UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
3D Digital Technologies

Academic Year 2026/2027

1. Organic Unit

Faculty of Architecture and Arts

2. Course

Architecture

3. Cycle

1st

4. Course Unit

3D Digital Technologies (01316)

5. Scientific Area

6. Curricular Year

2nd

7. Type of Curricular Unit / Semester

2nd Semester

FUNDAÇÃO MINERVA CULTURA - ENSINO E INVESTIGAÇÃO CIENTÍFICA

Rua da Junqueira, 188 a 198 - 1349-001 LISBOA - Telefone 213 611 500 - Fax 213 638 307 - e-mail: info@lis.ulusiada.pt - https://www.lis.ulusiada.pt

8. Class type and workload (work time)

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

9. ECTS Credits

2,00

10. Scientific Area Coordinator

Profª Doutora Arqtª CRISTINA MARIA DOS SANTOS NUNES PIRES CARAMELO GOMES

11. Regent

12. Assistants

13. Teaching Language

Portuguese

14. General Objectives

Develop in-depth knowledge of the conceptual framework underlying computer-aided design, combining the rigor of technical design and coherence of the pieces to be presented with the creativity that access to any and all graphic and alphanumeric information makes possible.
The access allowed by ICT to information allows and requires a greater level of creativity, as well as collaboration/communication with other professionals, regardless of their geographic location.

15. Specific Objectives

It is intended that students build virtual scenarios characterized by the attribution of physically correct materialities and lights to generate photorealistic images and animations that allow representing and presenting the design solution. The images produced will also be worked on in image processing software in order to create the requested ambiance or the purpose of their presentation/communication.
Research/selection of the various technological solutions that can be used.

16. Skills to be acquired

Organization of the different types of information that make up the different stages that make up the licensing project and/or the promotion of the built environment.
Self-discipline and confidence in the theoretical and practical knowledge acquired in order to extrapolate to practical exercises requested after classes.
Identify the advantages and limitations of using ICT in project design.
Awareness of new methods of organizing and presenting work.

FUNDAÇÃO MINERVA CULTURA - ENSINO E INVESTIGAÇÃO CIENTÍFICA

Rua da Junqueira, 188 a 198 - 1349-001 LISBOA - Telefone 213 611 500 - Fax 213 638 307 - e-mail: info@lis.ulusiada.pt - https://www.lis.ulusiada.pt

17. Teaching Methodology

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

Three-dimensional modeling and photorealistic representation

3DS MAX operating philosophy and working environment: pull-down menus, toolbars, 3DS MAX window.
Importation of files (AutoCAD and REVIT) as a working basis for creating photorealistic scenes.
Modeling from the elements provided by the autocad file.
Creation of entities: walls, windows, doors.
Materials.
Material visualization.
Types of materials.
Material properties.
Assignment of materials to the different elements that make up the object.
Artificial light: Normal Lights and Photometric Lights.
Light properties.
Natural Light: creation of the sun and geographic positioning of the illuminated object.
Chambers.
Camera properties.
Camera positioning adjustment.
Creation of photorealistic images.
Animation.
Animation setup.
Realistic view.
Realistic view control.

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 works of application of knowledge.
The assignments requested, as well as the written tests in compliance with the evaluation regulations of Universidade Lusíada, are the object of a specific statement, following the most appropriate methodology for the objective to be achieved and duly scheduled.

20. Didactic Resources

FUNDAÇÃO MINERVA CULTURA - ENSINO E INVESTIGAÇÃO CIENTÍFICA

Rua da Junqueira, 188 a 198 - 1349-001 LISBOA - Telefone 213 611 500 - Fax 213 638 307 - e-mail: info@lis.ulusiada.pt - https://www.lis.ulusiada.pt

Bibliographical elements included in the program and syllabus of the discipline. These bibliographic elements correspond to the physical books presented in the bibliography and, above all, to the information available online through websites, YouTube content, etc.
Databases available in the Media Library.
Computer equipment, HW(PC) and SW, AutoCAD, Inventor, Revit, 3dMax, SolidWorks, and peripherals such as a plotter, printer, and scanner for presenting concepts and developing 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

22. Keywords

CAD
3D MAX
ICT
Multimedia
Technical drawing

FUNDAÇÃO MINERVA CULTURA - ENSINO E INVESTIGAÇÃO CIENTÍFICA

Rua da Junqueira, 188 a 198 - 1349-001 LISBOA - Telefone 213 611 500 - Fax 213 638 307 - e-mail: info@lis.ulusiada.pt - https://www.lis.ulusiada.pt

23. Main Bibliography

Author(s): DIXON, M. G.
Title: Graphic Architecture: The inspiration Book
Edition: Year: 2023
Local: NY
Publisher: Independently published
ISBN Code:

Author(s): NIKITA, M.
Title: Create Stunning Animations Using Corona and V-Ray in 3ds Max: Guiding the Next Generation of 3D Rend
Edition: Year: 2025
Local: NY
Publisher: CRC Press
ISBN Code:

Author(s): SORTHAW, H.
Title: 3Ds Max Complete 2024 Guide for Beginners: Mastering 3D Art from Basics to Advanced Techniques | A S
Edition: Year: 2023
Local: NY
Publisher: Independently published
ISBN Code:

24. Complementary Bibliography

Author(s): MUACHILA, G.
Title: The Essential 3Ds Max 2024 Quick Guide for Beginners: A Step-by-Step Learning Experience for Aspirin
Edition: Year: 2024
Local: NY
Publisher: Independently published
ISBN Code:

Author(s): BIRN, J.
Title: Digital Lighting and Rendering
Edition: Year: 2013
Local: NY

UNIVERSIDADE LUSÍADA
LISBOA

Publisher: New Riders

ISBN Code:

Ficha técnica MIP / MIP Datasheet	
Título / Title	Course Unit Program 'TECNOLOGIAS DIGITAIS 3 D': Academic Year 2026/2027
Autor / Author	Profª Doutora Arqtª CRISTINA MARIA DOS SANTOS NUNES PIRES CARAMELO GOMES
Classificação / Classification	-
Descritores / Descriptors	-
Colaborador(es) / Colaborator(s	-
Data Hora / Date Time	
Formato de dados / Data Format	Texto / Text, PDF
Estatuto de utilização / Usage	Acesso público / Public Access
Relação / Relation	Version 1,0

(c) Universidade Lusíada, 2026

FUNDAÇÃO MINERVA CULTURA - ENSINO E INVESTIGAÇÃO CIENTÍFICA

Rua da Junqueira, 188 a 198 - 1349-001 LISBOA - Telefone 213 611 500 - Fax 213 638 307 - e-mail: info@lis.ulusiada.pt - https://www.lis.ulusiada.pt