

1S_FB_Representation systems 1

Qualification: Degree in Higher Artistic Education in Design in the specialties of graphic design, interior design, fashion design and product design.

Subject: Languages and techniques of representation and communication

Type: Training Basic

Credits: 6 ECTS

Total hours: 150h

Course: 1

Hours/week: 9.4h

Semester: 1r

Face-to-face hours/week: 4.5h

Language in which it is taught: Catalan / Spanish

Self-employed hours/week: 4.9h

Prerequisites: equivalent to Technical Drawing of 1st year of Baccalaureate. (Material in case of not having taken Technical Drawing I: <http://www.xtec.cat/~mjuvant2/dibuixtecnic/temari/dtindextemarigeneral.htm>)

1. Presentation of the subject

The knowledge taught in the subject Representation Systems 1 is geometry applied to design. Its purpose is to provide graphic and visual tools and resources to students of Higher Education in Design.

The subject has as its main objective:

Carry out standardized analysis and representation drawings with geometric rigor – by hand and digitally – of complex flat surfaces and objects of medium-low complexity.

The subjects in the subject work together through training activities so that students can have a "multifaceted vision" of how to represent and communicate design.

In order for there to be more meaningful learning of the subject, training activities are proposed through the construction of geometric practices or given models - within the field of Interior, Fashion, Product and Graphic Design - in order to later draw their technical plans.

2. Course contents

A_PLANE GEOMETRY (by hand, drawing tools and digitally).

- Geometric analysis of complex two-dimensional shapes: metric relations and proportions. Geometric transformations. Growth patterns. Harmonic partitions and divisions of the plane.
- Construction of polygonal shapes.
- Curves, tangency and links.
- Sketch.
- Construction of the geometric shape and modulation of the color in the CAD / vector environment

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(Autocad or similar / illustrator or similar).

B_ NORMALIZED REPRESENTATION SYSTEMS OF MEDIUM-LOW COMPLEXITY OBJECTS (by hand and digitally).

- Sketch.
- Dihedral: plan, elevation and section bounded.
- Axonometric: isometric, cavalry and military.
- Shadows.

3. Skills worked on in the subject(Real Decret 633/2010)

Transversal skills		Subject	Subject
CT-01	Organize and plan work in an efficient and motivating way.	X	X
CT-04	Use information and communication technologies efficiently	X	X

General skills		Subject	Subject
CG-02	Master the languages and expressive resources of representation and communication.	X	X

4. Learning outcomes

RA	Description of the learning outcome	Skills
RA1	Identify, analyze, construct and draw - by hand and digitally - the geometric elements that compose complex two-dimensional shapes in examples of Interior, Fashion, Graphic and Product Design.	CG-02, CT-01, CT-04
RA2	Sketch objects of medium-low complexity freehand.	CG-02, CT-01
RA3	Make plans of simple objects in the representation systems: dihedral and axonometric, applying shadows, with drawing tools and digitally.	CG-02, CT-01, CT-04
RA4	Properly organize the elements of the digital drawing and its printing.	CG-02, CT-01, CT-04

5. Teaching methodologies of the subject

Code	Typology	Description	Apply
MD1	Conference and/or master class	The teacher presents and transmits knowledge to the entire group of students, the student has a passive role, that of a receiver.	X
MD4	Tests and/or exams	Formal and structured activity to collect evidence on the degree of achievement of knowledge, skills or competencies by students. This can be written, oral or practical and includes a variety of formats: questionnaires, problems, open questions, practical exercises, etc.	X

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MD5	Workshops and/or internships	Carrying out practical activities applied in a controlled environment, oriented towards learning through experience and/or the transfer of theoretical knowledge to real or simulated situations.	X
MD9	Guided practice	The teacher presents and transmits theoretical knowledge applied to practical activities that take place in the classroom. The teacher guides, supervises and gives active feedback during the practice.	X
MD11	Collaborative work	Joint construction of knowledge through interaction and collaboration between students. The teacher has a guiding and dynamizing role.	X

