



UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Materials

Academic Year 2023/2024

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

Prof. Doutor Arq. VÍCTOR MANUEL CANEDO NEVES

11. Regent

12. Assistants

Profª Doutora Arqtª MARIA DE FATIMA SILVA

13. Teaching Language

Portuguese

14. General Objectives

In architecture, formal, functional and constructive factors interact. The latter is always dependent on the definition of materials. Materials that materialize Architecture and give it quality: the quality of resistance, durability, thermal and acoustic comfort, among others. That is why it is essential that this approach be taken in the first stages of learning. The curricular unit of Materials studies the most common materials that are used in the construction process

15. Specific Objectives

Since materials are one of the fundamental elements of architecture, it is essential to know them. It is through the study of its composition, its properties, the forms of application, and its pathologies, that the student learns to manipulate and apply the materials correctly. These aspects are consolidated through small exercises in which the student is obliged to manipulate different types of materials and develop them down to constructive detail, representing them correctly.

16. Skills to be acquired



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The constructive process is fundamental in the entire mechanism of "thinking" Architecture. Thus, at the end of the semester, the student should have acquired the following skills:

- Learning to identify materials;
- Knowing its main characteristics, knowing how to manipulate materials, and knowing how to compose and articulate different materials
- Knowing the main pathologies associated with different materials
- Knowing how to represent them graphically down to constructive detail

17. Teaching Methodology

This curricular unit comprises theoretical and practical classes. Theoretical classes are given by the coordinator of the curricular unit through audiovisual means. Practical classes are taught by framing practical works and relating them to the project curricular unit.

18. Course Unit Program

1-Theoretical component:

Theoretical classes will use audiovisual means and will focus on the different subjects of the semester, with a special focus on:

1. The stones - Classification of the rocks. Properties. Types of finishes. Fixing ways. Pathologies.
2. The wood - Constitution of the wood. Physical properties. Wood conversion. Transformed wood. Defects in wood. Types of finishes. Wood preservation and finishing products. Types of connections and notches. Pathologies - types of pathologies and their agents.
3. Red clay ceramics - Properties. Types of brick and other ceramic materials. Types of finishes. Application forms. Types of walls. Pathologies.
4. Glasses - Constitution. Properties. Glass types. Types of finishes. Application forms. Function types.
5. Iron and Steel - Constitution of iron and other metallic alloys. Properties. Types of treatment and finishes. Link types. Application types. Pathologies.
6. Concrete - Constitution. Properties. Concrete types. Types of finishes. Types of walls. Pathologies.
7. Cork and agglomerated cork. Manufacture and properties
- 8.-Synthetic and composite materials- Manufacture and properties
9. Material recycling

2. Practical component:

The practical component will focus on topics related to simple elements of the construction process, allowing the student to have contact with survey techniques and to consolidate representation techniques through the materials. It will develop two practical assignments performed in class, with different degrees of difficulty:

- Exercise 1- A work dedicated to the rigorous survey of an existing architectural element with a detailed indication of the materials present in it
- Exercise 2-A work dedicated to a design proposal for the reformulation of an existing architectural element with a detailed indication of the materials present in it

The place of intervention of these works can be the same adopted for the works developed in the curricular unit of Architecture II.



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19. Assessment Methods

The curricular unit of Materiais is a semester unit, with two components, one practical and the other theoretical. The evaluation of the curricular unit is carried out on a continuous basis, that is, the student is evaluated by the interest he demonstrates in the subjects taught, his participation in classes, and respective attendance, and through all the work and evaluation instruments carried out throughout the year: sketches, theoretical tests, and practical projects

20. Didactic Resources

image projection
videos
Appointments
UL Material Archive
media library

21. Sustainability Objectives

The curricular unit aims to contribute to sustainability in the following general areas:

- Promoting the gradual dematerialization of the teaching/learning process.
- Promote and facilitate access to research and clean technologies.
- Recycle, reduce and recover, whenever possible, materials and other consumables
- Promote the recycling of model materials

22. Keywords

Materials
Materiality
Representation
Codes
Recycling
Reusing



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23. Main Bibliography

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

Author(s): Jorge Mascarenhas,
Title: Jorge Mascarenhas Sistemas de Construção, II - Paredes : paredes exteriores (1ª parte)
Edition: Year: 2003
Local:
Publisher: Livros Horizonte

Author(s): Mascarenhas,Jorge
Title: Sistemas de Construção, III - Paredes (2ª parte) e materiais básicos (1ª parte)
Edition: Year: 2004
Local:
Publisher: Livros Horizonte,

24. Complementary Bibliography

Author(s): Miguel P. Amado, Alberto Reaes Pinto, Ana Maria Alcafache, Inês Ramalhete
Title: Construção Sustentável: conceito e prática
Edition: Year:
Local:
Publisher: Caleidoscópio

Author(s):
Title:
Edition: Year:
Local:
Publisher:



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