UNIVERSIDADE LUSÍADA
LISBOA

Course Unit Program
Constructive Systems

Academic Year 2026/2027

1. Organic Unit

Faculty of Architecture and Arts

2. Course

Architecture

3. Cycle

1st

4. Course Unit

Constructive Systems (01323)

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

3,50

10. Scientific Area Coordinator

Profª Doutora Arqtª MARIA DE FATIMA SILVA

11. Regent

12. Assistants

13. Teaching Language

Portuguese

14. General Objectives

Introduction to the application of construction systems in architecture and their relationship with the project.
Introduction to project execution scales.
Contemporary architecture, introduction to new construction systems.
Learning is carried out through a brief approach to contemporary architecture and its construction systems.

15. Specific Objectives

Understand the essence and the basis of constructions in contemporary construction systems.
Identify the parts that make up a building and know how to apply the construction techniques and systems that implement them.
Know how to organize an Execution Project as a method to produce and organize the designed elements of the different parts that make up a building, at different scales of detail.

16. Skills to be acquired

Understand contemporary materials, techniques and construction systems, in the sense of an intelligent design; sustainable, innovative and creative.
Know how to represent, through technical detailed drawing, at different construction detail scales, the designed space.
Know how to interpret an execution project in its different drawn parts and maps.

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17. Teaching Methodology

This curricular unit consists of theoretical and practical lectures. The theoretical lectures are taught by the leader of the curricular unit who imparts the program materials. The practical lectures are imparted by framing the work of students and relating them to the curricular unit of the project.

18. Course Unit Program

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1- Theoretical lectures.
The theoretical lectures will use audio-visual media and will focus on the different subjects of the year, with a special focus on: Contemporary architecture, the revolution in construction systems; Structural systems and their relationship with the history of architecture; From Le Corbusier's DOMINO house structure to spatial structures; Construction systems of a building envelope; Technical standards and representation criteria in architecture, scales. Opening and finishing maps
- Foundations
Typology of current building foundations - direct and indirect, materials used and respective technologies.
Retaining walls, Berlin Walls, Molded reinforced concrete walls on unstable ground for building basements.
Basements, current systems and special containment systems. Isolation.
- Structures
Introduction to Reinforced Concrete structures; column/beam systems
Introduction to metallic structures, pillar/beam systems (in conjunction with the Structural Systems discipline that supports the practical part)
- Exterior walls
- constitution and behavior, current systems and contemporary tectonic trends.
Characteristics of the walls in terms of: Stability, Water-tightness, Thermal insulation, Acoustic insulation, Durability, Architectural expression.
Types of Simple walls, with thermal insulation from the outside, ETICS Systems (External thermal insulation composite system), Simple walls with thermal insulation from the inside,
Types of double walls, ventilated walls and facades, etc.

-Interior Walls
Construction systems for interior walls, floors and ceilings.

-Toppings
Roofs, flat, landscaped and traditional tile roof systems. Thermal insulation and waterproofing.

-External spaces
Openings of doors, windows and curtain walls

2-Practical classes.
The practical classes will focus on the execution project of a building, developed at the Project UC, during the 1st semester with the consequent study of the respective construction details, as well as the application of a resistant structure. To promote this spirit of the project as teamwork, this unit articulates the relationship with the Project and Structures disciplines.

19. Assessment Methods

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Assessments will be continuous, the work will be done in groups and/or individually, guided by the teachers of the practical component of each class.
We seek to motivate student presence and intervention in classes, as well as critical spirit and creativity, factors that, together with the work carried out, will be subject to evaluation.
Assessments will be the joint responsibility of the conductor and other teachers.

20. Didactic Resources

Slides and Powerpoint
videos
Moodle
UL Materials Archive
Field trips

21. Sustainability Objectives

The curricular unit aims to contribute to sustainability in the following areas
general:
-Promote the dematerialization of the teaching/learning process gradually.
-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

Construction
Systems
Tectonics
sustainability
Regulation

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23. Main Bibliography

Author(s): Beinhauer, Peter
Title: Atlas de detalhes construtivos (versão portuguesa)
Edition: Year: 2004
Local: Barcelona
Publisher: Gustavo Gili
ISBN Code:

Author(s): Mascarenhas,Jorge
Title: Sistemas de Construção IV - Coberturas Planas, Juntas, Materiais Bàsicos (2ªParte)
Edition: Year: 2008
Local: Lisboa
Publisher: Livros Horizonte
ISBN Code:

Author(s): Mascarenhas,Jorge
Title: Sistemas de construção II : paredes exteriores (1ª Parte)
Edition: Year: 2007
Local: Lisboa
Publisher: Livros Horizonte
ISBN Code:

24. Complementary Bibliography

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

Author(s): Veiga da Cunha, Luís,
Title: Desenho Técnico,
Edition: Year: 2004
Local: Lisboa
Publisher: Fundação Calouste Gulbenkian

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