6. Training activities of the subject

Code	Description	Duration	Percentage
AF1	Set of activities of two-dimensional geometric constructions of plane geometry applied to design.	9 weeks	40-60%
AF2	Set of activities for representing objects of medium-low complexity with current and/or iconic design.	6-7 weeks	40-60%
AF3	Timed theoretical/practical exercise	0-1 week	0-20%

7. Evaluation systems

Due to their typology and educational program, all subjects in the ESDAPC undergraduate design studies include continuous assessment as a procedure to regulate and qualify the learning achieved by students during the semester.

In the event of not achieving the level of sufficiency in the evaluation activities within the closing milestones set out in the subject's schedule, the activities not passed may be corrected and/or completed within the recovery procedure defined by the teaching staff in their schedule.

7.1. Continuous evaluation

General evaluation criteria

The ESDAPC sets some **general evaluation criteria** which are common to all teaching guides, without prejudice to the specific evaluation and grading criteria of each subject:

- Subject grading: A weighted average of the grades obtained in each of the training activities will be made in accordance with the percentages described in the teaching guide and classroom schedule. The subject will be passed with a grade of 5.0 (Pass). All assessment activities can be corrected and/or completed within the recovery procedure within the continuous assessment that the teaching staff defines in their classroom schedule.

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- Class attendance is essential in order to guarantee that learning is progressive, flexible and allows feedback and adjustments in its achievement within the continuous assessment. For this reason, class attendance is mandatory. The teaching staff establishes the mechanisms to control it. The student who does not attend a minimum of 80% of the face-to-face hours of the subject loses the right to continuous assessment and may present for remediation outside of the continuous assessment defined in the teaching guide and classroom schedule for the subject. In cases of serious absenteeism, with attendance of less than 60% of the face-to-face hours of the subject, the student will lose the right to be evaluated and will have a grade of "Not Presented".
- The ability to organize and plan tasks is part of the learning outcomes that the student must achieve within the training process, therefore the deliverables of the evaluation activities must conform to the deadlines, the format and contents defined in the activity statement in order to be qualified. Activities submitted after the deadline, format and/or minimum content will be considered outside the continuous assessment process, will not be evaluated within it and may be resubmitted as a retake.
- In the event of a submission or exam coinciding with a force majeure situation, the student may request to submit an activity after the deadline or repeat an exam, without being considered out of continuous assessment. This submission or exam will be carried out according to the conditions and calendar determined by the teaching staff.
 - Force majeure is understood to mean: serious illness or temporary incapacity (hospitalization) of the student or a first-degree relative, coincidence with an official language level or driving license exam, inexcusable duties before the administration or death of a first- or second-degree relative must be requested in an argued and justified manner in the form of generic application, addressed to the campus management, and must necessarily include the original with a stamp of the document proving the major cause alleged.
- The evaluation process is based on the student's personal work and presupposes the authenticity of the authorship and originality of the exercises carried out. Any act of copying and/or plagiarism or irregular use of Artificial Intelligence (AI) will result in the immediate and irrevocable suspension of the assessable activity, without the right to recovery.

However, and without contradicting these general criteria, each teacher may define other specific complementary conditions, which are included in this teaching guide.

These complementary conditions cannot in any case result in a penalty or limitation of the qualification of an activity, nor the loss of the right to recover an activity.

