

|                  |                                  |               |                |                     |                     |
|------------------|----------------------------------|---------------|----------------|---------------------|---------------------|
| Course Unit      | Technical Drawing                |               | Field of study | Visual Arts/Design  |                     |
| Bachelor in      | Art and Design - Minor in Design |               | School         | School of Education |                     |
| Academic Year    | 2022/2023                        | Year of study | 1              | Level               | 1-1                 |
| Type             | Semestral                        | Semester      | 2              | Code                | 9898-662-1202-00-22 |
| Workload (hours) | 135                              | Contact hours | T -            | TP 18               | PL 20               |
|                  |                                  |               | TC -           | S -                 | E -                 |
|                  |                                  |               | OT 16          | O -                 |                     |

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) António José Santos Meireles, Carlos Alberto Rodrigues Andrade

#### Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Understands technical drawing as the basis of the formal representation in Art and Design
2. Knows the internationally accepted and stabilized technical standardization
3. Dominates orthogonal projections, cuts and sections
4. Masters the technical perspectives and the respective reference measurements
5. Acquires the necessary three-dimensional visualization capability in space
6. Acquires communicative ability to perceive and / or transmit to others, with precision and clarity, the visualization of two/three-dimensional forms through rigorous projections
7. Apply the methods used to communicate ideas through freehand drawing techniques with sketches and drawings, as well as computer aided design (CAD) tools.

#### Prerequisites

Not applicable

#### Course contents

General aspects, Orthogonal Projections, Technical perspectives, Dimensioning, Technical design in projects, Geometric Constructions, Drawing of curves, Transposition, enlargement and reduction of drawings.

#### Course contents (extended version)

1. General aspects
  - Standards
  - Types of lines
  - Drawing media
  - Subtitles
  - Margins and frames
  - Parts lists
  - Scales
2. Orthogonal projections
  - Concept
  - European and American methods
  - Multiple view representation
  - Meaning of lines
  - Necessary and sufficient views and choice of views
3. Technical Perspectives
  - Parallel or cylindrical projections - oblique and orthogonal
4. Dimensioning
5. Technical drawing in projects
6. Geometric Constructions
7. Drawing curves, transposing, enlarging and reducing drawings

#### Recommended reading

1. Simões Morais, "Desenho Técnico Básico - 3", 23ª edição, Porto Editora
2. Sousa, J. (2015). Técnicas de Desenho. Diggiti Studio
3. Giesecke, F. (2013). Technical Drawing with Engineering Graphic. Pearson
4. Bielefel, B. & Skiba, I. (2017). Basics Technical Drawing. Birkhäuser
5. Sousa, L. Et ALL (2015). Desenho Técnico Moderno. Lidel, Edições Técnicas

#### Teaching and learning methods

- 1 - Analysis, discussion and presentation of theoretical contents; 2 - Development of theoretical and practical works; 3 - Technical, procedural and formal exploration;
- 4 - Monitoring and mentoring on the development of the work.

#### Assessment methods

1. Continuous assessment - (Regular, Student Worker) (Final)
  - Practical Work - 100%
2. Exam - (Regular, Student Worker) (Supplementary, Special)
  - Final Written Exam - 40%
  - Practical Work - 60% (Nr. 4 art. 7 of Attendance and Assessment Regulation - Classification in the Continuous Assessment)

#### Language of instruction

Portuguese, with additional English support for foreign students.

## Electronic validation

|   |                                  |  |                              |
|---|----------------------------------|--|------------------------------|
| António José Santos Meireles, Carlos<br>Alberto Rodrigues Andrade | Helena Maria Lopes Pires Genésio | Jacinta Helena Alves Lourenço Casimiro<br>da Costa | Carlos Manuel Costa Teixeira |
| 10-12-2022  | 11-12-2022                       | 02-01-2023   | 02-01-2023                   |