UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Prototypes

Academic Year 2025/2026

1. Organic Unit

Faculty of Architecture and Arts

2. Course

DESIGN

3. Cycle

1st

4. Course Unit

Prototypes (L5020)

5. Scientific Area

6. Curricular Year

3rd

7. Type of Curricular Unit / Semester

2nd Semester

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8. Class type and workload (work time)

Theoretical classes:	
Practical classes:	
Theoretical-Practical Classes	60,00
Tutorial Guidance:	

9. ECTS Credits

6,00

10. Scientific Area Coordinator

11. Regent

Prof. Doutor PEDRO JOSÉ GENTIL- HOMEM CORREIA DA SILVA

12. Assistants

Designer JORGE MARIA FRANCO FRAZÃO DAMIÃO BRÍGIDA

13. Teaching Language

Portuguese

14. General Objectives

Stimulate research, design and development capabilities in the areas of rapid prototyping and 3D modeling.
Develop knowledge about the processes and techniques for making prototypes of three-dimensional models.
Develop creative methods and skills leading to innovation in prototyping.

15. Specific Objectives

Recognizing processes and techniques manufacturing and prototyping, their mechanisms,potential and limitations on different technologies and materials.
Incorporate knowledge on solving real problems with high levels of complexity.
Knowing how to manage three-dimensional file preparation procedures for rapid prototyping.

16. Skills to be acquired

Acquire technical skills to develop models on prototyping processes.
Manage the available resources in order to obtain high quality results.

17. Teaching Methodology

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Theoretical sessions supported by selected bibliography.
Presentation of audiovisual material on prototyping processes, cases studies of excellence in product design, etc.
Participated demonstration sessions: interaction with raw materials, material analysis, tests, experimentation.
Field trips.
Tutorial on practical exercises and construction of prototypes.

18. Course Unit Program

Prototyping and experimental character aiming developing critical competence and analysis of processes and respective results, as well as promoting a theoretical and practical path aimed at the perception and understanding of the various processes of prototyping and rapid prototyping.
Construction and modeling using dedicated software
Preparation and creation of models for prototyping.
Potentialities of different prototyping techniques.
Observation and understanding of production principles, mechanisms inherent to the processes and management of development of prototypes and models.
Correspondence between processes and recognition of the technologies that incorporate them.
The syllabus will be materialized through the realization of theoretical/practical projects of high complexity and respective realization of prototypes.

19. Assessment Methods

Continuous evaluation through written tests and practical exercises, reports on study visits.
Punctuality, attendance and compliance with the timetable, participation, commitment and co-working.

20. Didactic Resources

Case studies
supporting texts
Bibliography
Field Journeys
3D modeling
3 dimensional printer
documentary films
Audio-visual material
Internet

21. Sustainability Objectives

Although the aim of teaching this course and of the degree is to fulfil goal n.4 - quality education - the foundational basis of the UL-Lisbon Design courses is the belief that Design is a tool for the sustainable promotion of society in its ethical, social and ecological aspects. Therefore, one of the global objectives of Design teaching at UL-Lisbon is to alert students to the importance of their future as Designers so that it fulfils ALL the 17 SDG defined by the UN.

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22. Keywords

3D printing / Prototyping
Design
3D modeling
Technologies
Processes

23. Main Bibliography

Author(s):	VOLPATO, Neri		
Title:	Prototipagem Rápida - Tecnologias e Aplicações		
Edition:	1ª	Year:	2007
Local:	São Paulo		
Publisher:	Edgard Blüchen		

Author(s):	CHUA, C. K.; LEONG, K. F.; LIM, C. S.		
Title:	Rapid Prototyping: Principles and Applications		
Edition:	3rd edition	Year:	2010
Local:	London		
Publisher:	World Scientific Publishing		

Author(s):	THOMSON, Rob		
Title:	The Manufacturing Guides - Prototyping and Low-Volume Production		
Edition:	1st edition	Year:	2011
Local:	London		
Publisher:	Thames and Hudson		

24. Complementary Bibliography

Author(s):	LESKO, Jim		
Title:	Industrial design: Materials and Manufacturing Guide		
Edition:	2nd Edition	Year:	2008
Local:	New Jersey		
Publisher:	John Wiley & Sons		

Author(s):	THOMSON, Rob		
Title:	The Manufacturing Guides - Product and Furniture Design		
Edition:	1 St edition	Year:	2011
Local:	London		
Publisher:	Thames and Hudson		

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Ficha técnica MIP / MIP Datasheet	
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Autor / Author	Prof. Doutor PEDRO JOSÉ GENTIL- HOMEM CORREIA DA SILVA
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