1. OVERVIEW

Subject Area	Drawing and Analysis of Spaces and Objects
Degree	Bachelor's Degree in Design
School/Faculty	Faculty of Architecture, Engineering and Design
Year	First
ECTS	6 ECTS
Type	Compulsory
Language(s)	Spanish/English
Delivery Mode	On campus
Semester	Second semester
Academic Year	2024-2025
Coordinating professor	

2. INTRODUCTION

This subject deals with concepts associated with graphic representation tools in design. This focuses on their use in sketching, modelling and simple organic modelling, together with the principles of rendering, such as dimensioning, signage and so on. Students will work on analysis and subsequent capacity for formal and project development of spaces and objects. It forms part of Module 1 Representation in Design.

This course teaches students the tools used in design, from analogue to digital techniques. Students gradually learn the concepts, such as 2-D to 3-D transformations and multimedia and website content.

3. SKILLS AND LEARNING OUTCOMES

Key skills (CB, by the acronym in Spanish):

- CB1: Students have shown their knowledge and understanding of a study area that builds on general secondary school education, and are usually at the level where, with the support of more advanced textbooks, they may also demonstrate awareness of the latest developments in their field of study.
- CB2: Students can apply their knowledge to their work or vocation in a professional manner and possess the skills which are usually evident through the forming and defending of opinions and resolving problems within their study area.
- CB3: Students have the ability to gather and interpret relevant data (usually within their study area) to form opinions which include reflecting on relevant social, scientific or ethical matters.
- CB4: Students can communicate information, ideas, problems and solutions to both specialist and non-specialist audiences.
- CB5: Students have developed the learning skills necessary to undertake further study in a much more independent manner.

Transversal skills (CT, as per the Spanish acronym):

- CT1: Independent Learning: the ability to choose the most effective strategies, tools and opportunities for independent learning and implementation of what they have learnt.
- CT2: Self-confidence: ability to evaluate their own results, performance and skills with the self-determination necessary to complete tasks and meet any objectives.
- CT 8: Information processing: ability to seek, choose, analyse and integrate information from diverse sources.
- CT 18: Use of information and communication technology (ICT): ability to effectively use information and communication technology such as search tools, processing and storing information, as well as developing communication skills.

Specific skills (CE, as per the Spanish acronym):

- CE2: Ability to apply concepts of metric and projective geometry and systems of spatial representation.
- CE3. Ability to use graphic representation techniques as a form of analysis, conception, communication and expression in design.
- CE4. Ability to use IT tools for representing both 2-D and 3-D objects and spaces.

Learning outcomes (RA, as per the Spanish acronym):

- RA5: Understand and apply the systems of spatial representation and their relationship with graphic conceptualisation and visual expression in the different phases of design and architectural rendering with complete understanding of projection skills.
- RA10: Apply graphical design resources and processes to the representation of spaces and objects (drawing by hand or computer) and ensure the result fits with the intended representation of the design objects.
- RA13: Understand the graphic representation techniques applied to object design and spaces.

The following table shows how the skills developed in the subject area match up with the intended learning outcomes:

Skills	Learning outcomes
CB1, CB2, CB3, CB4, CB5 CT1, CT2, CT8, CT18 CE2, CE3, CE4	• RA5: Understand and apply the systems of spatial representation and their relationship with graphic conceptualisation and visual expression in the different phases of design and architectural rendering with complete understanding of projection skills. • RA10: Apply graphical design resources and processes to the representation of spaces and objects (drawing by hand or computer) and ensure the result fits with the intended representation of the design objects. • RA13: Understand the graphic representation techniques applied to object design and spaces.

4. CONTENTS

The subject matter is divided into the following teaching units:

- Unit 1. Introduction to the digital model
- Unit 2. Introduction to organic modelling and modelling with Dimension
- Unit 3. 3-D analysis: 3-D curve from flat and transverse curves
- Unit 4. 3-D analysis: Sweep and network of curves

- Unit 5. 3-D analysis: Transition
- Unit 6. 3-D analysis: Details and boolean operations
- Unit 7. Render
- Unit 8 (optional). Choice of exercise. Record book. Composition of panels/planes.

