

## **REPRESENTATION CODES (D1B21)**

Type: Basic

ECTS credits: 6

Year: First

Term: 2<sup>nd</sup>

Area of knowledge: Graphic expression

Lecturer/s: Juan José Albert, Ramón García, Manuel Ángel Gil, Andreu Roca, Juan José Zandundo

Studies: Graduate in Design

Academic year: 2009-10

### **1. Presentation of the subject**

The course Representation Codes is part of the Graphic Expression Area. It continues the education started in Principles of Drawing, with both representing a specific route towards geometric representation.

Students' education will continue on the fundamental concepts of the language of drawing and using its tools to gain an overall understanding of the geometric structure of flat shapes, volumes and spaces. The aim is for them to attain the basic knowledge required to be able to interpret them and represent them according to the established representation systems and codes.

The class is divided into 2 blocks of 4.5 and 1.5 credits, respectively. This is an eminently instrumental class.

The classroom exercises, structured as seminars, for 4.5 credit hours, include control of technical drawing done with typical drawing tools. The 'supervised studies', for 1.5 credits, will be done on personal computers on aspects related to drawing with Auto-CAD.

In the 'supervised studies', students will be taught on how to use CAD as a representation tool. The aim is for the basic knowledge to be obtained that is required for understanding how the program works, properly managing information and generating graphic representations that culminate in a finished and printed work.

Exercises will be applicable. The expressiveness of the drawings and proper use of the program will be the primary things evaluated. Both the digital and printed versions will always be required for handing in these exercises.

## 2. Competences to obtain in the class

### 2.1. General competences

G6 Master the technologies that characterise the world of projects.

G19 Foster interest in new fields of knowledge.

G20 Relate the theory and practice that characterises all projects.

### 2.2. Specific skills

E15 Use graphic representation systems, including both the understanding of the perceived reality and the graphic representation variables of this reality.

E47 Use the codes typical of technical drawing to express design project ideas.

E48 Demonstrate knowledge of photography as a tool for understanding, visualisation and representation.

### 2.3. Specific competences for the course

- Know and use the normalised technical representation codes.

- Understand and represent ideas using visual language.

## 3. Competences, contents, methodology and evaluation

### 3.1. General competences (10%)

Competences	Contents	Methodology	Evaluation
G6 Master the technologies that characterise the world of projects	<ul style="list-style-type: none"> <li>- Structuring an exercise</li> <li>- Applying the technical codes</li> </ul>	<ul style="list-style-type: none"> <li>- Organise proposals</li> <li>- Classify versions</li> <li>- Create a work and assignment schedule</li> </ul>	30% From: Individual assignments

Competences	Contents	Methodology	Evaluation
G19 Foster interest in new fields of knowledge	<ul style="list-style-type: none"> <li>- Learn about and appreciate innovations</li> <li>- Be open to new proposals</li> </ul>	<ul style="list-style-type: none"> <li>- Detect details</li> <li>- Research innovations in the field of design</li> <li>- Read current affairs articles</li> </ul>	30% From: Individual assignments Group corrections

Competences	Contents	Methodology	Evaluation
G20 Relate the theory and practice that characterises all projects	- Combine theory and practice	- Undertake a process in which the different stages of a proposal are viewed - Document the execution methods and follow guidelines	40% From: Individual assignments Group corrections

### 3.2. Specific competences (30%)

Competences	Contents	Methodology	Evaluation
E15 Use graphic representation systems, including both the understanding of the perceived reality and the graphic representation variables of this reality	- Monitoring specific procedures	- Translate 3 dimensions into 2 by drawing reality - Adapt what was seen to what was interpreted	40% From: Individual assignments

Competences	Contents	Methodology	Evaluation
E47 Use the codes typical of technical drawing to express design project ideas	- Application of a normalised code in graphically communicating proposals	- Apply standards - Exercise adaptations of the different codes	30% From: Individual assignments Group corrections

Competences	Contents	Methodology	Evaluation
E48 Demonstrate knowledge of photography as a tool for understanding, visualisation and representation	- Use of image resources - Adapt viewed reality to what is perceived	- Do composition exercises with different levels of complexity	30% From: Individual assignments Group corrections

### 3.3. Specific competences for the course (60%)

Competences	Contents	Methodology	Evaluation
- Know and use the normalised technical representation codes	- Use of specific graphic vocabulary	- Use of technical codes - Apply technical codes to drawing in order to visually explain specific issues	50% From: Individual assignments

