors.
Distribute each of the pieces according to its use.
Solve the staircase of the building applying regulations and design criteria.
Represent walls, carpentry, toilets, kitchen furniture, furniture, coatings, etc.
Represent ventilation, smoke extraction and evacuation installations.
Represent the staircase in plan and vertical section.
Represent at different scales. Scale 1/50 and 1/20.
Narrow down the different projections.
Calculate useful, lighting and built surfaces.
Add complementary information to the plans through legends, notes, etc.

Material:
Exercise statement, drawing utensils and calculator to carry out the practices.
Notes on the topic available in PDF format to ATENEA.

Delivery:
Resolution of the practices by the student, which the teacher will return the following week corrected so that he can compare with the correct resolution.
General reflection in the classroom on the most notable common mistakes and the associated learning objectives that should be reinforced.
It represents a part of the continuous evaluation.

Full-or-part-time: 29h
Theory classes: 1h
Practical classes: 16h
Guided activities: 10h
Self study: 2h
A6 FINAL TEST.

Description:
Individual test in the classroom. Resolution of theoretical and practical questions related to the learning objectives of all the contents of the subject (04:00 h).

Specific objectives:
At the end of the test, the student must have achieved the specific objectives of the activities carried out so far

Material:
Statements of the questions, drawing utensils and calculator to carry out the test.

Delivery:
Resolution of the test.
It represents 40% of the final grade for the subject.

Full-or-part-time: 8h
Practical classes: 4h
Self study: 4h

GRADING SYSTEM

The final grade is the sum of the following partial grades:

Final mark = 40% continuous evaluation + 25% partial test + 35% final test.
As it is a continuous evaluation, no reevaluation is carried out

Continuous assessment consists of delivering, within the established deadlines, the different practices carried out inside and outside the classroom.

EXAMINATION RULES.

The subject is divided into two different parts.

In the first part, and using more traditional drawing tools (hand or cad drawing), we will study the zoning of 1 home, identifying the different existing areas and the regulations that define them.

BIBLIOGRAPHY

Basic:
RESOURCES

Other resources:

-