



POLITECNICO
MILANO 1863

PhD School - Politecnico di Milano
Regulations of the PhD Programme in:
Built Heritage Conservation

Cycle XL

1. General Information

PhD School - Politecnico di Milano

PhD Programme: **Built Heritage Conservation**

Course start: September 2024

Location of the PhD Programme: Milano Leonardo

Promoter Department: **Department of Architecture and Urban Studies** (DASU)

Scientific Disciplinary Sectors

ICAR/19 Architectural Restoration

ICAR/18 History of Architecture

ICAR/09 Structural Engineering

ICAR/08 Structural Mechanics

ICAR/17 Representation of Architecture

ICAR/21 Urban and Landscape planning

ICAR/22 Real Estate Appraisal

CHIM/12 Chemistry for Environment and Cultural Heritage

GEO/09 Mining resources, mineralogic and petrographic applications for the environment and for cultural heritage

L-ANT/07 Classical archaeology

ERC Sectors

SH5_8 Cultural studies, cultural identities and memories, cultural heritage; SH6_1 Historiography, theory and methods in history; SH6_12 Historiography, theory and methods of history; PE8_3 Civil engineering; PE4_17 Characterization methods of materials; PE4_18 Environment Chemistry; SH6_3 SH2_9 Urban, regional and rural studies; SH2_10 Land use and regional planning; SH5_12 Computational modelling and digitisation in the cultural sphere; SH6_1 Archaeology, archaeometry, landscape archaeology; PE10_5 Geology, tectonics, volcanology; PE10_3 Climatology and climate change.

PhD School Website: [Home - Dottorati di Ricerca \(polimi.it\)](http://polimi.it)

PhD Programme Website:

[Preservation of the Architectural Heritage - Dottorati di Ricerca \(polimi.it\)](http://polimi.it)

[Research – Dottorato-Conservazione – DASU \(polimi.it\)](http://polimi.it)

2. General presentation

The Doctorate Course in “Preservation of the Architectural Heritage”, from Academic year 2024-2025 Built Heritage Conservation, was first held at Milan-based Politecnico back in 1983.

The PhD program focuses its attention to some currently crucial themes for the preservation,

conservation, management and valorization of Built Heritage.

Having at the center the fundamental topics of Heritage knowledge, preservation, design, and intervention, the PhD program also takes care of the most important and urgent problems affecting the built Heritage and Cultural Landscapes: the fragility and the abandonment of historic marginal areas; the climate change and its effects on the built environment; the improper pressure of mass tourism on our historic settlements and sites of cultural interest, the needs for a wider social involvement in the field also through appropriate ICT mediums, the management and the use of architectural Heritage.

The conservation of Architectural Heritage is, in fact, a strategic field as well as one of the main important resources for worldwide economy and for a sustainable future in different areas of the world. The team of professors, promoting and participating in the debate about these matters on a national and international scale, will thus deal with a broad range of issues requiring strong and real multi-disciplinary approach and all the many competences present in the PhD Board but also others outside it, for specific topics.

On the strength of a solid, long-standing research tradition, the themes addressed, and the methodologies adopted are meant to update contents and tools, the approach to the modern contemporary themes of cultural heritage protection and enhancement. Therefore, the development of pioneering themes and innovative research processes will be encouraged, such as the investigation of the *territorial fragilities*, in abandoned settlements, in archaeological sites, in towns and cities damaged by earthquakes or in conflict areas. The Course reflects one of the main research lines carried out within the Department of Architecture and Urban Studies, regarded as excellent in research assessment by Italian Ministry of University and Research (MUR) for the quality of its research programs. DASTU is one of Italy's most important research structures for town and country planning, architecture and preservation, embedded in a well-established international network of centres of excellence, cooperating with institutional and social actors at the local, national and international level. Thanks to its multidisciplinary approach, the Department offers expertise and on-going projects in a plurality of areas and organizations, including European, national, regional and local authorities, social and economic based groups, and research institutions.

The PhD programme is meant as the place where theorization, methodology, investigation into the most significant chapters of the protection of historic architectural heritage and historic landscapes are connected to complex, challenging operating research themes, on-site and lab experimentation of analytical and diagnostic stages.

The PhD programme, lasting three years, calls for the acquisition of 180 credits overall.

Thirty credits are acquired through the attendance of courses and the passing of the relative exams, concentrated in the first year of PhD programme.

In particular:

- 20 credits are offered and organized by the PhD programme in Built Heritage Conservation;
- 10 credits by the PhD School (soft and transferable skills courses).

The doctoral students in each cycle will also be required to attend specific seminars organized by the Doctorate.

The activities undertaken, in particular during the second and third year, also include attendance of workshops, seminars, national and international conferences related to individual research, with great attention to conferences wherein PhD candidates present the results, even partial, of their research theses.