Competences	Contents	Methodology	Evaluation
- Understand and represent ideas using visual language	- Combine different scales	- Experiment with the components of a composition - Create compositions - Proportion and detail studies	50% From: Individual assignments

## 4. Methodology

### 4.1. Activity types

- The class will have 10 lecture-workshop sessions. The lecturer will explain the drawing topic to be developed and then students will create drawings. Lecturers will guide and orientate students and resolve questions during this work process. Subsequently, the works will be hung for group comments and correction by the professor. Students will have to do another drawing as homework, which will also be corrected and commented on in the following class.
- Practical exercises will be started during class sessions. School time will be used to resolve any questions that arise, as well as potential problems. Every week there will be a homework exercise with the same contents that were explained in class. The class will start with a group correction of the homework exercise and then they will be collected. Optionally, a teaching instruction will be distributed in each class for follow through of the lecturer's explanations, particularly in the supervised studies.
- Learning is understood as progressive and it is therefore compulsory for students to not miss the explanations or corrections. This system entails the active participation of students, doing homework on their own, but with the support of the notes and the specifications given out in class.

4.2. Schedule**Week 1**

	Hours	Classroom activities	Activities outside the class	Evaluation activities		
				Nature	Type	%*
Lectures	1.5	Codes	Study of plane geometry Assignment 1	Obligatory	Form	10
Seminar	3	Codes: Study of the plane geometry of a logo or image				
Supervised study	1.5	Principles of Drawing with CAD: Basic orders for creating and modifying items	Exercise 1			

**Week 2**

	Hours	Classroom activities	Homework	Evaluation activities		
				Nature	Type	%
Seminar	4.5	Codes: Sketching a simple object + Correction assignment 1	Sketching a simple object Assignment 2	Obligatory	Cont. and final	10
Supervised study	1.5	Properties of objects and object references	Exercise 2	Obligatory	Cont.	

**Week 3**

	Hours	Classroom activities	Homework	Evaluation activities		
				Nature	Type	%
Seminar	4.5	Symmetries: Ornament for mirror symmetry of a motif + Correction assignment 2	Ornament for mirror symmetry Assignment 3	Obligatory	Cont. and final	10
Supervised study	1.5	Orders for creating and modifying items	Exercise 3	Obligatory	Cont.	

**Week 4**

	Hours	Classroom activities	Homework	Evaluation activities		
				Nature	Type	%
Lectures	1.5	Format / scale	Geometric modular structure Assignment 4	Obligatory	Cont. and final	10
Seminar	3	Format and measurement: Geometric modular structure with sketches + Correction assignment 3				
Supervised study	1.5	Query and visualisation orders	Exercise 4			

**Week 5**

	Hours	Classroom activities	Homework	Evaluation activities		
				Nature	Type	%
Seminar	4.5	Proportion, structure and fit studied for sketching + Correction assignment 4	Sketches for proportion and fit Assignment 5	Obligatory	Cont. and final	10
Supervised study	1.5	Desktop configuration	Exercise 5	Obligatory	Cont.	

**Week 6**

	Hours	Classroom activities	Homework	Evaluation activities		
				Nature	Type	%
Seminar	4.5	Scales: Representation of an object according to the level of information required + Correction assignment 5	Drawing by scales Assignment 6	Obligatory	Cont. and final	10
Supervised study	1.5	Presentations and printing: graphic scales	Exercise 6	Obligatory	Cont.	

**Week 7**

	Hours	Classroom activities	Homework	Evaluation activities		
				Nature	Type	%
Lectures	1.5	Projection systems: Elevation marks (theory)	Sketching with dihedral views and curved shapes Assignment 7	Obligatory	Cont. and final	10
Seminar	3	Sketching with dihedral views and curved shapes + Correction assignment 6				
Supervised study	1.5	Elevation marks	Exercise 7	Obligatory	Cont.	

**Week 8**

	Hours	Classroom activities	Homework	Evaluation activities		
				Nature	Type	%
Seminar	4.5	Sketching with dihedral and even oblique views Elevation marks: Application exercises + Correction assignment 7	Exercises to expand upon elevation marks Assignment 8	Obligatory	Cont. and final	10
Supervised study	1.5	Work on isometric grids	Exercise 8	Obligatory	Cont.	

