Training project of a PhD Programme administered at the Politecnico di Milano

PhD in: Urban and Architectural Design
Cycle: XXVIII

TYPE OF ACTIVATION PROPOSAL:

- A.) Re-proposal of a PhD already activated – no change to the training project
- B.) Re-proposal of a PhD already activated – no substantial changes to the training project
- C.) Re-proposal of a PhD already activated - substantial changes to the training project
- D.) Newly activated PhD (not applicable for the XXVIII cycle)

Proposing Department: Department of Architecture and Planning, DiAP

Other proposing departments:........................................................................
PhD School of the Politecnico di Milano

Training programme
PhD Programme in Urban and Architectural Design
XXVIII Cycle

Campus: Milano Leonardo
1. General Information

PhD School of the Politecnico di Milano

PhD Programme: Urban and Architectural Design

Official Language(s): English/Italian

PhD Programme campus: Milano Leonardo

PhD School Website: http://www.polimi.it/dottorato
http://www.polimi.it/phd

PhD Programme Website: http://webdiap.diap.polimi.it/drpau/HP%20dottorato/HP%20dottorato.htm

2. General presentation of the PhD Programme:

The goal of the Architectural and Urban Design PhD Programme is the definition of theoretical and operating tools capable of defining the concise and strategic value of architectural and urban design as an inter-scalar and pre-figurative procedure of a new coincidence among formal structures, utility contents and functional requirements for the reconstruction of urban social life environments, residential symbolic references and forms of expression of the infrastructure framework.

The PhD Programme in Architectural and Urban Design aims at being a specific venue for the promotion of studies and research on the aforementioned theoretical, methodological and operational reconstruction through the proliferation of theoretical concepts and field experiments as well as on the verification of an effective match between the same.

The PhD Programme pursues a line of research focused on the relation between theoretical and operational practice in architectural and urban design through the integration of:

- Research on architectural and urban design paradigms where in-depth analysis of the contents of specific disciplines is dialectically juxtaposed with the necessary connections with parallel outlooks and skills, the integration of which appears necessary for development of the core problems;

- Applied design research, in which design is considered as the driver and the result of a research program to be pursued as the development of a problematic assumption, the result of a knowledge process aimed at interpreting the contextual reasons and identifying a critical path strongly related to theoretical statements and sample thematic reference structures.

According to this methodological procedure, the PhD Programme in Urban and Architectural Design aims at training researchers and professionals specifically qualified to meet the new problematic domain and formulate appropriate responses through development of the required theoretical, methodological and operational tools.

Research Topics


The conditions of physical, environmental and social degradation are subjects to be reviewed by contemporary architectural culture, particularly European. In fact, these are affecting a number of areas, both internal to the urban body and situated in the marginal and fringe areas. Given such problems and objectives, architectural and urban design is central to the implementation of integrated processes of urban regeneration, both as synthetic action to transform the physical space and because the development of effective tools of description, interpretation and intervention on physical space can draw on the corpus of
its foundations, its methodologies and its specific culture. Tools coherent with evaluation of the dialectic between persistence and variability of the assets of contemporary settlements, the result of complex processes of physical stratification.

Renovation, redevelopment and urban regeneration interventions are based on the development of strategies and community programs in which the issue of sustainability becomes central. The PhD research programme aims to update methodologies and tools and consider environmental issues, as well as their relationship with design practices, as essential complements of their ethics and strategic role. It therefore intends to explore the declinations of the term sustainability in its architectural meaning and consider energy issues in relation to the method of production and life cycle of buildings and fabrics. In this perspective, it has the priority of inquiring and offering solutions and design methods that lead to the articulation of strategies and objectives such as the definition of functional mix, the redefinition of housing types, open spaces and spaces of relations for the pre-figuration of new public spaces.


Study and design testing of new generation spaces and typologies in relation to the interpretation of the new metropolitan dimension of contemporary settlements, meant as a complex and interactive field of geographical, historical, economic and social conditions. The architectural definition of new systems of collective spaces, inside and outside, is the subject of special attention:
- Inner and peri-urban fringe areas, with particular attention to the conditions of density and rarefaction of urban settlements and the presence of residual agricultural areas and open abandoned spaces;
- In relation to the terminals of infrastructural networks;
- As condensers of new and integrated types of usage of space for the creation of new ‘urban centers’ in fringe areas.

On the theoretical side, extensive comparisons with similar experiments in the European and international context are made.

3. Architecture of nodes and infrastructural nets and crossed landscapes

Study and design test of the link between net infrastructure of connection and crossed landscapes.

