

## DESCRIPTIVE GEOMETRY AND TECHNICAL DRAWING

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Code: 332002

Main Scientific Area: Mechanics and industrial processes

Lecturer: Luís Miguel Moura Frade Vaz Pinto

Language of Instruction: Portuguese

Regime: S1

Contact Hours: 30h Total Workload: 53h

ECTS: 3,0

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### **Objectives**

Provide students with the ability to represent properly a piece (technical or otherwise) on paper and on the computer.

Know the norms of technical drawing and know how to apply them in 2D and 3D representations.

To be able to efficiently use 2D and 3D technical drawing software to represent elements, parts and assemblies.

### **Learning Outcomes**

Students should be able to:

- Elaborate drawings of objects in orthogonal representation with nominal dimension.
- Read drawings of objects in orthogonal representation and make the corresponding representations in isometric perspective.
- Interpret the meaning of dimensional and geometric tolerances inscribed in drawings and calculate ISO adjustments.

### **Course Contents**

1. Basic principles of representation; orthogonal projection; European and American methods.
2. Technical Drawing Standards
3. Introduction to Autocad
4. Isometric perspective and layers.
5. Circle, arc, offset, trim, extend, isocircle, fillet, chamfer, hatch commands
6. Understanding 3D representation
7. Cuts, Conventions, Legends and Scales

8. Displacing Views and Text
9. Sections and Nominal Dimension
10. Dimensional and geometric tolerance

### **Recommended Bibliography**

Apontamentos das aulas

Simões Morais, " Desenho técnico básico", Porto Editora, 23ª edição, 2007

### **Learning and Teaching Methods**

- Items 1, 4 and 6 of the syllabus will give students the ability to represent properly a piece (technical or otherwise) on paper and on the computer.
- Items 2,7,8,9 and 10 of the syllabus will allow students to know the standards of technical drawing and to apply them in 2D and 3D representations.
- Items 3,4 and 5 of the syllabus will enable students to efficiently use 2D and 3D technical drawing software to represent elements, parts and assemblies.

### **Assessment Methods**

Continuous assessment of a weighted average of:

$$\text{Final rating} = 0.05 * A + 0.45 * \text{TAC} + 0.35 * \text{PF} + 0.15 * \text{TE}$$

A- Attendance

TAC - Class and Homework

PF - Final Project

TE - Written test

Final grade for approval > 9.5 values on a scale of 0-20 values.