

Course Unit	Materials and Structures Laboratory	Field of study	Visual Arts/Design
Bachelor in	Art and Design - Minor in Visual Arts	School	School of Education
Academic Year	2023/2024	Year of study	2
Type	Semestral	Semester	1
Level	1-2	ECTS credits	5.0
Code	9898-661-2104-00-23		
Workload (hours)	135	Contact hours	T - TP 18 PL 20 TC - S - E - OT 16 O -

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) Jacinta Helena Alves Lourenço Casimiro da Costa, António Jorge Ferreira Vaz

### Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Distinguish different materials and their properties.
2. Understand, through experimentation and analysis, qualities and characteristics of materials.
3. Operate and manipulate various materials.
4. Know and use materials, utensils, tools and equipment correctly.
5. Build models that support the conceptualization, maturation, development of design solutions taking advantage of the materials and their technologies.
6. Make study / validation models of materials.

### Prerequisites

Before the course unit the learner is expected to be able to:  
Not applicable.

### Course contents

1. The Laboratory; 2. Materials and Properties; 3. Execution and Construction Techniques; 4. Structures; 5. Practical exploration.

### Course contents (extended version)

1. The Laboratory
  - Equipment, utensils and tools;
  - Safety and hygiene at the work;
  - Metrology;
  - Standardization.
2. Materials and their Properties
  - The evolution of materials throughout history;
  - Typology and main characteristics of the materials;
  - Physical, geometric, mechanical and thermal properties of materials;
  - Functionality, aesthetics, compatibility and cost;
  - Deterioração e desgaste dos materiais. A avaliação da durabilidade .
3. Execution and Construction Techniques
  - Connections, bond between the same materials and different materials;
  - Execution techniques and constructive technologies.
4. Structures
  - Types of Structures and their purpose;
  - Execution and test of a Structure.
5. Practical exploration
  - Visual exploration of different types of materials;
  - Carrying out experiments and tests with different materials.

### Recommended reading

1. Spence, W, Kultermann, E. (2016) Construction materials, Methods and Techniques, Delmar Cengage Learning;
2. Hudek, A. (2014). The Object (Documents of Contemporary art). MIT Press;
3. Karana, E. et All (2014). Materials experience: Fundamentals of materials and design. Oxford, UK: ButterworthHeineman.

### Teaching and learning methods

1. Presentation of theoretical contents; 2. Development of individual and / or group theoretical-practical work; 3. Technical, procedural and formal exploitation; 4. Follow-up and criticism on the development of the works; 5. Exploration and experimentation of theoretical knowledge.

### Assessment methods

1. CONTINUOUS EVALUATION - (Regular, Student Worker) (Final)
  - Laboratory Work - 35%
  - Projects - 35%
  - Intermediate Written Test - 20%
  - Practical Work - 10%
2. EXAM EVALUATION - (Regular, Student Worker) (Final, Supplementary, Special)
  - Projects - 60% (nº 4 art. 7th Frequency and Evaluation Regulation - Classification of continuous evaluation.)
  - Final Written Exam - 40%

### Language of instruction

Portuguese, with additional English support for foreign students.

## Electronic validation

Jacinta Helena Alves Lourenço Casimiro da Costa	Helena Maria Lopes Pires Genésio	António José Santos Meireles	Carlos Manuel Costa Teixeira
19-02-2024	20-02-2024	21-02-2024	25-02-2024