UNIVERSITAT POLITÈCNICA DE CATALUNYA
BARCELONATECH

Master's degree in Diagnosis and Intervention Techniques in Building Construction

The **master’s degree in Diagnosis and Intervention Techniques in Building Construction** (**master's degree website**) equips students with the knowledge and skills to pursue careers in a field of the construction sector that requires a high degree of specialisation. In the current context, intervention in built heritage, whether it involves rehabilitation or restoration, requires professionals with rigorous training in specific aspects of this work.

The new paradigm that has emerged as a result of the climate emergency and sustainability principles requires us to rethink how buildings evolve, increase their adaptation to various demands and improve existing building stock while reducing interventions that involve new construction. Consequently, intervention in built heritage is a fast-growing area of employment that offers a range of new career opportunities.

This master’s degree offers training that complements that provided in bachelor’s degrees in Architecture, Architectural Technology and/or Civil Engineering, covering fundamental aspects of rehabilitation and restoration, as well as developing the competencies required for a deeper understanding of the construction process. The programme also provides advanced professional and research training.

Teaching revolves around the study of specific cases, which are approached from a professional perspective.

GENERAL DETAILS

Duration and start date

1 academic year, 60 ECTS credits. Starting September

Timetable and delivery

Afternoons. Face-to-face

Fees and grants

Approximate fees for the master’s degree, **excluding other costs** (does not include non-teaching academic fees and issuing of the degree certificate):
€1,660 (€6,331 for non-EU residents).
More information about fees and payment options
More information about grants and loans

Language of instruction

Spanish

Information on language use in the classroom and students’ language rights.

ADMISSION

General requirements

Academic requirements for admission to master's degrees

Specific requirements

Direct admission

Applicants who have completed an official bachelor’s degree (or equivalent) in the field of architecture, building construction or civil engineering may be admitted directly and do not need to take any bridging courses.

In the case of applicants with other backgrounds, the academic committee for the master's degree will review their academic and professional curriculum, and those who receive a positive assessment may be admitted to the programme. If there is any doubt, the committee may request further details or a personal interview with the applicant.

Admission criteria

- Academic record of the applicant (45%)
- Correspondence between the competencies of the entrance qualification and the competencies of this master's degree (15%)
- Curriculum vitae (10%)
- Letter of motivation (5%) • Other merits (5%)
- English-language level (B2) (5%)

Places

30

Pre-enrolment

Pre-enrolment period open.
Expected deadline: 05/05/2024.
How to pre-enrol

Enrolment

How to enrol

Legalisation of foreign documents

All documents issued in non-EU countries must be legalised and bear the corresponding apostille.

PROFESSIONAL OPPORTUNITIES

Professional opportunities

- Professional practice in rehabilitation, restoration and construction management projects, either as self-employed professionals or in the employ of companies specialising in technical engineering or architectural firms.
- Employment with construction companies as site managers or group or area managers. The training that the master's degree provides is highly relevant to key positions in companies of this kind, particularly when complemented by training in business management.
- Positions with public administrations, including city, county and provincial councils and the administrations of autonomous communities and the central government.
- Other positions in the rehabilitation and architectural restoration sector (specialist consultants, specifiers of materials or building systems, quality managers in this field, trainers, administrators, etc.).

Competencies

Generic competencies

Generic competencies are the skills that graduates acquire regardless of the specific course or field of study. The generic competencies established by the UPC are capacity for innovation and entrepreneurship, sustainability and social commitment, knowledge of a foreign language (preferably English), teamwork and proper use of information resources.

Specific competences

- To recognise the materials and construction techniques of each historical period and evaluate their influence in architectural terms.
- To identify key aspects of the process of historical documentation of buildings.
- To design a rehabilitation intervention based on a building's history.
- To apply advanced graphic surveying techniques in the examination of existing buildings.
- To describe the phenomena of heat exchange, thermal perception, indoor air quality, ventilation, lighting conditions and noise propagation and control.
- To gain knowledge of the thermal performance and energy efficiency of existing buildings.
- To model building structures and evaluate their capacity.
- To gain knowledge of material characterisation techniques and solve specific problems related to these techniques.
- To learn about methods of assessment based on observed or measured data and the results of processes of analysis with numerical support.
- To analyse and apply the analysis processes studied to solve specific problems related to existing buildings in order to complete a diagnosis.

- To make decisions based on the analysis of results.
- To gain knowledge of specific techniques for damage repair and the improvement of existing buildings.
- To apply the knowledge gained to prepare rehabilitation plans.
- To carry out and present and defend before an examination committee an original, individual piece of work consisting of a project of a professional nature, related to diagnosis and intervention techniques in building construction, that synthesises and integrates the competencies acquired on the master's degree.

ORGANISATION: ACADEMIC CALENDAR AND REGULATIONS

UPC school

Barcelona School of Building Construction (EPSEB)

Academic coordinator

Joan Ramon Rosell
Laia Haurie Ibarra

Academic calendar

General academic calendar for bachelor's, master's and doctoral degrees courses

Academic regulations

Academic regulations for master's degree courses at the UPC

CURRICULUM

Subjects	ECTS credits	Type
FIRST SEMESTER		
Comprehensive Evaluation of Existing Buildings: Structural Analysis	5	Compulsory
Energy Rehabilitation	5	Compulsory
Graphic Survey of Existing Buildings	5	Compulsory
Historical, Architectural and Constructive Analysis of Existing Buildings	5	Compulsory
Material Diagnostic and Characterisation Techniques	5	Compulsory
Pathological and Diagnostic Processes	5	Compulsory
SECOND SEMESTER		
Existing Building Intervention Techniques (1)	6	Compulsory
Existing Building Intervention Techniques (2)	3	Compulsory
Intervention Project	6	Compulsory
Master's Thesis	15	Project