UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Materials

Academic Year 2026/2027

1. Organic Unit

Faculty of Architecture and Arts

2. Course

Architecture

3. Cycle

1st

4. Course Unit

Materials (01317)

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	60,00
Tutorial Guidance:	

9. ECTS Credits

3,50

10. Scientific Area Coordinator

Profª Doutora Arqtª MARIA DE FATIMA SILVA

11. Regent

12. Assistants

Prof. Doutor CARLOS ALBERTO DE OLIVEIRA AUGUSTO

13. Teaching Language

Portuguese

14. General Objectives

Architecture is a process that transforms and models matter, producing volume and space. The organization of materials defines it. Introduction to the logic of construction materials and systems, understanding that the basis of architecture is the tectonic process of construction. Understand the close relationship with architectural languages and a design composition, introdution the subject of the stereotomyc representation. Learning is carried out using materials studys.

15. Specific Objectives

Understand the nature of each material and how they come together, and how functional and expressive benefits can be taken from these aggregations. It is through the study of their composition, properties, forms of application and pathologies, that the student learns to manipulate and apply materials. This study must consider the needs for adapting to the site, especially the connection with the soil and also the climate, albeit in an introductory and abstract way.

16. Skills to be acquired

Represent through sketches, detailed and technical drawings the situations studied and developed. Understand basic materials and systems through their characteristics and their ways of aggregation based on real situations. These aspects are consolidated through exercises where the student is invited to manipulate different types of materials in various situations. The registration and development process will be from the particular to the general, starting from the construction detail.

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17. Teaching Methodology

Learning and consolidating the subjects taught throughout the year is done continuously, through practice and theory. Theoretical classes frame the subjects and exercises and practical classes include observation and detailed project exercises. These will be studied and recorded through models and various types of drawings and scales appropriate to the situations, later compiled in a notebook in the form of a Portfolio.

18. Course Unit Program

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The program focuses on the introduction to materials, their properties and characteristics and the way in which they come together to produce architecture. It also focuses on the way these are represented both in detail and in buildid sets through drawing. The disciplinary content includes two main themes. The observation and representation of constructed architectural situations and the design of simple program architectural situations. In both, students explore monomaterials, that is, situations where the connections and possibilities of each material are studied.
For this purpose, a set of references from the world of architecture and art are used, which students will study in practical exercises. The following topics will be covered in theoretical classes:

1. Introduction. From architectural to tectonic, considerations about space and the constructive elements that define it.
2- Drawing as an instrument to represent architecture. Technical standards and representation criteria, scales.
3- Materiality and Site, The Survey of Popular Architecture in Portugal. Fernando Távora and 'The problem of the Portuguese house'
4- Popular Architecture in Portugal, North Zone, granite and schist architecture. Stones- Preparation and aggregation, Classification. Properties. Finishes. Fixation and Pathologies.
5- Popular Architecture in Portugal. South Zone, earth architecture. Concrete - Constitution. Properties. Types and Finishes. Pathologies.
6- Popular Architecture in Portugal. Central Zone, stone and brick masonry. Ceramics - Types of brick and other ceramic materials. Properties. Finishes. Application and Pathologies.
7- Popular Architecture in Portugal. Central Zone. From specific cases of the use of wood on the coast to 'Gaiola Pombalina'. Wood- Conversion, Properties, Finishes, Application and Pathologies.
8- Complementary materials, Iron - Constitution of iron and other metallic alloys. Conversion, Properties, Finishes, Application and Pathologies.
9- Complementary materials, Glass - Constitution. Properties. Types of glass. Conversion, Properties, Finishes, Application and Pathologies.
10. Synthetic and renewable complementary materials. Types, Constitution, Conversion, Properties, Finishes, Application and Pathologies.

The practical component must essentially be dedicated to what is called 'detailled designs'. There will be strong interconnections with the subjects taught in the theoretical component. Developing themes that relate to simple elements of the construction process, allows students to have contact with materials, survey and design techniques and to consolidate representation techniques. These exercises have different degrees of difficulty, some being more technical, others more creative. The exercises always starts from the material and construction details in the direction of the project. To achieve this, drawing and model representation methods are used towards technical drawing, which in this 1st semester will be carried out exclusively by hand without the use of a computer.

materials | exercise 1 | observation and representation
One material, one situation - List of Details and Survey

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materials | exercise 2 | monomaterials and design
Design of a simple program construction through the aggregation of a material.

19. Assessment Methods

Materials curricular unit is a semester-long subject, with two components, one practical and the other theoretical. The assessment of the curricular unit is carried out on a continuous basis, that is, the student is assessed based on the interest they demonstrate in the subjects taught, their participation in classes and respective attendance and through all the work and assessment instruments carried out throughout the year: Theoretical and practical outlines. Practical work.

20. Didactic Resources

PowerPoint Presentation
Moodle
Microsoft Teams
Bibliography
Study cases

21. Sustainability Objectives

Sustainability consists of building with the future in mind...in addition to its sustainability and intelligence, architecture must be a factory of emotions. Renzo Piano

22. Keywords

Matter
Materials
Observe
Build
Understanding
Join
Represent
Express
Detailing

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23. Main Bibliography

Author(s): Andrea Desplazes
Title: Constructing Architecture: Materials, Processes, Structures; A Handbook ,
Edition: 2ª Year: 2008
Local: Basileia
Publisher: Birkhäuser Architecture
ISBN Code:

Author(s): Paulo Brito da Silva
Title: Desenho Técnico em arquitectura e design
Edition: 1ª Year: 2015
Local: Lisboa
Publisher: Universidade Lusíada Editora
ISBN Code:

Author(s): Wolfgang Nutsch
Title: Manual de Construcción-detalles de interiorismo
Edition: Year: 2006
Local: Barcelona
Publisher: Editorial Gustavo Gili, SL
ISBN Code:

24. Complementary Bibliography

Author(s): Alberto Reaes Pinto
Title: Contribuições para a Construção Sustentável
Edition: 1ª Year: 2018
Local: Lisboa
Publisher: Universidade Lusíada Editora
ISBN Code:

Author(s): Luis Veiga da Cunha
Title: Desenho técnico
Edition: 17ª Year: 2017
Local: Lisboa
Publisher: Fundação Calouste Gulbenkian
ISBN Code:

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Ficha técnica MIP / MIP Datasheet	
Título / Title	Course Unit Program 'MATERIAIS': Academic Year 2026/2027
Autor / Author	Profª Doutora Arqtª MARIA DE FATIMA SILVA
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Descritores / Descriptors	-
Colaborador(es) / Colaborator(s	-
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