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Specific evaluation criteria within continuous evaluation

- Correct interpretation of the geometric elements of the two-dimensional shape; precision and geometric rigor in solving the activities. (RA1-RA2-RA3) 20-30%
- Correct application of the representation language technique. (RA1 - RA2 - RA3 - RA4) 20-30%
- Quality of the line (handwritten and/or printed) and proportions, correct arrangement of elements in the format and differentiated application of line values for good understanding of the drawing. (RA4) 20-30%
- Clarity and exigency in the presentation: cleanliness and neatness. (RA1 - RA2 - RA3 - RA4) 10-20%
- Correct use of techniques and procedures. (RA1 - RA2 - RA3 - RA4) 10-20%

Evaluation instruments within continuous evaluation

Practice folder: hand and digital representation exercises
Prova o examen (Optional)

7.2. Recovery

General recovery criteria

The ESDAPC sets general recovery criteria that are common to all teaching guides, without prejudice to the specific evaluation and grading criteria of each subject:

- The ESDAPC provides for a single recovery per activity. The recovery of suspended activities will be done within the deadlines defined by the teachers in their classroom schedule within the same semester. In the event that the teachers have not established a recovery calendar, students may submit the recovery activities during the last school week of the semester.

Specific recovery criteria within continuous assessment

The same ones that apply to continuous assessment.

Specific recovery criteria outside of continuous assessment

The same ones that apply to continuous assessment.

Subject recovery instruments outside of continuous assessment

Handwritten and digital practice portfolio, delivered during the course (30%)
Supplementary exam and/or practicals (70%)

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8. Educational care within the framework of an inclusive education system

This Teaching Guide takes into account educational care within the framework of an inclusive educational system that includes two reference frames that support it:

- MISU: Universal Measures and Supports to promote personal and social development in equity and equality.
- DUA: Universal Learning Design, which allows flexible learning situations to be created based on a design that detects and minimizes the barriers of the context, from the beginning, and that considers variability.

However, to ensure freedom of thought and opportunities in relation to the gender perspective, a co-educational dynamic is carried out that avoids the predisposition of differential treatment, role attributions or assumptions of abilities determined by gender.

The MISU and DUA will be applied to all ESDAPC students. Those students in need of additional measures and support will be included through an Individualized Support Plan.

9. Copying, plagiarism, and academic honesty

From a legal point of view, plagiarism is an infringement of copyright.

The ESDAPC NOFC describes in section 5.4 irregular conduct in the evaluation procedure, which includes copying or plagiarism in any academic activity.

10. Use of Artificial Intelligence (AI)

The ESDAPC recognizes the value of Artificial Intelligence (AI) in the educational field, while highlighting the risks it entails if it is not used ethically, critically and responsibly. The use of AI in the teaching and evaluation context is governed by the principles, criteria and recommendations established in the ESDAPC Guide to the Ethical and Responsible Use of Artificial Intelligence, which constitutes the institutional reference document in this matter.

In this sense, in each assessment activity, students will be informed about the AI tools and resources that can be used and under what conditions, recommending their use as an assistance tool during the research, analysis or conceptual exploration process, but not as a replacement for their own work or professional judgment.

For their part, students undertake to follow the instructions of the ESDAPC when carrying out the assessment activities, as well as the criteria included in the Guide for the Ethical and Responsible Use of AI. Within this framework, students must transparently cite the AI tools used and explicitly identify texts, images or other content generated with AI systems, which may not be presented as their own production.

Misuse of Artificial Intelligence can seriously affect the evaluation of assessment activities. In case of doubt, it is recommended that students consult the teacher responsible for the subject before submitting.

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The specifics of the use of Artificial Intelligence in each subject—including the authorized tools, conditions of use and associated evaluation criteria— will be defined in the classroom programming, where teachers will contextualize the Teaching Guide and the Guide for the Ethical and Responsible Use of AI based on the objectives, skills and methodologies of the subject.

In all cases, students are responsible for any possible errors, omissions or biases that may be generated by the Artificial Intelligence used in the work process.

11. Sources of information and teaching resources

Basic bibliography

Reference bibliography and other resources

Elam Kimberly. (2014). The geometry of design. Studies on proportion and composition. Barcelona: Gustavo Gili.

Francis D. K. Ching, Steven P. Juroszek. (2012 -2nd edition, 3rd printing-). Drawing and Project. Barcelona:

Gustavo Gili. Bruno Munari. (1975). Design and Visual Communication. Barcelona: Gustavo Gili.

