Course guide
290292 - REFSON - Sound Shelter

Last modified: 05/02/2026

Unit in charge: Vallès School of Architecture
Teaching unit: 290 - ETSAV - Vallès School of Architecture.

Degree: DEGREE IN ARCHITECTURE STUDIES (Syllabus 2014). (Optional subject).

Academic year: 2025 **ECTS Credits:** 4.0 **Languages:** Catalan

LECTURER

Coordinating lecturer: Pere Fuertes Pérez

Others: Anna Casas Portet, Albert Cuchí Burgos, Raimon Farré Moretó, Oriol Muntané Raich, i Joan Lluís Zamora i Mestre.
Nicolás Arán, Elisenda Baró, Bernat Libori i Mark Vasilyev (Associació CAMARAC).

PRIOR SKILLS

None

TEACHING METHODOLOGY

The subject is organized based on an active and experimental methodology, based on the principle of "learning by doing". The course will begin with the formation of five working groups, which will be maintained throughout the semester.
Each group will develop a practical research and construction project, focused on the design and manufacture of sound insulation prototypes from local and natural materials. Throughout the course, teachers, researchers and professionals specializing in architecture, materials, acoustics and sustainability will be invited. The process will include phases of material exploration, trial, error and continuous improvement, combining workshop work with analysis and debate sessions.
As a closing of the course, each group will prepare a final presentation where the research process, the experimental strategies used and the results obtained from the acoustic tests of the prototypes will be presented. These results will be publicly presented as part of the Refugi Sonor pavilion, integrated into the official programming of the UNESCO-UIA World Capital of Architecture 2026.
The research developed by the students will form part of the Refugi Sonor project book, a collective publication that will capture the entire design process of the project and that will include this subject. Making public, academic and professional dissemination of the results obtained.

LEARNING OBJECTIVES OF THE SUBJECT

The objective is for students to become aware that noise is becoming a growing issue in contemporary cities and to learn how, through local materials and sustainable processes, prototypes of constructive solutions can be developed in response to this acoustic need. It is intended that, through the course, the following competencies be achieved:
– To understand the concept of soundscape and to be able to identify its agents in different contexts.
– To acquire knowledge about acoustic pollution in urban environments and its effects.
– To experiment with materialities of natural origin, drawing inspiration from vernacular techniques.
– To acquire knowledge of methods for measuring acoustic insulation and sound properties.
– To participate in a propositional project for the transformation of urban environments, applying the knowledge acquired.

Degree competencies to which the course contributes:
Basic:
CBâ□□3 That students have the ability to gather and interpret relevant data (normally within their field of study) in order to make judgements that include reflection on relevant social, scientific, or ethical issues.
CBâ□□4 That students are able to communicate information, ideas, problems, and solutions to both specialist and non-specialist audiences.
General:
CGâ□□7 To understand the relationships between people and buildings and between buildings and their environment, as well as the need to relate buildings and the spaces between them according to needs and human scale.
Transversal:
CT4. EFFECTIVE ORAL AND WRITTEN COMMUNICATION: To communicate orally and in writing with others about the results of learning, the development of thought, and decision-making; to participate in debates on topics related to one's own field of specialisation.
CT5. TEAMWORK. To be able to work as a member of a team, either as a regular member or by carrying out leadership tasks, with the aim of contributing to the development of projects with pragmatism and a sense of responsibility, assuming commitments while considering available resources.
CT6. PROFICIENT USE OF INFORMATION RESOURCES. To manage the acquisition, structuring, analysis, and visualisation of data and information within the field of specialisation, and to critically assess the results of this management.
CT7. AUTONOMOUS LEARNING. To identify shortcomings in one's own knowledge and overcome them through critical reflection and the selection of the most appropriate course of action to expand that knowledge.
Specific:
EAB4 Adequate knowledge, applied to architecture and urbanism, of the analysis and theory of form and the laws of visual perception.
EP2G. Aptitude to resolve passive environmental conditioning, including thermal and acoustic insulation, climate control, energy performance, and natural lighting (T).
EP19G. Adequate knowledge of ecology, sustainability, and the principles of conservation of energy and environmental resources.
EP23G. Adequate knowledge of the foundations of vernacular architecture.

