

# 38° Cycle - PhD Program in Architecture, Built Environment and Construction Engineering

## Job description

Politecnico di Milano issues a call for 14 fully paid PhD positions in *Architecture, Built Environment and Construction Engineering (ABC)*. PhD grants include a full tuition and fees waiver.

## The call

We call for applications to 14 funded PhD studentships and 3 places without scholarship in the ABC PhD Program: a three-year, full time, research-based, training program that includes a complementary series of Courses and the development of a PhD thesis, to be defended in a Final Exam.

## The vision

We aim to attract the best post-graduate students (a Master title is a prerequisite – see the Call) from all over the world. We will provide them a stimulating environment and we will transform them in outstanding, international experts: they will learn to analyze complex environments, to understand complex questions, to apply critical thinking, to turn uncertainty in methodology and doubts in reliable solutions, and to shoulder the responsibilities of R&D activities.

They will acquire the highest specific competencies in their specific field, together with other soft and transferable skills, like planning and managing control tasks, communicating and optimizing strategies, policies and projects. In few words, they will learn to analyze as well as to innovate and will be ready for the best job positions: as researchers, in the best universities and research centers, or for any employment requiring highly qualified personnel, with problem-setters capabilities.

## Who are we?

We are a fluid, adaptive, unique PhD Program, training more than 120 international early-stage researchers, supported, reviewed and assessed by more than 150 academics, all together, in a strict connection with their stakeholders, investigating (and learning how to investigate) and answering to research questions about the Built Environment.

ABC-PhD Program has been certified as an Innovative, International, Interdisciplinary and Inter-Sectorial Doctoral Course by the Italian Ministry of Education, University and Research.

What does our students do?

More up-to-date information about us and our activities can be retrieved at:

<https://beep.metid.polimi.it/web/abcphd/home>

## Desired skills and experience

We are searching for talented candidates with strong analytical and (qualitative and quantitative) methodological skills, who are eager to engage in research projects of relevance for both industry and academia.

Our Doctoral Program offers a personalized study plan to reflect the training and research needs of the student, while capitalizing on the strengths of our faculty. Candidates will have the opportunity to generate and publish research with faculty mentors and receive active support in conducting their own research.

The attainment of the PhD title in Architecture, Built Environment and Construction Engineering requires full time study and research activity of three years.

The scholarship covers tuition fees, office space, access to library, software and access to databases.

Candidates are offered their own research budget for travelling and they receive additional funds for study periods in top foreign universities.

Opportunities of teaching and tutoring MSc students are also foreseen.

**Fourteen** fully-granted scholarships will be available, with official start on November 2020.

## ORIENTED SCHOLARSHIPS

**Ten scholarships** will be assigned according to the Department's research lines where priority will be given to the following topics:

- Static and dynamic behaviour of inorganic matrix composites for the strengthening of existing structures
- Technologies for innovation towards knowledge-based construction industry and building processes

- Mitigation of the environmental impact, resilience and Life-Cycle analysis
- Hybridization of typological systems for collective and residential functions in the city
- Photovoltaic technology and circular economy
- Definition of Analytical Procedures and Methodologies for BIM In Blockchain
- 4.0 technologies and socio-economic inequalities in the built environment
- Digital Twin and circular economy in buildings: the Digitalization process to improve durability and maintenance of constructions in view of circular economy and reuse of resources
- Rural settlement regeneration towards 2050 targets
- Multiscale analysis of vertical displacements in historical cities from satellite and in-situ observations
- Strategies for post-war preservation and construction

When you apply to a generic Scholarship, you will not find these “oriented” topics to be selected. This list is only useful to address your research proposal to follow the main research interest of ABC Department. Of course, you are also free to propose topics in other research lines, but compliant with ABC Department (see <https://beep.metid.polimi.it/web/abcphd/strategic-research-lines>).

### **THEMATIC SCHOLARSHIPS**

**Four scholarships** will be assigned on the following predefined topics:

1. “Foresight for Sustainable Smarter Built Environments” (interdisciplinary scholarship between ABC and Information Technology PhD programmes)
2. “Natural Language Processing Enabled Conformity Assessment of Construction Project (Digital) Documentation, to Support Design Review” (interdisciplinary scholarship between ABC and Information Technology PhD programmes)
3. “Smart Damper’, Viscous Damper with Adaptive Behavior for the Seismic Protection of Constructions” (interdisciplinary scholarship between ABC and Material Engineering PhD programmes)
4. “Innovative Tools for Heritage Conservation With HBIM Approaches (scholarship in cooperation with the Mantua Campus of Politecnico di Milano).

### **POSITIONS WITHOUT SCHOLARSHIP**

**Three scholarships** will be assigned on research topics proposed by candidates but compliant with the research lines of ABC Department (see a description at: <https://www.dabc.polimi.it/en/research/strategic-lines-of-research/>)