Course Unit	Architecture and Urbanism			Field of study	Planning and Urbanism		
Bachelor in	Civil Engineering			School	School of Technology and Management		
Academic Year	2022/2023	Year of study	2	Level	1-2	ECTS credits	6.0
Type	Semestral	Semester	1	Code	9089-322-2101-00-22		

Workload (hours)	162	Contact hours	T	-	TP	54	PL	-	TC	-	S	-	E	-	OT	-	O	6

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s): António Augusto Nogueira Prada, António Jorge Ferreira Vaz

Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:
1. View and observe, distinguishing the essential of the accessory and cooperate with others in common tasks and projects, enhance the different forms of knowledge and complementarity of knowledge;
2. Participate in “construction of the city” in a free, responsible, caring and critical way;
3. Enhance the sense of aesthetic appreciation of our surroundings;
4. Enhance and preserve the cultural heritage (natural and built);
5. Recognize the architecture and urban planning as a problem of order, proportion and scale;
6. Characterize forms and spaces and reflect over the experiences of modern urban;
7. Build a critical attitude which allow it to intervene culturally, through the act of planning and design;
8. Using knowledge and tools which allow acting in urban spaces.

Prerequisites

Before the course unit the learner is expected to be able to:
1. Use general concepts of design;
2. Understand English, French and Spanish (which allow the reading of specific literature).

Course contents

Concepts and definitions of Architecture and Urbanism. Architectural space; the Architecture and other forms of art; the form in architecture; space organizations; circulation; proportion and scale; principles of architecture; the public and private housing. Accessibility; Sustainable Architecture. Brief history of Urbanism; urban drawing and urban space; urban planning and figures of plan; urban legislation; urban indicators and parameters.

Course contents (extended version)

1. INTRODUCTION.
   - Concepts and definitions of Architecture and Urbanism.
2. ARCHITECTURAL SPACE.
   - Defining elements;
   - Methods of drawing and representation in the project; Accessibility and universal design.
   - Passage from bi-dimensionality to tridimensionality.
   - Bioclimatic Architecture. Sustainable construction.
3. THE FORM IN ARCHITECTURE.
   - Property of form;
   - Subtractives and additives forms;
   - Transformation of the form.
4. SPACE ORGANIZATIONS.
   - Definition of the program needs;
   - Spatial relationships, space within a space, spaces connected by a common area;
   - Organization of shape and space: linear, radial, and lumped and in mesh organizations;
5. CIRCULATION.
   - Movement through a space;
   - Elements of circulation, access, entry;
   - Form of circulation space;
   - Public/private relations. Sustainable architectural design.
6. PROPORTION AND SCALE.
   - Regulators lines, aura section, proportions of materials;
   - Classical orders, Renaissance theories, modulor, anthropometry;
   - Visual scale, human scale.
7. BIOCLIMATIC ARCHITECTURE.
   - Active and passive sustainable energy solutions
   - Sustainability in projects and construction;
   - Designing for energy efficiency.
8. ACCESSIBILITY
   - Universal design.
   - Inclusive design.
   - Portuguese accessibility legislation.
9. BRIEF HISTORY OF URBANISM.
   - The city along the time;
   - Basic types of cities;
   - Scale, proportion and order;
   - Spatial dimensions in urban form;
   - Street, neighbourhood and city;
   - Extension of the concept of urban form.
10. URBAN DRAWING AND URBAN SPACE.
   - Communication spaces, residential spaces, green spaces and recreation spaces, trade and industry;
   - Key elements of the morphology of urban space;
   - Modeling of the urban system;
   - Standards of urban design;
   - Criteria for project of urban infrastructure;
   - Coating outer urban areas.
11. URBAN LEGISLATION.
   - Definitions and concepts; .
   - Regulations for the urban building.
12. URBAN INDICATORS AND PARAMETERS.
   - Methods of calculation, function and applicability to urban planning.
13. URBAN PLANNING AND FIGURES OF PLAN.

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Course contents (extended version)

- Fundamental concepts in urban planning;
- Municipal master plan, development plan, detailed plan;
- The operations of urban allotment;
- Accessibility plans;
- The use of geographic information systems (GIS).

Recommended reading

1. Ching, Francis (1991) “Architectura: Forma, Espaço e Ordem”, ediciones G. Gili, México
2. Chueca Goitia, Fernando (1982) “Breve História do Urbanismo”, Editorial Presença Lda. , Lisboa
3. Lamas, José M. R. G. (1993) “Morfologia Urbana e Desenho da Cidade” (3ªed. 2004) FCG/JNICT, Lisboa
4. Lobo, M. Costa e al. “Normas Urbanísticas Volumes I, II, III e IV”, DGOTDU/UTL, Lisboa
5. Vaz, António Jorge Ferreira et al. "Manual BIOURB - Manual para a conservação e reabilitação da diversidade bioconstrutiva", Bragança

Teaching and learning methods

Theoretical/practical lessons based on theoretical explanation, using expose, demonstration and interrogative methods, as well as the active method in the practical component. In the theoretical component is given the concepts about different subjects to teach. In the practical component is made the consolidation of the knowledge gained by conducting exercises and practical work.

Assessment methods

- Alternative 1 - (Regular, Student Worker) (Final, Supplementary, Special)
  - Practical Work - 80% (Four practical exercises. TP1 (10%); TP2 (40%); TP3 (35%); TP4 (15%).)
  - Final Written Exam - 20%

Language of instruction

Portuguese, with additional English support for foreign students.

Electronic validation

António Augusto Nogueira Prada, António Jorge Ferreira Vaz	Jorge Pedro Lopes	António Miguel Verdelho Paula	Paulo Alexandre Vara Alves
28-09-2022	05-10-2022	11-10-2022	07-11-2022

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