

Course Unit	3d Digital Modeling	Field of study	Design
Bachelor in	Art and Design - Minor in Design	School	School of Education
Academic Year	2023/2024	Year of study	1
Type	Semestral	Semester	2
Workload (hours)	135	Contact hours	T - - TP 18 PL 20 TC - - S - - E - - OT 16 O - -
		Level	1-1
		ECTS credits	5.0
		Code	9898-662-1205-00-23

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) Jacinta Helena Alves Lourenço Casimiro da Costa

#### Learning outcomes and competences

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

1. Read and interpret technical drawings;
2. Draw up quoted drawings;
3. Understand the advantages and disadvantages of using open source software
4. Know how to use solid modeling software.

#### Prerequisites

Before the course unit the learner is expected to be able to:  
Without pre-conditions

#### Course contents

1. Introduction;
2. Technical Drawing;
3. Basic computer graphics;
4. Training and practice of
5. The outputs and products of the programs;
6. Case-study.

#### Course contents (extended version)

1. Introduction:
  - The computers and the project;
  - Typologies of programs for the project.
2. Technical Drawing:
  - Drawing of manual sketches;
  - NP and ISO standardization;
  - Manufacturing processes (basic concepts);
  - Standardized elements.
3. Computer Graphics Basics:
  - Elements of Geometry in Computer Graphics;
  - Rendering modes;
4. Training and practice of operation:
  - Drawing;
  - Three-dimensional modeling.
5. The outputs and outputs of the programs:
  - Views and animations;
  - Models and prototypes;
  - Numerical simulation (basics);
  - Industrial production.
6. Case-study.

#### Recommended reading

1. GERSHENFELD, N. (2007). Fab: The Coming Revolution on Your Desktop-from Personal Computers to Personal Fabrication. Basic Books, ISBN 978-0465027460;
2. KERLOW, I. V. (2009). The Art of 3D Computer Animation and Effects, Fourth Edition, WILEY;
3. MANUAL AUTODESK MAYA. (atualização anual) The Modeling & Animation Handbook. Autodesk Official Training Guide;
4. MORAIS, S. (2006). Desenho Técnico Básico 3. Porto Editora, Porto, ISBN: 978-972-96525-2-3;
5. VOLPATO, N. (2007). PROTOTIPAGEM RÁPIDA: Tecnologias e Aplicação. Editora Edgard Blucher, Lda.

#### Teaching and learning methods

In the first part of the CU there will be exposure of the contents and analysis of small examples of application with resolution accompanied by case study. In the second part of the UC is used a tutorial methodology based on example exercises of the computer tools to be used.

#### Assessment methods

1. CONTINUOUS EVALUATION - (Regular, Student Worker) (Final)
  - Practical Work - 60%
  - Projects - 40%
2. EXAM EVALUATION - (Regular, Student Worker) (Supplementary, Special)
  - Practical Work - 60% (nº 4 art. 7 Frequency and Evaluation Regulations - Classification obtained in Continuous Assessment)
  - Projects - 40% (Theoretical practical work proposal with the respective technical report and oral presentation.)

#### Language of instruction

Portuguese, with additional English support for foreign students.

## Electronic validation

Jacinta Helena Alves Lourenço Casimiro da Costa	Helena Maria Lopes Pires Genésio	António José Santos Meireles	Carlos Manuel Costa Teixeira
19-02-2024	20-02-2024	21-02-2024	25-02-2024