ALREADY. Sánchez Gallego, Lluís Villanueva Bartrina. (2002). Technical drawing. Barcelona: UPC Editions.

Audiovisuals

www.dibujotecnico.com

www.mongge.com

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12. Content blocks

ACTIVITY 1	Duration: 9 weeks	Weighting: 40-60%
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Description of the activity

A_Set of activities of two-dimensional geometric constructions of plane geometry applied to design.
Sketching and scaling with drawing tools and autocad/illustrator or similar.

Activity set A1: (geometric patterns)

Activity set A2: (polygonal shapes)

Set of activities A3: (Curves, tangency and links).

*The appropriate grouping can be made at the discretion of the teaching staff.

Contents

PLANE GEOMETRY. Geometric analysis of complex two-dimensional shapes: metric relations and proportions.

- Geometric transformations.
- Growth patterns.
- Harmonic partitions and divisions of the plane.
- Construction of polygonal shapes.
- Curves, tangency and links.
- Sketch.
- Construction of the geometric shape and color modulation in the CAD / vector environment (Autocad or similar / Illustrator or similar).

Skills

CG02	Master the languages and expressive resources of representation and communication.
CT04	Use information and communication technologies efficiently
CT01	Organize and plan work in an efficient and motivating way.

Applied teaching methodologies

MD1	Conference and/or master class
MD5	Workshops and/or internships
MD9	Guided practice
M11	Collaborative work

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Learning outcomes

RA1	Identify, analyze, construct and draw - by hand and digitally - the geometric elements that compose complex two-dimensional shapes in examples of Interior, Fashion, Graphic and Product Design.
RA2	Sketch objects of medium-low complexity freehand.
RA4	Properly organize the elements of the digital drawing and its printing.

Continuous evaluation

Specific evaluation criteria within continuous evaluation

- Correct interpretation of the geometric elements of the two-dimensional shape; precision and geometric rigor in solving the activities. (RA1-RA2-RA3) 20-30%
- Correct application of the representation language technique. (RA1 - RA2 - RA3 - RA4) 20-30%
- Quality of the line (handwritten and/or printed) and proportions, correct arrangement of elements in the format and differentiated application of line values for good understanding of the drawing. (RA4) 20-30%
- Clarity and exigency in the presentation: cleanliness and neatness. (RA1 - RA2 - RA3 - RA4) 10-20%
- Correct use of techniques and procedures. (RA1 - RA2 - RA3 - RA4) 10-20%

Evaluation instruments within continuous evaluation

Block A: Folder of practices by hand and digitally: sketches, scaling with drawing tools and vector software (autocad or similar / illustrator or similar)

Specific recovery criteria within continuous assessment

The same ones that apply to continuous assessment.

Recovery outside of continuous assessment

Specific recovery criteria outside of continuous assessment

The same ones that apply to continuous assessment.

Recovery instruments outside of continuous assessment

Practice folder (manual and digital): 30%

Exam and/or supplementary practices: 70%

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ACTIVITY 2	Duration: 6 weeks	Weighting: 40-60%
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Description of the activity

B_Set of activities for representing objects of medium-low complexity of current and/or iconic design.

Set of activities B1: sketch / dihedral: plan and heights / axonometric -iso, military, knight.

Set of activities B2: sketch / dihedral: plan, elevations and section / axonometric. (applying shadows)

Contents

STANDARDIZED REPRESENTATION SYSTEMS:

- Sketch.
- Dihedral: plan, elevation and section bounded.
- Axonometric: isometric, cavalry and military.
- Shadows.

Skills

CG02	Master the languages and expressive resources of representation and communication.
CT04	Use information and communication technologies efficiently
CT01	Organize and plan work in an efficient and motivating way.

