

Academic Year/course: 2022/23

## 69206 - Innovative materials in Architecture

### Syllabus Information

**Academic Year:** 2022/23

**Subject:** 69206 - Innovative materials in Architecture

**Faculty / School:** 110 - Escuela de Ingeniería y Arquitectura

**Degree:** 519 - Master's in Architecture

**ECTS:** 3.0

**Year:** 1

**Semester:** First semester

**Subject Type:** Optional

**Module:**

### 1. General information

### 2. Learning goals

### 3. Assessment (1st and 2nd call)

### 4. Methodology, learning tasks, syllabus and resources

#### 4.1. Methodological overview

The methodology followed in this course is oriented towards achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as lectures, practice sessions, problem-solving, case studies, laboratory sessions, visits, seminars by professionals, and an academic essay.

#### 4.2. Learning tasks

The course includes the following learning tasks:

- A01/A02 **Lectures, case studies, and seminars** given by professionals (organised by the Materials Science and Metallurgical Engineering department) (22 hours).
- A03 **Laboratory and practice sessions** (6 hours)
- A04 **Visits** (2 hours). Visits to companies or Materials Centres/Institutes/Museum that are relevant to the field of architecture.

#### 4.3. Syllabus

The course will address the following topics:

##### **Theory**

1. Introduction: Innovative materials in Architecture
2. Metals and light alloys: Stainless Steels, CoTen Steels, Titanium, Aluminium, Copper and its alloys, Zinc...
3. Plastics: Thermoplastics, Thermosets, Elastomers, foams, textile architecture?
4. Polymer matrix composites: matrices and fibres. Laminates, sandwich elements?
5. Glass and ceramics
6. Smart materials. Uses and applications in industry and Architecture

### **Laboratory and practice sessions**

1. Selection of materials: problems and use of CES (Cambridge Engineering Selector) data base
2. Testing of materials
3. Management of commercial catalogues or informative sheets of innovative materials

### **4.4. Course planning and calendar**

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course, will be provided on the first day of class or please refer to the EINA website.

### **4.5. Bibliography and recommended resources**

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?id=8837>