To the aim of their thesis research, PhD candidates can rely on facilities and laboratories, both inside and outside the University. The breadth and width of those provides them with a crucial support to the purpose of acquiring “competence for highly qualified research activities” in the domain of architectural heritage protection, such as advanced methods of investigation, knowledge management and preservation processes.

The PhD course is run by a Coordinator and a Faculty Board. The coordinator chairs the Faculty Board, coordinates the preparation of the annual Educational Program and organizes the general educational activities of the PhD course (see Attachment A1).

The Faculty Board is responsible for the educational program and for teaching and administrative activities related to the PhD course (see Attachment A2).

In addition to the professors of the Politecnico di Milano, the Faculty Board includes representatives from other well-known universities and Research Institutes (Università IUAV, Venezia; Università di Genova; Università degli Studi di Bergamo; Istituto di Scienze del Patrimonio Culturale; ISPC-CNR, Milano, Firenze; ISAC-CNR Bologna); they actively collaborate in the teaching and research activities.

3. Objectives

Aim of PhD course is providing the PhD candidates with a unique training experience in the Italian panorama, so far unparalleled also in domains other than the Built Heritage Conservation.

The program of study leading to the doctoral degree is organized in such a way that the students can get ready to contribute to enhance knowledge in the field of Preservation of the Built Heritage and Cultural Landscapes; to enable to engage in advanced study and research; to integrate their professional education and experience with the larger problems of the research around the field.

The tutorial activities will be contributed by professors from prestigious schools of architecture and engineering as well as cultural heritage experts from foremost Italian Institutes. This aspect increases the technical characteristics and makes PhD immediately competitive at the European level.

The Faculty Board organization allows to investigate and share extremely relevant topics that describe the broad domain of preservation, a strategic field and, at the same time, one of the chief resources for the future and economy of a Country.

The multidisciplinary skills of the Faculty Board coverage a series of themes, which PhD students might take up in their thesis work:

a. New frontiers for the conservation of the architectural heritage

- Impacts of climate change on architectural heritage and cultural landscapes;
- Historic centers, fragility and potentiality; Urban plans and Historic cities;
- Historic urban landscapes: values, issues, and potentials;
- *Inner Areas*: census, conservation and re-use of Architectural Heritage; strategic approaches for the preservation; social involvement and Communities engagement in the protection and management of their Heritage; Activating latent territorial resources;
- Impact of mass tourism on architectural heritage and cultural landscapes; cultural and sustainable tourism policies and practices;
- Architectural Heritage at risk in seismic or in conflict areas;

- ICT for Cultural Heritage; Open Data and innovative mapping tools for Cultural Heritage; Cultural Landscape Digital Education, Communication and Participation;
- Architectural Heritage and Cultural Landscapes in Countries in transition.

b. Studies on built heritage

- Construction techniques and materials: from the 15th to the 20th century;
- Architecture and methods of construction: languages, technologies, products and sources;
- Preservation, conservation and re-use of pre-20th century architecture. The question of re-use as possible cause of conflict with the issues of conservation;
- Protection, conservation and re-use of twentieth-century architecture;
- Twentieth-century building techniques and methods of restoration;
- The conservation management plan for 20th-century architecture;
- Inventories of cultural heritage, their history and methodologies;
- Historical systems of heating, lighting, water supply and drainage/waste evacuation in individual buildings and on an urban scale; Energy efficiency in historic buildings;
- Wooden and masonry structures (carpentry, floors and ceilings, stone or brick vaults);
- Traditional construction techniques: conservation problems and approach;
- Materials and finishing of historic buildings: characteristics, production techniques and use as identified in technical literature and by material analysis;
- Technical literature on construction: texts and their transmission, treatises, early technical and scientific journals, architectural manuals and journals;
- Building archaeology: practical issues in archaeological research; buildings materials archaeology: history of their use, continuity and discontinuity in the use of traditional building materials; archaeology of modernism.

c. Diagnostics of materials and Structural Issues

- Innovative materials and methods for the conservation of architectural surfaces;
- Protocols for monitoring the state of preservation of building materials;
- Innovative methods for the dynamic monitoring of resisting structures (under the effect of environmental noise or specific stimuli);
- Critical evaluation of empirical construction technologies developed in the pre-scientific age to meet special needs (in particular, resistance to earthquakes);
- Definition of evaluation process and knowledge of the increases “residual capacity” in existing buildings, ensuring the achievement of the preservation objectives.

d. Cultural Heritage and Economic Evaluation

- The economic perspective on Cultural Heritage;
- The notion of *Total Economic Value*;
- Stated preferences and Revealed preferences methods.
- How to support decisions about preservation, exploitation and re-use of Cultural Heritage.

