

<b>POLI</b> ESCOLA SUPERIOR TECNOLOGIA GESTÃO <b>TÉCNICO</b> <b>GUARDA</b>	<b>SUBJECT DESCRIPTION</b>	<b>MODELO</b> PED.013.03
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Course	Equipment Design					
Subject	Digital Modeling I					
Academic year	2023/2024	Curricular year	2nd	Study period	1st semester	
Type of subject	Compulsory	Student workload (H)	Total: 140	Contact: 60	ECTS	5
Professor(s)	Professora Elisa Caetano					
<input checked="" type="checkbox"/> Area/Group Coordinator <input type="checkbox"/> Head of Department	(select)	Professor Doutor José Reinas André				

## PLANNED SUBJECT DESCRIPTION

### 1. LEARNING OBJECTIVES

*Representation of models through the use of Computer Aided Design tools, in the form of orthogonal projections. Develop and manage technical drawing files, within the scope of Industrial Design and environmental design projects. Skills to be developed: correctly use graphic conventions, materials and rigorous drawing tools; know the theoretical basis of the various projection systems; recognize the particular function and vocation of each of these representation systems; use knowledge of the systems studied in the development of ideas and their communication; Know the specific characteristics of architectural drawing; Know the constituent parts of an architectural project; use Auto CAD software as a work tool to create parts designed in two dimensions.*

### 2. PROGRAMME

#### 1 Introduction

- 1.1 Drawing as a form of creative expression;
- 1.2 Computer Aided Design (CAD) as a design tool;
- 1.3 CAD geometric modeling tools;
- 1.4 CAD file management.

#### 2 Development and practice of computer-aided design

- 2.1 Drawing commands and modification commands;
- 2.2 View commands and editing commands;
- 2.3 Dimensioning and technical annotations of drawings in a CAD environment;
- 2.4 Two-dimensional and three-dimensional representation of models.

#### 3. File management

- 3.1 Management of 2D and 3D files: reproduction, printing, and file conversion.

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### 3. COHERENCE BETWEEN PROGRAMME AND OBJECTIVES

The proposed program contents aim to transmit theoretical knowledge and its practical application to the student. They also aim to transmit to the student the theoretical foundations associated with design and architectural drawing. They also aim to ensure that the student correctly uses graphic conventions, both in traditional technical drawing and in computer-aided design (CAD), preparing them to apply the knowledge acquired in the design, execution and interpretation of designed pieces.

### 4. MAIN BIBLIOGRAPHY

*Teacher's notes available on the MOODLE platform.*

*Silva, A., Dias, J., Sousa, L., e Ribeiro, C., Desenho Técnico Moderno, 11.a edição, Lidel, 2004, ISBN: 9789727573370*

*Cunha, V., L., Desenho Técnico, edição: Fundação Calouste Gulbenkian, abril de 2004; ISBN: 9789723110661*

*Shawna Lockhart, Tutorial Guide to AutoCAD 2017 2D Drawing, 3D Modeling, SDC Publications; <https://www.sdcpublications.com/pdfs/sample/978-1-63057-043-9-2.pdf>*

*User Guide, 2017; <http://docs.autodesk.com/smoke/smoke-2017-userguide.pdf>*

*Plantenberg, K., Engineering Graphics Essentials with AutoCAD 2017 Instruction, SDC Publications, 2016, ISBN: 913-262-2664*

*Comandos e Atalhos do AutoCAD em Inglês e Português; <http://markoni.com.br/wp-content/uploads/2016/04/AutoCAD-Atalhos-de-comandos-em-portug%C3%AAs-e-ingl%C3%AAs.pdf>*

*Download AutoCAD 2017 Tutorial in MP4; <https://arkasite.wordpress.com/2016/07/21/download-autocad-2017-tutorial-in-mp4/>*

### 5. TEACHING METHODOLOGIES (INCLUDING EVALUATION)

*The expository and demonstrative method will be adopted in theoretical-practical classes. In classes, worksheets will be created consisting of practical exercises to apply the syllabus provided for in the curricular unit. The support material for the curricular unit will be made available using, preferably, the Sigarra platform. Two types of assessment are planned for the course: Continuous Assessment and Assessment by Exam.*

$$FC (00 - 20) = API + FEC + PS + F$$

*API - student attendance, participation and interaction in classes – 10% (2 val)*

*FEC - individual exercises in class – 15% (3 val)*

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*PS- 2 Projects - (1º Project - 15 % + 2º Project - 20% ) (3 val + 4 val)*

*F (or Normal Exam) - Mandatory attendance - 40% (8 val)*

*Calculation of the final classification by Final Exam: (00 – 20 Val)*

*To pass the curricular unit, the student must obtain a final grade equal to or greater than 9.5, on a scale of 0 to 20 values.*

## 6. COHERENCE BETWEEN TEACHING METHODOLOGIES AND OBJECTIVES

*The teaching methodology adopted for the curricular unit program, on the one way, that theoretical contents are presented in theoretical-practical classes, using the board, video projector and computer, and on the other way, composed of practical exercises to apply the contents, which will be prepared using traditional technical drawing and computer-aided design. The student will also have to carry out a final project work. It is therefore considered that the adopted methodology ensures the necessary theoretical knowledge component and provides the student with the ability to apply this acquired knowledge and knowledge to the concrete activities of their respective professional profile.*

## 7. ATTENDANCE

*If the student chooses the continuous assessment regime, attendance is mandatory and will be assessed in accordance with the provisions of this assessment regime*

## 8. CONTACTS AND OFFICE HOURS

*Professor: Elisa Caetano*

*Email: elisacaetano@ipg.pt*

*Cab. Nº 6*

*Assistance hours : Friday from 1pm-3pm*

## OTHERS

## DATE

**15 October 2023**

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**SIGNATURES**

*Professor(s), Area/Group Coordinator or Head of Department signatures*

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