UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
2D Digital Technologies

Academic Year 2026/2027

1. Organic Unit

Faculty of Architecture and Arts

2. Course

DESIGN

3. Cycle

1st

4. Course Unit

2D Digital Technologies (L5015)

5. Scientific Area

6. Curricular Year

2nd

7. Type of Curricular Unit / Semester

1st Semester

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8. Class type and workload (work time)

Theoretical classes:	
Practical classes:	
Theoretical-Practical Classes	30,00
Tutorial Guidance:	

9. ECTS Credits

3,00

10. Scientific Area Coordinator

11. Regent

Profª Doutora Arqtª CRISTINA MARIA DOS SANTOS NUNES PIRES CARAMELO GOMES

12. Assistants

13. Teaching Language

Portuguese

14. General Objectives

Encourage the learning and use of technological applications for the construction, visualization, and presentation of the Designer's idea.
Mastery of parametric modeling tools based on two-dimensional sketches is a basic need for presenting the project in a rigorous way, allowing the experimentation of different conceptual solutions in virtual prototypes.

15. Specific Objectives

It is intended that students build three-dimensional parametric models characterized by their different components and respective assembly possibilities. The construction of parametric models allows the generation of photorealistic images and rigorous and informed drawings consistent with the rules of technical drawing.

16. Skills to be acquired

To develop knowledge and practice of the SolidWorks sw, through the use of parametric modeling tools and assembly of components, exploring the technological possibilities for a project conception, visualization, and presentation of higher quality.

17. Teaching Methodology

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Classes will address different examples, motivating the capacity for analysis and subsequent debate of the issues presented.
As support to research, students will develop practical work allowing knowledge of the relationship between theory and practice.

18. Course Unit Program

Technological development and requests for skills required by the labor market have contributed significantly to the growing appreciation of three-dimensional modeling over the two-dimensional drawing. The two-way relationship between the construction of the parametric model and the generation of designed parts guarantees the integrity of the project since any change made in one of the parts is reflected in all the others.

Three-dimensional modeling and photorealistic representation
SolidWorks operating philosophy and working environment: pull-down menus, toolbars.
Import and export of files as a working basis for creating parts. Introduction to SolidWorks modeling.
Sketching. Create 3D models from 2D Sketches.
Tools aimed at creating and editing sketches and three-dimensional models.
Assemblies Animation of exploded views.
Creation, parameterization, and insertion of dimensions.
Introduction to Drawing, Compositing, and Print Management

19. Assessment Methods

The evaluation will be based on attendance, participation, and commitment in the debates made during the privileged contact by the classroom space, in the execution and presentation of practical works.
The assignments requested, as well as the written tests in compliance with the evaluation regulations of Universidade Lusíada, are the subject of a specific statement, following the most appropriate methodology for the objective to be achieved and duly scheduled.

20. Didactic Resources

Referenced bibliographical elements.
Databases available in the Media Library.
Computer equipment, HW (PC) and SW, SolidWorks, peripherals such as a plotter, printer, scanner for presenting concepts and developing students' theoretical/practical work.

21. Sustainability Objectives

Good health and well-being
Quality education
Decent work and economic growth
Reduced inequality
Sustainable cities and communities
Climate action
Partnerships to achieve the goal

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22. Keywords

Design
CAD
ICT
Multimedia
Technical drawing

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23. Main Bibliography

Author(s): COSTA, Américo
Title: Projecto 3D em Solidworks
Edition: Year: 2016
Local: Lisboa
Publisher: FCA
ISBN Code:

Author(s): MONTEITO, João
Title: Modelação por Superfícies e Híbrida Solidworks
Edition: Year: 2020
Local: Lisboa
Publisher: FCA
ISBN Code:

Author(s): Américo COSTA, A. ; CRAVO, H. ; CENFIM
Title: Projeto 3D em SOLIDWORKS e SolidCAM
Edition: Year: 2021
Local: Lisboa
Publisher: FCA
ISBN Code:

24. Complementary Bibliography

Author(s): JURICIC, D.
Title: Design Workbook Using Solidworks 2023
Edition: Year: 2023
Local: New York
Publisher: SDC Publications
ISBN Code:

Author(s): DOGRA, S.
Title: SOLIDWORKS Exercises - Learn by Practicing
Edition: 3rd Year: 2021
Local: New York
Publisher: Cadartifex
ISBN Code:

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Autor / Author	Profª Doutora Arqtª CRISTINA MARIA DOS SANTOS NUNES PIRES CARAMELO GOMES
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