4. Professional opportunities and job market

Graduates of the PhD programme have often found employment in public sector and conservation institutions at progressively higher levels, as well as in professional practices and in the business world, in specific specialized fields. PhD candidates from abroad find job in their native countries at university or in Cultural Heritage Institutions, as well as numerous former Italian students.

As regards Italy, the relationship with Italian Ministero per i Beni e le attività culturali, MiBAC, has been definitely fruitful, especially when we consider that many among the best PhDs in Preservation of Architectural Heritage have been hired as officers and executives to the above ministry.

Recently (February 2018) twelve PhD in Preservation of the Architectural Heritage (Preservation of Built Heritage) won the competition to become public officers in prestigious seats of the Ministry of Cultural Heritage; others work in prestigious international organizations, still others teach and research in the Universities of their Countries (China, Vietnam, for example).

5. Enrolment

5.1 Admission requirements

Italian and International citizens can apply. They are requested to have graduated in accordance with the pre-existing laws D.M. 3.11.1999 n. 509, or to have a Master of Science degree in accordance with D.M. 3.11.1999 n. 509, or a Master of Science in accordance with D.M. 22.10.2004 n. 270, or similar academic title obtained abroad. These titles must be equivalent for duration and content to the Italian one, with an overall duration of university studies of at least five years.

The certified knowledge of the English language is a requirement for admission. Please refer to the PhD School website for details.

The admission to the programmes will be established according to the evaluation of the candidates curricula, motivation letters, and an illustrative report about the development of a possible PhD research, which candidates will send contextually with their application to the admission announcement.

5.2 Admission deadlines and number of vacancies

The number of positions is indicated in the Call for admission to the 40th PhD cycle Programmes: <http://www.polimi.it/phd>

Scholarships both on general and on specific themes are available, in accordance with what is specified in the calls for admission.

From this year there will be further calls for themed scholarships after the first one.

6. Contents

6.1 Requirements for the PhD title achievement

The achievement of the PhD title in *Built Heritage Conservation* requires a study and research activity of at least three years equivalent of full-time study, research, and development of PhD thesis.

PhD candidates *in Built Heritage Conservation* must earn a minimum of 30 course credits (see paragraph 6.3 below), and to continuously conduct studies and research.

At the beginning of the course, the Faculty Board assigns a supervisor, and, in some cases, a tutor to each PhD candidate to supervise and assist him/her in the overall training programme.

The tutor shall be a professor belonging to the Faculty Board. The tutor assists the candidates in the choice of courses to be included in the study plan, which is submitted for approval to the Coordinator of the PhD Programme (see also section 6.4 below).

The Faculty Board may assign extra course credits to one or more candidates, in case they need to complete their preparation in specific topics, relevant for their research projects. Similarly, it may require the PhD student to modify topics and contents in relation to the research project presented in the phase of admission to the PhD programme.

Candidates will be asked to demonstrate knowledge of the Italian language, equal to at least A1 level of the Common European Framework of Reference for the knowledge of languages. This requirement will be needed in order to register for the final exam. Italian native speakers and all those who can demonstrate knowledge of the Italian language to the required level will be exempt.

6.2 Research development

The main aim of all Politecnico di Milano PhD programmes is the development in the candidates of a research-oriented mind-set, with expertise and skills in a specific research topic. To this end, candidates develop problem-solving capabilities in complex contexts, including the capacity of performing deep problem analysis, identifying original solutions, and evaluating their applicability in practical contexts. These skills provide the PhD candidates with major opportunities of development in their research both in the academic field, and in public and private organizations.

PhD candidates are requested to develop an original research contribution. The PhD thesis must thus contribute to increase the knowledge in the candidate's research field. Besides, it has to be coherent with the research topics developed in the Department where the PhD Programme is carried out.

The original research results are collected in the PhD thesis, where the candidate's contribution is put in perspective with respect to the research state of the art in the specific research field.

The PhD research is developed, during the three years of the program, under the guidance of a supervisor, who supports the candidate in the setting-out and in the everyday activities related to the thesis development. The supervisor is not necessarily a member of the Faculty Board and may also belong to a different institution. The supervisor can be supported by one or more co-supervisors.

Further activities intended to develop the candidate's personal skills and research expertise are encouraged during the PhD path.

Candidates must acquire the capability to present and discuss their work in their research community. Consequently, both the participation to international conferences and the publication of the research results in peer-reviewed journals are encouraged.

The PhD programme favors the candidates' research interactions with other groups in their research field, preferably abroad. Research visits of at least three months are strongly encouraged, as through them the candidates may acquire further skills to develop their research work and thesis.

The duration of the programme is normally three years.

