

Course guide

310708 - 310708 - Architectural Drawing

Last modified: 26/09/2023

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: 2023 **ECTS Credits:** 6.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: MANUEL VALVERDE BROS

Others: Valverde Bros, Manuel
Garcia Rodriguez, Francisco Javier
Perez Barroso, Alberto
Besne Yanguas, Alia
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 that discovers their learning needs when they face the project.

Your learning needs can be covered by looking for the resources available at Atenea, 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 them 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, 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, 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

Type	Hours	Percentage
Hours large group	18,0	12.00
Hours medium group	42,0	28.00
Self study	90,0	60.00

Total learning time: 150 h

CONTENTS

First part. 1.- Common space areas: Dining-living room

Description:

- Study elements
 - o Circulations and minimum steps.
 - o Definition of spaces. Eating area. Sitting area
 - o Furniture. Minimal elements. Measures.
- Texts.
- Dimensioning.

Specific objectives:

-

Related activities:

-

Full-or-part-time: 4h

Theory classes: 4h

First part. 2.- Common space areas: Kitchen

Description:

- Study elements
 - o Modular furniture
 - o Typologies. Under bench. High. Column.
 - o Us. Shelves Drawers. Cooking plate. Kiln. Fridge. Dishwasher.
 - o Measurements. Heights. Widths Depth. Bench height.
 - o Special elements. Plinth. Cornice. Strip.
 - o Module references. Module reference table.
- Representation of kitchen furniture. Detail plane. General plane.
- o Furniture under bench.
- o Tall furniture and column.
- o 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.
 - o Furniture. Type. Measures. Representation.
- 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.
 - o 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 staircase.
 - o Slope line.
 - o Minimum step.
 - o Staircase box.
- Typologies according to the forms. Straight. Curves. Mixed.
- Regulations and ordinances.
 - o Minimum scope.
 - o Step measurements. Minimal tread. Maximum riser.
 - o Formula of the ideal step.
 - o Flight of stairs. Minimum number of steps.
 - o Rest. Landings between floors. Landing.
 - o Maximum height to save.
 - o Eye of scale.
 - o Railings.
 - o Staircase lighting.
- Recommendations for the design of the staircase.
- Graphical representation of the ladder. Graphic conventions.
- Introduction to the vertical section of the ladder.
 - o Type of section.
 - o 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.
 - o Plan and vertical sections.
 - o Adaptation of the terrain. Access. Ladders. Ramps. Yard.
 - o Textures and patterns.
 - o Scale of representation.
 - o Levels with respect to the reference plane 0.00.
- Urban regulations.
 - o Minimum plot.
 - o Occupation.
 - o Buildable coefficient.
 - o Separations to the boundaries of the plot.
 - o Maximum regulatory height.
 - o 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:

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Related activities:

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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 Skirts. Ridge. Limahoya. Slopes.
 - or 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 façade.
- 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

A3 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 a first floor with an internal staircase.

The roof will be flat and sloped.

The plants, the vertical section and an elevation of the house will be studied, at a scale of 1 / 50.

Work will be done on the three-dimensional visualization of the project.

At the end, a descriptive memory of the project will be made.

Correction by the teacher.

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 they 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: 70h

Practical classes: 28h

Self study: 42h

A1 SKETCH AND PLAN OF A HOUSE.

Description:

Practice consisting on the realization of the sketch and the plan of an architecturally recognized house.
The house plan will be made to the scale considered by the student.
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 they 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: 20h

Practical classes: 8h
Self study: 12h

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 appliances, furniture, coatings, etc.

Represent ventilation and smoke extraction installations.

Dimension the different projections.

Calculate the 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 they 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: 40h

Practical classes: 16h

Self study: 24h

GRADING SYSTEM

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

Final mark = 25% continuous evaluation + 40% 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, a minimum of 75% of the different practices carried out inside and outside the classroom.



EXAMINATION RULES.

The course is divided into two distinct parts.

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

In the second part of the course, and taking advantage of the knowledge acquired by the students in workshop 2, we will develop the project of 1 single-family house using Revit.

In the contents guide the Concepts to be studied in each part of the course are developed.

If any of the activities or part of ESTA of Continuous Evaluation is not carried out, it will be considered as not punctuated and the Qualification will be zero.

In no case it will be possible to have any type of documentation to the partial test nor to the final test.

Class attendance and the completion of the Practical is mandatory since the Evaluation is continuous.

Group changes will not be accepted, unless approved.

The Practices will begin in the classroom and can be completed outside the established timetable. Any doubts that may arise should be solved with the teachers assigned to them. Only in case they exceed the teacher's attributions, they will be dealt with the coordinator of the subject.

In the course of the classes the professors will ONLY be able to solve doubts related to the practice of the day. To solve doubts related to other internships, please go to see the professors at the student service hours listed on the website and at the door of the Teaching Unit.

BIBLIOGRAPHY

Basic:

- Fullana, Miquel. Diccionari de l'art i dels oficis de la construcció : il·lustrat amb més de 700 dibuixos a ploma del mateix autor. 8a ed. Mallorca: Ed. Moll, 2005.
- Diccionari visual de la construcció. Barcelona: Generalitat de Catalunya, Departament de Política Territorial i Obres Públiques, 2004.
- José Ramón Paniagua Soto. Vocabulario básico de arquitectura. Madrid: Cátedra, 1978. ISBN 978-84-376-0134-2.
- Neufert, Ernst. Arte de proyectar en arquitectura : fundamentos, normas, prescripciones sobre recintos, edificios ... : manual para arquitectos, ingenieros, arquitectos técnicos, profesionales y estudiantes. 15a ed. Barcelona: Ed. Gustavo Gili, 2006. ISBN 84-252-2051-3.
- Delgado Yanes, M. ; Redondo Domínguez, E. Dibujo a mano alzada para arquitectos. Barcelona: Parramón Ediciones, 2004. ISBN 978-84-342-2549-7.
- Canosa Reboredo, S. Grafismo y proyecto básico. Barcelona: EPSEB, 2007.
- Ching, F. D. K. ; Juroszek, S.P. Dibujo y proyecto. Barcelona: Ed. Gustavo Gili, 1999. ISBN 84-252-2081-5.
- Porter, Tom; Goodman, Sue. Diseño : técnicas gráficas para arquitectos, diseñadores y artistas . Barcelona [etc.] : Gustavo Gili, DL 1992. ISBN 84-252-1592-7.
- Lloréns Corraliza, Santiago. Iniciación al croquis arquitectónico . [Madrid : Universidad Politécnica, Servicio de Publicaciones], DL 1995. ISBN 84-600-7252-5.

RESOURCES

Other resources:

Audiovisual material

Collection of three-dimensional models consisting of building volumes for study in dihedral and perspective.

Computer equipment.

Theoretical classes in PDF format on the virtual campus.

Internships resolved in the virtual campus.

3D models in the virtual campus.

web links

Links to websites related to each topic.

Visual Construction Dictionary (Electronic Resource)

Visual dictionary of construction (Electronic resource). 3rd ed. Barcelona: Government of Catalonia. Department of Territorial Policy and Public Works, 2001

Available at: <http://www10.gencat.net/ptop/AppJava/cat/documentacio/llengua/terminologia/diccvvisualp>