5. TEACHING/LEARNING METHODS

The types of teaching/learning methods are as follows:

- Master lecture.
- Problem-based learning (PBL).
- Project-based studies (PBS)
- Learning based on workshop teaching

6. LEARNING ACTIVITIES

The types of learning activities, plus the amount of time spent on each activity, are as follows:

On-campus:

Learning activity	Number of hours
Attendance and participation in activities	12.5h (on-site)
Directed learning, practical exercises and problem-solving	50h (20% on-site)
Project presentation	12.5h (on-site)
Integrated group project	12.5h (off-site)
Research work and projects	12.5h (off-site)
Self-study	25h (off-site)
Tutorials, academic follow-up and assessment	25h (on-site)
TOTAL	150 h

7. ASSESSMENT

The assessment methods, plus their weighting in the final grade for the course, are as follows:

On-campus:

Assessment method	Weight
Submission and/or presentation of projects	100%

On the Virtual Campus, when you open the course, you can see all the details of your assessment activities and the deadlines and assessment procedures for each activity.

7.1. Ordinary examination period

To pass this subject in the ordinary examination period you must:
Obtain a grade over 5 in the weighted average of all the course activities. You must also attend at least 50% of the classes to obtain a maximum of 5, attend 60% for a maximum of 6, and so on.

We will assess:

- The ability to organise and plan work efficiently and clearly.
- The ability to gather relevant information and then suitably analyse, synthesise and process this information.
- Resources for solving problems and taking decisions in line with the final objectives.
- The ability to demonstrate critical thinking.
- Suitable understanding of knowledge and resources taught in class: multiple views, graphic symbols, layout, details, etc.
- Interest, work and effort in performing designated tasks.

7.2. Extraordinary examination period

To pass this subject in the extraordinary examination period you must:

Obtain a grade over 5 in the weighted average of all the course activities.
We will assess:

- The ability to organise and plan work efficiently and clearly.
- The ability to gather relevant information and then suitably analyse, synthesise and process this information.
- Resources for solving problems and taking decisions in line with the final objectives.
- The ability to demonstrate critical thinking.
- Suitable understanding of knowledge and resources taught in class: multiple views, graphic symbols, layout, details, etc.
- Interest, work and effort in performing designated tasks.

8. SCHEDULE

The schedule with delivery dates of assessable activities in the course is indicated in this section:

Assessable activities	Date
Activity 1. Introduction to the digital model (castle)	Week 2-3
Activity 2. Introduction to organic modelling and modelling with Dimension (duck, frog and lantern)	Week 4-5
Activity 3. 3-D analysis: 3-D curve from flat and transverse curves (chair)	Week 6-7
Activity 4. 3-D analysis: Sweep and network of curves (shoe)	Week 8-9
Activity 5. 3-D analysis: Transition (insect)	Week 10-11
Activity 6. 3-D analysis: Details and boolean operations (vehicle)	Week 12-13
Activity 7. Render	Week 14-15
Activity 8. Choice of exercise. Record book. Composition of panels/planes.	Week 16-18

The schedule may be subject to modifications for logistical reasons of the activities. Students will be informed of any changes in due time and course.

9. BIBLIOGRAPHY

The recommended bibliography is indicated below:

- AENOR, "Dibujo Técnico. Normas Básicas", AENOR, 1999.
- Koos Eissen, Roselien Steur, “Sketching the basiscs”, BIS Publishers, 2011
- Michiel van der Kley, “Working with Rhinoceros 5.0” en https://www.rhinoacademie.com/rhino-book/
- MORER, P., "Libro Digital de Dibujo Técnico", Universidad de La Coruña, 2003.

10. EDUCATIONAL GUIDANCE AND DIVERSITY UNIT

The Educational Guidance and Diversity Unit offers support throughout your time at university to help you with your academic achievement. One of the main pillars of our educational policy is the inclusion of students with special educational needs, universal accessibility to the different university campuses and equal opportunities.
This unit offers students:

1. Support and monitoring through personalised counselling and programmes for students who need to improve their academic performance.
2. Promotion of diversity, with curricular changes possible in terms of methodology or assessment for those students with special educational needs in order to provide equal opportunities for all our students.
3. We also offer students a range of educational extracurricular resources for developing a variety of skills to enhance their personal and professional development.
4. Career guidance by offering tools and advice to students with doubts regarding their professional careers or those who believe they have chosen the wrong line of study.

Students who need educational support can contact us at:
orientacioneducativa@universidadeuropea.es

11. SATISFACTION SURVEYS

Your opinion matters!

Universidad Europea encourages you to complete our satisfaction surveys to identify strengths and areas for improvement for staff, degree courses and the learning process.

These surveys will be available in the surveys area of your virtual campus or by email.

Your opinion is essential to improve the quality of the course.

Many thanks for taking part.