6.3 Objectives and general framework of the teaching activities

The PhD Programmes and the PhD School activate teaching forms of different kind and credit value, including courses, seminars, project workshops, laboratories. Teaching activities both cover the basic

research issues (problems, theories, methods), which represent the founding element of the PhD programme and clearly identify its cultural position and deepening in a specialist way some research issues connected with the problems developed in the theses.

Lessons are usually held in English, except when indicated otherwise. The PhD programme includes at least one complete path delivered in English language.

Structured teaching activities allow to earn ECTS credits. Other activities typically specialized and for which it is difficult to evaluate the learning and its quantification, fall within the scientific activities of which the Faculty Board takes into account in the overall evaluation, but they do not allow to earn ECTS.

The PhD School of Politecnico di Milano proposes a set of courses aiming to train the PhD candidates in soft and transferable skills. The skills and abilities provided by these courses are expected to help candidates across different areas of their careers in order to respond to the rapidly evolving needs of the global economy and society at large.

At least 10 of the 30 course credits that each candidate is required to earn shall be obtained through soft and transferable skills courses organized by the PhD School.

Characterizing Courses

The courses activated by the PAH programme, for the 40° cycle, in the first year are the following:

1 – Themes and methods of research for Cultural Heritage

Through ex-cathedra lessons, seminars, and exercises, the course aims to initiate the students to know the methods and themes of the research for cultural heritage and their conservation.

The Ph.D. students will be asked to work together on topics proposed by the teachers to experiment concretely with what they learned in class.

2 – HERITAGE AT RISK. Managing the effects of seismic actions and traumatic events on the built heritage by digital tools

The course provides a look onto themes, processes, modifications, and recovery initiatives which, under the effect of multiple risk factors, involve the architectural Heritage at different scales and different declinations, and their management by digital tools.

Through seminars and lectures, implications, approaches, and intervention methods concerning appropriately identified specific issues are discussed.

3 – HERITAGE IN CLIMATE CHANGE. Damage and environmental impacts

The course deals with climate change, its risks and its impact on the architectural and landscape heritage.

The course, after introducing the topic of decay and the interaction in between building and the environment, with the aim of providing students with the tools to address a cogent and complex field, will be developed through seminars that illustrate case studies at the architectural and territorial scale.

4 - HERITAGE IN MARGINAL AREAS. Research workshop

The workshop aims to enable learners to tackle complex problems by bringing together different disciplinary skills. The workshop includes a short period of intensive work abroad.

The organization of the workshop provides a preliminary investigation on topics and problems proposed by the teachers that the PhD students have to conduct to share knowledge and studies.

Are scheduled ex cathedra lectures and an intensive workshop aimed at provide a common starting ground to all participants coming from different cultural formation and tradition.

Each course earns the student five credits. Each learning activity is subject to grading through oral

examination and/or submitting written papers to achieve the provided credits. More details will be available on specific program of courses.

The courses do not design an independent field in themselves but will always interact with all the other contributions provided to the students regarding some common issues, topics, and case studies. The PhD students will be required to carry out common **research activities** at the beginning of the first year.

The tables below summarize the candidate's path (as regards coursework activities). At the same time, the programme foresees that the candidates are devoted to research activity in a continuous way for three year starting from the first, following the lead of their supervisors and of the Faculty Board.

First Year

<i>Courses</i>	<i>Possible details or reference to following tables</i>	<i>Number of credits (min-max)</i>	<i>Note</i>
<i>PhD School Courses</i>	2 courses	each course 5 credits	
<i>Courses characterizing the PhD</i>	4 courses	each course 5 credits	

Second year

In the second and third year, the candidate should be devoted entirely to the research and to the development of the PhD thesis.

A **period of study abroad** in qualified Research Institutions, chosen in relation with the particular research topic, is strongly recommended.

Third year

In the third year the candidate should be devoted entirely to the research and to the development of the PhD thesis.

The Ph.D student are strongly recommended to submit at least a paper in relation to the research and to attend of workshops, seminars, national and international conferences related to individual research, with great attention to conferences wherein PhD candidates present the results, even partial, of their research theses. Participation in seminars and conferences, as well as the publication of paper, must be agreed with the supervisor.

Periodical milestones (every six months approximately), starting from the first year, will verify Ph.D. students' progress in individual research.

The milestones involve submitting written materials (reports), to be delivered in advance according to the schedule communicated to the PhD candidates with sufficient notice, and a PowerPoint presentation on the day of the milestone. The material – both the written report and the PPT presentation – must be consistent and correspond to the state-of-the-art of the research, even though the presentation will represent a summary of the report.

The first milestone (first year) must illustrate and argue the chosen research topic and its originality. It should include a first recognition of the research field with direct reference to a first outline of its state-of-the-art, meaning an initial review and brief account of the existing and available literature on the

given topic. It should also be exemplified through an annotated bibliography. Furthermore, the PhD candidate should indicate his/her future research path.

