

Course guide

310757 - 310757 - Traditional Materials and Techniques

Last modified: 02/02/2025

Unit in charge: Barcelona School of Building Construction
Teaching unit: 753 - TA - Department of Architectural Technology.

Degree: BACHELOR'S DEGREE IN ARCHITECTURAL TECHNOLOGY AND BUILDING CONSTRUCTION (Syllabus 2019).
(Optional subject).

Academic year: 2024 **ECTS Credits:** 3.0 **Languages:** Catalan, Spanish

LECTURER

Coordinating lecturer: Judit Ramírez-Casas

Others: Antònia Navarro Ezquerro
Judit Ramírez-Casas
Amanda Rivera Vidal
Edgar Seguéas Aguasca

PRIOR SKILLS

In order to successfully acquire the knowledge of this optional subject, it is essential to have the basic knowledge of materials and construction.

TEACHING METHODOLOGY

The subject is based on the delivery of theoretical sessions within the framework of local and traditional techniques and materials, both for the development of restoration projects, rehabilitation, and intervention of built buildings, as well as for new plants, always aligned with the Sustainable Development Goals (SDGs) of the UN. Sufficiently detailed knowledge will be imparted so that students can identify materials appropriately and then make decisions for their correct application. Theoretical classes will be combined with practical classes in the form of visits to existing buildings, urban routes and laboratory practices to help the understanding and identification of the materials and techniques covered in class. Video sessions, expert conferences and practical classes are planned.

LEARNING OBJECTIVES OF THE SUBJECT

Within the framework of the EPSEB guidelines, focused on intensifying learning and specialization in the intervention of the built heritage, it is believed to be absolutely necessary and essential to be able to offer the students of the last years, a supplement in the knowledge of the materials and local and traditional techniques that are difficult to fit into the content of core subjects. Different experts from each of the topics and subjects will participate in the subject in order to, in addition to being able to give a few brushstrokes on the production systems, also traditional, to be able to show closer examples.

STUDY LOAD

Type	Hours	Percentage
Hours large group	30,0	40.00
Self study	45,0	60.00

Total learning time: 75 h

CONTENTS

Topic 1.- Introduction to traditional materials and construction techniques

Description:

Introduction to traditional and local architecture and construction. What are traditional and local techniques? Temporality of traditionality, local context. Different areas, different techniques, different moments. Construction with local materials and its relationship with the ODS. Types of traditional materials. The study of our environment.

Related activities:

Recognition of our environment. Different territories different materials and techniques. Identification of the different local and traditional materials and techniques listed in class, and their relationship with the ODS. Exposition of the rubric of the course work.

Full-or-part-time: 6h

Theory classes: 3h

Guided activities: 3h

Topic 2.- Building with earth

Description:

El territorio, el clima y otros condicionantes del entorno constructivo con suelo. Conocer la tierra como material de construcción. Historia y ejemplos de construcciones de tierra. Técnicas constructivas: tapia, adobe, tabiques y entramados rellenos de suelo, pared de mano, BTC, y otros prefabricados.

En el futuro, la construcción con suelo como solución sostenible y accesible. La fusión entre la tradición con la innovación.

Related activities:

Two practical activities will be carried out to identify and learn the properties and construction techniques with earth

Full-or-part-time: 10h

Theory classes: 6h

Practical classes: 4h

Topic 3.- Traditional binders and conglomerates

Description:

¿Qué son los conglomerantes locales y tradicionales? Cales, cementos y tizas en forma de morteros y hormigones tradicionales. ¿Dónde los encontramos? Muros y cimientos de mampostería, techos (las bóvedas de ladrillo de plano), revestimientos, pavimentos y ornamentaciones, etc.

Full-or-part-time: 8h

Theory classes: 4h

Practical classes: 4h

Topic 4.- Coverings

Description:

Origins and history of coatings. Continuous coatings and discontinuous coatings. The artistic expression of the finishes.

Continuous: battered and slid. Garnished and whitened. Plastered: smooth, scraped, Tyrolean, buxard, sgraffito, marbled.

Discontinuous: ceramic, stoneware, hydraulic tiles.

Full-or-part-time: 4h

Theory classes: 2h

Guided activities: 2h

Topic 6.- Traditional construction with wood. Structure, enclosures and finishes

Description:

Wood as a building material, properties and singularities. Methods of obtaining, most common species used traditionally. Uses and applications in traditional construction. Methods of identification, diagnosis and assessment of its state of conservation.

Full-or-part-time: 6h

Theory classes: 4h

Guided activities: 2h

GRADING SYSTEM

Work will be done with continuous evaluation. Deliveries related to the activities proposed during the course will also be evaluated. THERE WILL BE NO EXAMS.

EXAMINATION RULES.

Depending on the number of students and the topics chosen for the work by the students, it may be done in groups.

BIBLIOGRAPHY

Basic:

- Plan nacional de arquitectura tradicional [on line]. Madrid: Ministerio de Cultura y Deporte - Gobierno de España, 2015 [Consultation: 20/01/2021]. Available on: <http://www.culturaydeporte.gob.es/planes-nacionales/planes-nacionales/arquitectura-tradicional.html>.
- Varies autors. Arquitectura tradicional. Essència o forma. Un debat obert al voltant de la intervenció a l'arquitectura vernacla [on line]. Barcelona: F12 serveis editorials, 2016 [Consultation: 20/01/2021]. Available on: <https://dialnet.unirioja.es/servlet/libro?codigo=695303>. ISBN 9789892059099.
- Usedo Valles, Rafael Manuel. Estudio y análisis de la utilización de la cal para el patrimonio arquitectónico [on line]. Primera. Valencia: Universitat Politècnica de València. Escuela Técnica Superior de Arquitectura - Escola Tècnica Superior d'Arquitectura, 2015 [Consultation: 20/01/2021]. Available on: <http://hdl.handle.net/10251/60200>.
- Mateu Subirà, Joaquim. Fargues de Catalunya i Andorra. Barcelona: Rafel Dalmau, 2004. ISBN 842320670X.
- Minke, Gernot. Manual de construcción en tierra : la tierra como material de construcción y su aplicación en la arquitectura tradicional. Montevideo: Nordan-Comunidad, DL 2001. ISBN 9974493471.
- La Spina, V.. Estudio del yeso tradicional en España. Yacimientos, canteras, hornos y la arquitectura tradicional, su estado de conservación y propuestas de itinerarios visitables para su revalorización y difusión. Fase II [on line]. Cartagena, 2016 Available on: <http://www.culturaydeporte.gob.es/planes-nacionales/dam/jcr:26b566fa-f65d-4e8c-a0fe-ce486ba47060/estudio-del-yeso-tradicional-en-espa-a-fase-2.pdf>.
- Marín Sánchez, R.. Uso estructural de prefabricados de yeso en la arquitectura levantina de los siglos XV y XVI [Tesis doctoral] [on line]. Valencia: Editorial Universitaria de València, 2014 Available on: <https://riunet.upv.es/handle/10251/47459>.
- Nou llibre.

Complementary:

- Gárate Rojas, Ignacio. Artes de la cal. 2ª ed. Madrid: Munilla-Lería, 2002. ISBN 9788489150508.