

# Stone Architecture in Barcelona

Designs, technologies and sustainability

*ETSAB Summer School 2017*



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Arquitectura pétrea en Barcelona - Diseños, tecnologías y sostenibilidad

Arquitectura pètria a Barcelona - Dissenys, tecnologies i sostenibilitat

### Objective:

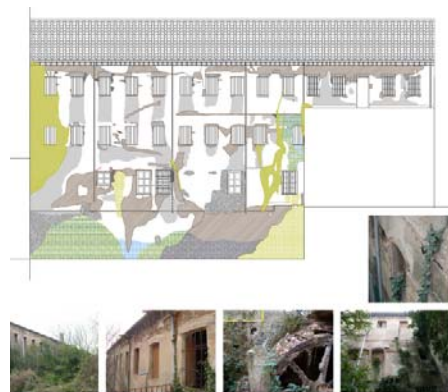
Students will learn about Stone Architecture in Barcelona and its main designs, technologies and sustainability aspects. They will specialize in one study case, which they will present on site to all course participants and in a digital page that will be part of a course open website.

**Language:** English. Professors have fluency in Spanish, Catalan and Persian as well.

### Course contents and methodology:

The course will study Stone Architecture from the following:

- **Historic periods:** Roman, Gothic, Modernism, Modern Movement and Contemporary. Students will chose between several possible study cases such as: Roman wall, Santa Maria del Mar church, La Pedrera, Mies van der Rohe pavilion, Illa Diagonal, Hotel Catalonia, Sagrada Familia Basilica.
- **Construction processes:** masonry, stone cladding in reinforced concrete structures, precast panels and ventilated façades and post tensioned industrialized panels.
- **Techniques and technologies:** manual stonemason's works, industrialized cladding, Computer Numerical Control (CNC) cutting and modeling production processes.
- **Sustainability approach:** including economic, environmental and social issues. For example, cost and timeframes of the construction processes depending on the technology used; or environmental impacts depending on the origin of stones and the use of construction waste as rubble fill material.



First five conferences will be given in order to explain the course structure and the aforementioned contents main parts and references. These conferences will be held by experts on each field, will last 20 minutes and will content mainly active material. Then the following active learning methodologies and cooperative activities will be applied:

- **Project Basic Learning (PBL):** the study case analysis will focus on the architectural project and its design, construction and sustainability. In practical classes, students will follow PBL with professors' support.
- **Brainstorming:** before students start analyzing their study cases, brainstorming will be used in order to decide between all participants: the study cases, the main contents of the study case analysis, website features
- **Debates:** debates about different and opposite study cases will be performed so students understand the strength and weaknesses of each study case related to their periods, processes, technologies of construction and their sustainability.
- **Visits:** the study cases will be visited and students will share their knowledge about them and about similar cases. There will be visits to prime stone construction sites from different historic periods in Barcelona.
- **Practical session:** There will also be a visit to a stonemason workshop and a brief practical workshop with manual tools and CNC machinery.
- **Representation techniques:** professors will encourage students to use their favorite representation techniques to show their study cases to all participants. From hand drawing, CAD assisted, 3d models, physic models...

#### **Course programme:**

Monday 24<sup>th</sup> – 5 conferences. Brainstorming about study cases

Tuesday 25<sup>th</sup> – Debate – visit to building site and workshop

Wednesday 26<sup>th</sup> – PBL to prepare visits

Thursday 27<sup>th</sup> - Visits

Friday 28<sup>th</sup> – Visits – Website launch

**Profile of the course students:** Architects, Civil Engineers, Construction Engineers, Last course bachelor or degree students in Architecture, Civil Engineering & Construction Engineering.

**Professors:** Oriol Pons (PhD architect, Serra Hünter Lecturer at Etsab, UPC); Còssima Cornadó (PhD architect, professor at Etsab, UPC); S. M. Amin Hosseini (PhD architect); Feliu Martín (Manager of Pedres de Ponent stone workshop, current external advisor of Sagrada Família (SF), Stonemason in charge in SF from 2001 to 2016) and Rubén Navarro (Architect and Professor at Epseb, UPC).

**Course recognition:** ETSAB will issue a certificate of attendance for students stating the duration of the course and the equivalence in European Credit Transfer System (ECTS) credits.

**Registration:** Starting in May 22<sup>nd</sup> to July 1<sup>st</sup> 2017 through ETSAB International Relations Department (IRD).

[Summerschool.etsab@upc.edu](mailto:Summerschool.etsab@upc.edu)

<https://etsab.upc.edu/ca/internacional/summer-school>

**Cost:** Scholarships for ETSAB students; 250 € UPC fee; 272 € general fee.

**Required documents for applicants:** Curriculum Vitae, a copy of bachelor or official degree document or degree last course official document; besides the documents required for the registration by IRD.

**Course calendar:** from the 24th to the 28th of July; from 9:00 to 11:00 and from 11:30 to 14:30 h