The second milestone (first year) must be in continuity with the first, bringing further developments considering the observations received from the two internal reviewers and by any other member of the PhD Board. The structure of the report and the presentation should clearly state the differences from the previous milestone, using different text colours, fonts, or font sizes in such a manner as to indicate the variations and advancements. Additionally, an incipient research structure should be presented and argued.

The third milestone (second year); the report will no longer be an independent written material, but it should present (even though schematic and provisional) the thesis's table of contents, underlining the draft's progress. The PhD thesis draft should be preceded by a brief introduction of a maximum of two pages, serving as a guide to reading the document and summarizing the research program of the PhD candidate given the successive milestones. For the subsequent milestones, the PhD candidate will have to present the thesis's state of the art and advancement, always preceded by the introduction mentioned above.

PhD Course List

A) The PhD Programme in *Preservation of Built Heritage* organizes the **Characterizing Courses** listed in table A.

For the admission to the final exam the acquisition of **at least 20 credits** in this list is **mandatory**.

B) The PhD School organizes general and Interdoctoral courses every year. The acquisition of **at least 10 credits** is **mandatory** among the courses of B type. The list of PhD courses organized by the PhD School is available at the website <https://www.dottorato.polimi.it/en/phd-school/phd-level-courses>

C) Other PhD courses

A maximum of 5 mandatory credits can be obtained by choosing among courses provided by other PhD programmes at Politecnico di Milano and/or external Institutions (in this case the previous approval of the supervisor and the coordinator is mandatory).

PREPARATORY COURSES

If the supervisor and the tutor find it useful or necessary that the candidate attends preparatory courses, the Faculty Board of the PhD programme may assign some extra-credits to be acquired to complete the training path. The credits acquired in this way will be considered as additional, in relation to the mandatory credits to be acquired with the PhD courses.

A specific study path will be organized for each PhD candidate that may also attend courses offered by the Scuola di Specializzazione in Beni Architettonici e del Paesaggio, SSBAP [Graduate School in Architectural and Landscape Heritage] in Milan and in Genoa, and, in relation to the various topics of their thesis or courses, from Master degree programs.

SPECIALISTIC COURSES, LONG-TRAINING SEMINARS

The attendance of Specialist Courses, Workshops, Schools and Seminars cycles is strongly encouraged and (if these seminars, workshops are certified and evaluated) may permit to acquire credits according the modalities established by the Faculty Board and previous approval of the study plan submitted by the candidate. These courses and workshops can be inserted in the study plan, even if they are not evaluated (and therefore not qualified as credits), as optional "additional teaching".

The scheduled course planning for the academic year 2023-2024 follows. Other courses may be activated during the year. In this case, the candidates will be promptly informed and will be allowed to insert these new courses in their study plan.

Table A: PHD COURSES CHARACTERISING THE PHD PROGRAMME

SSD	Name of the Course	Professor	A.A./Semester	Language	Credits
ICAR/19 ICAR/18 ICAR/21	Themes and methods of research for cultural Heritage	Bertrando Bonfantini Daniele Pisani Francesca Albani	1	English	5
ICAR/09 ICAR/08 ICAR/17	HERITAGE AT RISK. Managing the effects of seismic actions and traumatic events on the built heritage by digital tools	Claudio Chesi Daniele Villa Massimiliano Bocciarelli	1	English	5
ICAR/19 CHIM/12 GEO/09	HERITAGE IN CLIMATE CHANGE. Damage and environmental impacts	Davide Del Curto Antonio Sansonetti Alessandra Bonazza	2nd	English	5
ICAR/19	HERITAGE IN MARGINAL AREAS. Research workshop	Mariacristina Giambruno Annunziata Maria Oteri Angelo Landi Sonia Pistidda	1/2	English	5