STUDY LOAD

Type	Hours	Percentage
Hours small group	30,0	30.00
Hours large group	10,0	10.00
Self study	60,0	60.00

Total learning time: 100 h

CONTENTS

title english

Description:
The subject proposes a materials laboratory focused on applied research, experimentation and the construction of acoustic insulation systems from natural materials. Students will carry out experiments and research processes aimed at analyzing the acoustic, constructive and environmental properties of materials from the proximity of the territory of Catalonia, with the aim of developing new constructive solutions for urban space.
This optional subject is promoted and developed within the framework of the UNESCO-UIA World Capital of Architecture 2026, in collaboration with the Barcelona City Council, the Mies van der Rohe Foundation and the CAMARAC Association.
As part of the research process, the course includes a study trip, where students will be able to observe, identify and analyze natural materials in their context of origin, understanding the relationship between territory, resources, materiality and architecture.
The course combines material research, constructive experimentation and prototyping on a real scale, culminating in the construction of the walls of an ephemeral pavilion. This pavilion, entitled Refugi Sonor, will be part of the official program of the UNESCO-UIA World Capital of Architecture 2026 and will become a public device for dissemination and awareness-raising about noise pollution in the city.
The subject actively promotes an approach to architecture based on the principles of eco-design, sustainability and the circular economy, encouraging the use of natural, renewable and low-impact environmental materials, as well as a critical look at conventional construction systems.
Refugi Sonor is a project promoted by the CAMARAC collective, made up of architecture students and other disciplines. For three years, the collective has been investigating noise pollution in urban environments through architecture, art and technology. This subject opens the project to ETSAV students as a unique opportunity to participate in a real project, which will be built and publicly exhibited, connecting academic learning with a top-level international event.
Although the theory sessions will be in Catalan, we will make sure that the incoming students who require it can take the courses without inconvenience.
https://camarac.net/sound-refuge/
https://camarac.net/short-film-i-have-a-problem-i-hear-the-noise/
Instagram: @elcamarac

Specific objectives:
Module 1.
Introduction to the concept of soundscape and to working with natural materials.
Field trip and visit to the Matter Matters exhibition at the Disseny Hub.
Duration: 4 weeks.
Module 2.
Workshop sessions. Exploration of the areas assigned by groups. Development of material samples. Guidance from teaching staff and experts in the field.
Duration: 7 weeks.
Module 3.
Calculation of the acoustic properties of materials. Visit to an anechoic chamber for the testing of the material samples produced.
Public presentation of the results within the framework of the World Capital of Architecture 2026.
Duration: 3 weeks.

Full-or-part-time: 40h
Theory classes: 10h
Laboratory classes: 30h

GRADING SYSTEM

Continuous assessment: 30%
Final prototypes and justification of the process and results: 50%
Attendance and participation: 20%

The final prototype qualification will have a self-evaluation component and one by an external jury

BIBLIOGRAPHY

Basic:
- Escola Tècnica Superior d'Arquitectura de Barcelona. Biblioteca. Guia temàtica Biblioteca ETSAB: Paisatges sonors. ETSAB, 2020.
- "Michel de Certeau: The Cunning of Unreason". Gardiner, Michael E.. Critiques of Everyday Life [on line]. Routledge, 2000. Available on: https://doi.org/10.4324/9780203130858-7.- Kusenbach, Margarethe. "Street phenomenology: The go-along as ethnographic research tool". Ethnography, 4(3), 2003, 455–485 [on line]. Available on: https://www.jstor.org/stable/24047846.- "De l'énigme réciproque au co-savoir et au silence: Figures de la relation ethnographique". Losonczy, A.-M.. De l'ethnographie à l'anthropologie réflexive: Nouveaux terrains, nouvelles pratiques, nouveaux enjeux. 2002.
- Mahlke, F.. De las tensoestructuras a la bioarquitectura: La obra del arquitecto Gernot Minke. 2a. EcoHabitar, 2015.
- Minke, G.. Muros y fachadas verdes, jardines verticales. Icaria, 2014.
- Minke, G.. Muros de barro. Icaria, 2014.
- Truax B.. "R. Murray Schafer (1933–2021) and the World Soundscape Project". Organised Sound, 26(3), 2021, 419-421 [on line]. Available on: https://doi.org/10.1017/S1355771821000509.- Sève, B.. "Upcycling Wood. Reutilización creativa de la madera. Icaria.Subirós, O., Tetas, A., Col·legi d'Arquitectes de Catalunya, Institut Ramon Llull, & International Architectural Exhibition". Quaderns d'arquitectura i urbanisme: Número especial Biennal d'Arquitectura de Venècia 2021.
- Watson, J., & Davis, W.. Lo-TEK: Design by radical indigenism. Taschen, 2019.

RESOURCES

Other resources:
CAMARAC:
https://camarac.net/sound-refuge/ />https://camarac.net/short-film-i-have-a-problem-i-hear-the-noise/ />Instagram: @elcamarac
The World Soundscape Project. https://www.sfu.ca/~truax/wsp.html />Guia Temàtica ETSAB sobre Paisatges sonors: https://hdl.handle.net/2117/191568