Applied teaching methodologies

MD1	Conference and/or master class
MD5	Workshops and/or internships
MD9	Guided practice
M11	Collaborative work

Learning outcomes

RA2	Sketch objects of medium-low complexity freehand.
RA3	Make plans of simple objects in the representation systems: dihedral and axonometric, applying shadows, with drawing tools and digitally.
RA4	Properly organize the elements of the digital drawing and its printing.

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Continuous evaluation

Specific evaluation criteria within continuous evaluation

- Correct interpretation of the geometric elements of the two-dimensional shape; precision and geometric rigor in solving the activities. (RA1-RA2-RA3) 20-30%
- Correct application of the representation language technique. (RA1 - RA2 - RA3 - RA4) 20-30%
- Quality of the line (handwritten and/or printed) and proportions, correct arrangement of elements in the format and differentiated application of line values for good understanding of the drawing. (RA4) 20-30%
- Clarity and exigency in the presentation: cleanliness and neatness. (RA1 - RA2 - RA3 - RA4) 10-20%
- Correct use of techniques and procedures. (RA1 - RA2 - RA3 - RA4) 10-20%

Evaluation instruments within continuous evaluation

Block B: Folder of practices by hand and digitally: sketches, scaling with drawing tools and vector software (autocad or similar / illustrator or similar)

Specific recovery criteria within continuous assessment

The same ones that apply to continuous assessment.

Recovery outside of continuous assessment

Specific recovery criteria outside of continuous assessment

The same ones that apply to continuous assessment.

Recovery instruments outside of continuous assessment

Practice folder (manual and digital): 30%

Exam and/or supplementary practices: 70%

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ACTIVITY 3	Duration: 0-1 week	Weighting: 0-20% (optional)
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Description of the activity

Timed theoretical/practical exercise.

Contents

PLANE GEOMETRY. Geometric analysis of complex two-dimensional shapes: metric relations and proportions.

- Geometric transformations.
- Growth patterns.
- Harmonic partitions and divisions of the plane.
- Construction of polygonal shapes.
- Curves, tangency and links.
- Sketch.
- Construction of the geometric shape and color modulation in the CAD / vector environment (Autocad or similar / Illustrator or similar).

STANDARDIZED REPRESENTATION SYSTEMS:

- Sketch.
- Dihedral: plan, elevation and section bounded.
- Axonometric: isometric, cavalry and military.
- Shadows.

Skills

CG02	Master the languages and expressive resources of representation and communication.
CT04	Use information and communication technologies efficiently
CT01	Organize and plan work in an efficient and motivating way.

Applied teaching methodologies

MD4	Tests and/or exams
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Learning outcomes

RA1	Identify, analyze, construct and draw - by hand and digitally - the geometric elements that compose complex two-dimensional shapes in examples of Interior, Fashion, Graphic and Product Design.
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RA2	Sketch objects of medium-low complexity freehand.
RA3	Make plans of simple objects in the representation systems: dihedral and axonometric, applying shadows, with drawing tools and digitally.
RA4	Properly organize the elements of the digital drawing and its printing.

Continuous evaluation

Specific evaluation criteria within continuous evaluation

- Correct interpretation of the geometric elements of the two-dimensional shape; precision and geometric rigor in solving the activities. (RA1-RA2-RA3) 20-30%
- Correct application of the representation language technique. (RA1 - RA2 - RA3 - RA4) 20-30%
- Quality of the line (handwritten and/or printed) and proportions, correct arrangement of elements in the format and differentiated application of line values for good understanding of the drawing. (RA4) 20-30%
- Clarity and exigency in the presentation: cleanliness and neatness. (RA1 - RA2 - RA3 - RA4) 10-20%
- Correct use of techniques and procedures. (RA1 - RA2 - RA3 - RA4) 10-20%

Evaluation instruments within continuous evaluation

Exam

Specific recovery criteria within continuous assessment

The same ones that apply to continuous assessment.

Recovery outside of continuous assessment

Specific recovery criteria outside of continuous assessment

The same ones that apply to continuous assessment.

Recovery instruments outside of continuous assessment

Exam