Table B

See <https://www.dottorato.polimi.it/en/phd-school/phd-level-courses>

ETHICS IN RESEARCH
STRENGTHENING CRITICAL SPATIAL THINKING
ADVANCED INTERACTION SKILLS FOR ACADEMIC PROFESSIONALS
INDUSTRIAL SKILLS
ENGLISH FOR ACADEMIC COMMUNICATION
SCIENTIFIC COMMUNICATION IN ENGLISH
RESEARCH SKILLS
SCIENTIFIC MODELS: CONCEPTUAL FOUNDATIONS AND PHILOSOPHICAL ISSUES
RECORDING WORK 4 BUILDING MEMORY: METHODS, PRACTICES, TOOLS, SKILLS TO MANAGE THE KNOWLEDGE
THE COPERNICUS GREEN REVOLUTION FOR SUSTAINABLE DEVELOPMENT
INNOVATIVE TEACHING SKILLS
CREATIVE DESIGN THINKING
EUROPEAN CULTURE
RESEARCH COMMUNICATION. ISSUE MAPPING: EXPLORING PUBLIC DEBATES SURROUNDING ACADEMIC TOPICS
COMMUNICATION STRATEGIES THAT SCORE IN WORLDWIDE ACADEMIA
PROFESSIONAL COMMUNICATION
PROJECT MANAGEMENT BASICS
TECHNOLOGY AND SOCIETY
POWER OF IMAGES AND VISUAL COMMUNICATION FOR RESEARCH DISSEMINATION
SUSTAINABILITY METRICS, LIFE CYCLE ASSESSMENT AND ENVIRONMENTAL FOOTPRINT
PROJECT MANAGEMENT (IN ACTION)
ETHICAL ASPECTS OF RESEARCH ON DUAL
HOW TO SUPPORT COMPLEX DECISIONS: APPROACHES AND TOOLS

SULLA RESPONSABILITÀ DELLA TECNICA
LA COMUNICAZIONE NELLA SCIENZA
SCIENCE, TECHNOLOGY, SOCIETY AND WIKIPEDIA
PRACTICING RESEARCH COLLABORATION
ETHICS OF ARTIFICIAL INTELLIGENCE
TEACHING METHODOLOGIES, STRATEGIES AND STYLES
SCIENCE DIPLOMACY FOR RESEARCHERS. FILLING THE GAP BETWEEN SCIENCE AND POLICY WITHIN THE GLOBAL CHALLENGES
INTRODUCTION TO ACADEMIC RESEARCH
TECHNOLOGY AND INEQUALITY

SUGGESTED CROSS –SECTORAL COURSES

- ETHICS IN RESEARCH
- ENGLISH FOR ACADEMIC COMMUNICATION
- SCIENTIFIC COMMUNICATION IN ENGLISH
- RESEARCH SKILLS
- THE COPERNICUS GREEN REVOLUTION FOR SUSTAINABLE DEVELOPMENT
- EUROPEAN CULTURE
- POWER OF IMAGES AND VISUAL COMMUNICATION FOR RESEARCH DISSEMINATION
- SUSTAINABILITY METRICS, LIFE CYCLE ASSESSMENT AND ENVIRONMENTAL FOOTPRINT
- HOW TO SUPPORT COMPLEX DECISIONS: APPROACHES AND TOOLS
- ETHICS OF ARTIFICIAL INTELLIGENCE
- TEACHING METHODOLOGIES, STRATEGIES AND STYLES

6.4 Presentation of the study plan

PhD candidates must submit a study plan, which may be revised periodically in order to adequate them to possible changes in the course list, or to needs motivated by the development of their PhD career. The study plans must be approved by the PhD programme Coordinator, according to the modalities established by the Faculty Board of the PhD Programme itself.

6.5 Yearly evaluations

Candidates present their work to the Faculty Board at least once a year. In particular, the candidates must pass an annual evaluation in order to be admitted to the following PhD year. In addition to the year-end review, PhD candidates have to submit the thesis to the Faculty Board 2 times a year.

The third year evaluation establishes the candidate's admission to the final PhD defense.

As a result of each annual evaluation, the candidates who pass annual evaluation receive an evaluation (A/B/C/D) and may proceed with the enrolment at the following year. Candidates who do not pass the year-end review, are qualified either as “Repeating candidate” (Er) or “not able to carry on with the PhD (Ei)”. In the former case (Er), the candidates are allowed to repeat the PhD year at most once. The PhD scholarships – if any – are suspended during the repetition year. In the latter case (Ei) the candidates are excluded from the PhD programme and lose their scholarships – if any.

In case the Faculty Board holds appropriate to assign directly an exclusion evaluation (Ei) without a previous repetition year, the request must be properly motivated, and validated by the PhD School.

After the final year, candidates who have achieved sufficient results but need more time to conclude their research work and write their theses may obtain the admission to a further year.

6.6 PhD thesis preparation

The main objective of the PhD career is the development of an original research contribute. The PhD thesis is expected to contribute to the advance of the knowledge in the candidate's research field.

The PhD study and research work is carried out, full time, during the three years of the PhD course. Stages or study periods in (Italian or International) companies or external Institutions may complete the candidate's preparation.

The resulting theses needs to be coherent with the research issues developed in the Department where the PhD programme is developed.

The candidate must present an original thesis, discuss its contribution to the state of the art in the research field in the research community.

The PhD research is developed following the lead of a supervisor, who supports the candidate in the setting out and in the everyday activities regarding the thesis development.

At the conclusion of the PhD studies, the Faculty Board evaluates the candidates. Candidates who receive a positive evaluation submit their theses to two external reviewers for refereeing. If the evaluation provided by the reviewers is positive (after the revisions required by the external reviewers), the candidates defend their thesis in a final exam, in front of a Committee composed of three members (at least two of which must be external experts).