**Week 9**

	Hours	Classroom activities	Homework	Evaluation activities		
				Nature	Type	%
Seminar	4.5	Systems: Sketching with axonometry, including curved shapes + Correction assignment 8	Sketching using axonometry and curves Assignment 9	Obligatory	Cont. and final	10
Supervised study	1.5	Image insertion and administration	Exercise 9	Obligatory	Cont.	

**Week 10**

	Hours	Classroom activities	Homework	Evaluation activities		
				Nature	Type	%
Seminar	4.5	Systems: Axonometry, curves, elevations and exploded views + Correction assignment 9 and guidelines for final dossier	Sketches working with axonometry, curves, elevations and exploded views Assignment 10	Obligatory	Final	10
Supervised study	1.5	Considerations for the final exam	Exercise 10	Obligatory	Final	

\* The 100% total of this column corresponds to 80% related to participation in seminars and handing in the weekly assignments

**5. Evaluation**

Evaluation is based on three obligatory core areas:

- Participation in seminars: 50%
- Handing in of weekly assignments: 30%
- Final dossier: 20%

Evaluation is done by the weekly handing in of drawings done in class and at home, which will be commented on and marked in the following class. The average of these evaluations generates the final score for the first exam sitting.

To qualify for the first exam, students must have attended at least 80% of classes.

There are 2 exam sittings to pass the class: once after the regular class finishes, which lasts 10 weeks, and another in July.

After the class finishes and students have been evaluated, a review day is scheduled of qualifications during which students can ask the professor to explain the mark they obtained. If the student fails, this day will be used to establish which parts of the work need to be corrected or repeated. If students do not come, they will have to hand in all exercises done in the class.

The professor will not supervise or correct after the ordinary 10-session class has ended.

In the 'seminar' section, an individual drawing exam will be done in the second exam sitting, in addition to handing in the assignments.

In the 'supervised study' section, students must have passed the personal test in order to have the option to have the practical exercises evaluated. There will be a personal test in the first and second examinations, if the professor did not establish that students only have to hand in assignments in the second examination.

Evaluation is ongoing. Weekly assignments must be turned in that are done by the students as homework on the contents explained in class. Partial assignments are obligatory. If an exercise is not turned in on the due date, it must be turned in at the end of the term without an option for correction. These partial assignments are for formative evaluation and will be evaluated by the professor or in a joint evaluation (co-evaluation). Students will personally reflect on the correction in order to improve future proposals.

Evaluation criteria:

- Acquiring the competences.
- Demonstration of an evolving process in acquiring skills.
- Content of exercises suitable to the assignment.
- Effort: variety of proposals created, depth of the study .
- Response capacity to problems that arise during the process.
- Viability of results.
- Professionalism, degree of independence in executing the exercises.
- Ability to communicate logically and motivate in proposals.
- Quality of the presentation (verbal and visual).
- Final finish of the product.

## 6. Sources of information and teaching resources

### Bibliography

Autodesk Inventor (package with Autocad 2007 and Mechanical Desktop)

Autodesk Para empezar. Autodesk Inc., 2007

Autodesk Administración de datos. Autodesk Inc., 2007

Autodesk Getting Started. Autodesk Inc., 2007

Autodesk Tube and Pipe. Autodesk

ÁLVAREZ BENGOA, VÍCTOR. *Prácticas de dibujo técnico. 4. Perspectiva axonométrica y Caballera*. Sant Sebastià: Editorial Donostiarra. 1992.

RAYA MORAL, B. *Perspectiva*. Barcelona: Gustavo Gili. 1979.

REVILLA BLANCO, ALBERTO. *Prácticas de dibujo técnico. 6. Vistas y visualización de piezas*. Sant Sebastià: Editorial Donostiarra. 1992.

RODRÍGUEZ DE ABAJO, FCO. JAVIER; ÁLVAREZ BENGOA, VÍCTOR. *Curso de dibujo geométrico y de croquización*. Alcoi: Editorial Marfil. 1981.

THOMAE, REINER. *Perspectiva y axonometría*. Barcelona: Gustavo Gili. 1981.



THOMAE, REINER. *El encuadre en la perspectiva*. Barcelona: Gustavo Gili. 1980.

Teaching resources

Dossier of files of examples and works that the lecturer hands out each class, including graphic material so students can do the corresponding exercise for each topic.

A chalkboard and chalk is also required for the professor to explain the exercises, as well as a computer and projector for lecture class and supervised study explanations.

In addition to papers and pens, students will also need parallax and Din A3 paper.