7. Laboratories, PhD Secretary Services

The Department of Architecture and Urban Studies, provides the PhD students of the Architectural Heritage Preservation Programme with classrooms at DASTU (PC workstations, desks and wi-fi connection).

Libraries and archives:

The PhD candidates can reference publications from the Libraires and Archives Polimi (Historical Libraries, Historical Archives, Leonardo Campus Library, Candiani Campus Library)

Scientific laboratories:

Diagnostics and Investigations on Building Materials Laboratory (DICA);

LADC Laboratory – Construction Analysis and Diagnostics Laboratory (DASTU);

TeCMArch –Techniques for the Conservation and Management of Architectural Heritage (DASTU);

Interdepartmental Laboratory ‘Climate and Energy for Cultural Heritage’ (CECH);

Interdepartmental Laboratory Characterization of materials for architecture (MatArch)

In relation to PhD thesis and topics with the agreement of the competent structures, PhD candidates will have access to the following laboratories and libraries:

Università degli Studi in Genoa

Libraries

- Library of the MARS Laboratory – Division of Archaeology of Architecture
- Library Service Centre “Nino Carboneri” of the Faculty of Architecture
- Library of the Institute of History of Material Culture (ISCUM)

Laboratory

- Analytical Methodologies of Restoration and Construction History, MARSC, in the Specialization

School of Architectural and Landscape Heritage

Università IUAV in Venice

Libraries

- Library of the History of Architecture
- CIRCE Library and map library

Laboratory

- Seismic hazard laboratory (LARS)

ISPC- CNR

The candidates can also access to laboratories of ISPC_CNR Milano to develop research dealing with:

- Characterization of constituent materials of Architectural Heritage and understanding of their degradation processes;
- Development of new technologies and materials for the conservation of cultural heritage;
- Development of innovative criteria for planning and carrying out conservation treatments.

Doctoral program – secretarial services:

Dott.ssa Marina Bonaventura

Department of Architecture and Urban Studies

Tel.: 02-2399.5165 - Fax: 02-2399.5435

e-mail: marina.bonaventura@polimi.it

Marilena Mastalli

Department of Architecture and Urban Studies

Tel.: 02-2399.5405 - Fax: 02-2399.5435

e-mail: marilena.mastalli@polimi.it

Doctoral program – administrative services:

Arch. Gloria Paoluzzi

Department of Architecture and Urban Studies

Tel.: 02-2399.5550

e-mail: gloria.paoluzzi@ polimi.it

Dott. Costanza Mangione

Department of Architecture and Urban Studies

Tel.: 02-2399.5410

e-mail: costanza.mangione@ polimi.it

8. Internationalisation and inter-sectoriality

Study and research activities in external laboratories are strongly recommended.

Politecnico di Milano supports joint PhD paths with International Institutions, as well as Joint and Double PhD programmes. Further information is available on the PhD School website and on the PhD programme website.

More specifically, the PhD programme in Built Heritage Conservation collaborates with:

- UNIVERSITAT DE VALÈNCIA – Double Doctorate
- UNIVERSIDAD DE CASTILLA-LA MANCHA - cotutelle agreement;
- UNIVERSITE' PARIS I - PANTHEON SORBONNE – stage, co-supervised theses;
- ETS DE ARQUITECTURA DE GRANADA, teaching activities, exchange;
- SCOTTISH CENTRE FOR CONSERVATION STUDIES, UNIVERSITY OF EDINBURGH, stage, co-supervised theses;
- XI'AN JIOTONG UNIVERSITY, exchange for teaching activities;
- ETHZ, Zurich, Switzerland, exchange for teaching activities.
- Qatar University – Double Doctorate
- RMIT University, Melbourne, Australia, Marie Curie fellowship

Other international agreements

VIED - Viet Nam Government (31th cycle);

CSC – Chinese Government (fro 32th to 38th Cycle)

MAECI - Ministero degli Affari Esteri (33th cycle)

Interaction with and exposure to non-academic sectors provides significant benefits to doctoral candidates as well as to research and innovation intensive employment sectors. Direct exposure to the challenges and opportunities in non-academic sectors of the economy and society at large is fostered by networking, connectivity, inter-sectoral mobility and wide access to the knowledge. In particular, the PhD programme in Built Heritage Conservation collaborates with the following Research Agencies: ISPC-CNR, *Istituto di Scienza del Patrimonio Culturale*; (co-supervised theses, Laboratories, teaching activities); ISAC-CNR, *Istituto di Scienze dell'atmosfera e del clima* (co-supervised theses, Laboratories, teaching activities).

Attachment A1 – PhD Programme Coordinator

Short CV of Programme Coordinator

Mariacristina Giambruno

architect, PhD in Preservation of Architectural Heritage and graduated in Restoration of Monuments, she teaches at School of Architecture, urban planning, construction engineering and Graduate School in Architectural and Landscape Heritage (Politecnico di Milano).

Member of Faculty board of PhD programme in Architecture, Urban design, Conservation of Housing and Landscape, she is Head of PhD programme in Preservation of Architectural Heritage (Politecnico di Milano) from 2019.

Her teaching and research activity is oriented on history and theory of architectural heritage, conservation of historical heritage, historical centers conservation and management, together with guidelines and management plans to preserve and valorize cultural heritage.

In recent years, she has focused part of her activity in emerging and transition countries, working and directing international projects in collaboration with organizations such as UNESCO, World Bank, AICS in Albania, Iran, Armenia, China, Pakistan, Vietnam. In these countries, she has investigated the role of cultural heritage as “trigger” for sustainable development.

Speaker at conferences in Italy and abroad, she held courses and workshop in Armenia, Vietnam, Iran, Portugal, where she is part of a research unit coordinated by the Lusíada University of Lisbon. She authored about 130 publications on preservation of historic centers and architectural heritage.

Attachment A2 – PhD Faculty Board

Description of the composition of the Faculty Board

Name	Affiliation	Scientific Disciplinary Sector
Mariacristina GIAMBRUNO (coordinator)	Politecnico di Milano, Full professor	ICAR/19
Bertrando BONFANTINI	Politecnico di Milano, Full professor	ICAR/21
Paolo FACCIO	Università IUAV di Venezia, Full professor	ICAR/19
Giulio MIRABELLA ROBERTI	Università degli studi di Bergamo, Full professor	ICAR/19
Stefano MUSSO	Università di Genova, Full professor	ICAR/19
Marco Andrea PISANI	Politecnico di Milano, Full professor	ICAR/09
Alessandra OPPIO	Politecnico di Milano, Full professor	ICAR/22
Annunziata Maria OTERI	Politecnico di Milano, Full professor	ICAR/19
Francesca Lucia Maria	Politecnico di Milano,	ICAR/19

ALBANI	Associate professor	
Massimiliano BOCCIARELLI	Politecnico di Milano, Associate professor	ICAR/08
Alberta CAZZANI	Politecnico di Milano, Associate professor	ICAR/19
Davide DEL CURTO	Politecnico di Milano, Associate professor	ICAR/19
Marica FORNI	Politecnico di Milano Associate professor	ICAR/18
Damiano Cosimo IACOBONE	Politecnico di Milano Associate professor	ICAR/18
Angelo LANDI	Politecnico di Milano, Associate professor	ICAR/19
Gianfranco PERTOT	Politecnico di Milano, Associate professor	ICAR/19
Serena PESENTI	Politecnico di Milano, Associate professor	ICAR/19
Daniele PISANI	Politecnico di Milano, Associate professor	ICAR/18
Sonia PISTIDDA	Politecnico di Milano, Associate professor	ICAR/19
Renzo RIBOLDAZZI	Politecnico di Milano, Associate professo	ICAR/21
Antonella E. SAISI	Politecnico di Milano, DABC, Associate professor	ICAR/19
Cristina TEDESCHI	Politecnico di Milano, Associate professor	ICAR/19
Daniele VILLA	Politecnico di Milano, Associate professor	ICAR/17
Ferdinando ZANZOTTERA	Politecnico di Milano, Associate professor	ICAR/18
<i>non-academic staff</i>		
Claudio CHESI	Expert (retired full professor POLIMI)	ICAR/09
Tommaso ISMAELLI	Senior Researcher ISPC-CNR	L-ANT/07
Marco REALINI	Lead Researcher ISPC-CNR	CHIM/12
Antonio SANSONETTI	Senior Researcher ISPC-CNR	CHIM/12
Alessandra BONAZZA	Senior Researcher ISAC-CNR	GEO/09

Members of the Board of Experts accredited to participate in teaching and research activities

Carolina Di Biase
Maurizio BORIANI
Maria Antonietta CRIPPA
Alberto GRIMOLDI
Ornella SELVAFOLTA

Attachment A3 – PhD Advisory Board

Description of the composition of the Advisory Board

Name	Affiliation
1. Carla DI FRANCESCO	Director Scuola dei beni e delle attività culturali
2. Javier GALLEGO ROCA	Full professor, Restauración Arquitectónica, ETSA, Universidad de Granada (Spain)
3. Marie Laure Lavenir	General Director, ICOMOS International Secretariat
4. Cristina Sabbioni	Past director Istituto di Scienze dell'Atmosfera e del Clima (ISAC-CNR)
5. Eugenio Vassallo	Past professor IUAV Icar 19