The research addresses two problem areas:

a) the settling dynamics in metropolitan areas spread in and outside Europe are characterized by phenomena of disruption, alienation, unrecognizability of large areas of urban and environmental quality, accelerated by the proliferation of road, transportation and technological infrastructures which, despite their articulated interconnection, induce effects of segregation, fragmentation and standardization of the inhabitants, deleting the characteristic richness of architectural, urban and environmental aspects of the crossed regions. The thematic deepening on the infrastructures concerns especially on the European corridors as connective complex systems, assessing project impacts at the different scales involved, on the design of the final nodes and networks within the city and on wider contexts of settlement, with special attention to the development of intermodality and to the variations inherent to the form of linked public space and to the architectural and of service artifacts.

b) Design of infrastructures, artifacts, grounds and public spaces denoted by instability processes (river areas, abandoned territories, etc.).

On the theoretical side, extensive comparisons with similar experiments in the European and international context are made.
3. Mission and Goals:

The models and paradigms affecting the development of Western cities during the Industrial Revolution and the subsequent reforms generated in the 20th century in order to meet their specific transformation dynamics seem inadequate to control the current phase of transformation of cities, which features two important aspects:

- The irreversible decline of the built-up model, linked to the concept of consolidated urban polarity ‘development’, raising the problem of finding innovative and more advanced models;
- Space and built-up area de-formation phenomena, accelerated by the proliferation of road, transportation and technological infrastructures which, despite their articulated interconnections, lead to segregation, fragmentation and homologation effects of these areas, deleting the characteristic wealth of their architectural, urban and environmental structures.

The complexity of phenomena affecting sprawling metropolitan areas in and outside Europe, requires architectural and urban disciplines to critically review and the consequent attunement of architectural design theoretical, methodological and application tools in the direction of their inevitable actualization in order to properly identify the transformation and residential dynamics of contemporary cities, aiming at a different approach to the interpretation of the morphology of territories, fabrics and networks, to the definition of typological, utility and communications contents as well as to the technical implementation consistency and the levels of artificiality involved in designing new spaces and artifacts.

Therefore the PhD Programme theoretical and design research analyzes the following problem areas:

- Identification of the scales involved in architectural and urban design, historical poles, the consolidated city, internal urban borders and in peri-urban areas where disintegration of the landscape requires a new design of its open spaces;
- Definition of prototypes for new urban functions, design methodologies for new morphological relations between fabrics and networks, regeneration and transformation of diffuse built-up areas and definition of open and built-up public spaces;
- Landscape qualification of large network infrastructures highlighting, in particular, the perception and liveability issue of mutual and separated environments of natural landscapes and technical environments.

4. Professional opportunities and employment market

- Researchers with an excellent scientific profile in the field of complex urban context redevelopment and transformation design interventions;
- Managers in public organizations and agencies at different institutional levels, with a focus on design interventions control/ evaluation and/or program development;
- Independent professionals qualified in the management of highly complex design processes;
- University researchers and lecturers in the scientific fields of the PhD Programme.
5. PhD Programme Enrolment

5.1 Admission requirements

Italian and foreign citizens can apply. They are required to have graduated in accordance with the pre-existing laws MD 3.11.1999 n. 509 or to have a Master of Science degree in accordance with MD 3.11.1999 n. 509 or a Master of Science in accordance with MD 22.10.2004 n. 270 or similar academic qualification obtained abroad, equivalent in duration and content to the Italian qualification and for an overall duration of university studies of at least five years.

Knowledge of the English language to at least B2 level is required.

Admission to the programme will be decided according to evaluation of the academic curriculum, the cover letter and to the development of possible PhD research which candidates must submit together with their application in reply to the admission call.

5.2 Admission deadlines and number of places available

The number of places available is indicated in the call for admission to the 28th PhD Programme cycle: (http://www.polimi.it/dottorato, http://www.polimi.it/phd)

Scholarships both on general and on specific topics are available, in accordance with that specified in the admission call.

The three general scholarships will be awarded on projects related to the three research topics outlined above. One will be particularly dedicated to the issue of social housing with the aim of promoting a joint research project with Tongji University in Shanghai (China). In this framework we expect that the PhD candidate will spend a year in China for research internships.
6. PhD Programme Contents

Qualification attainment requirements
Attainment of a PhD in Urban and Architectural Design requires study and research activity of at least three years full-time equivalent study, research and development of the PhD thesis.

The PhD in Urban and Architectural Design foresees 35 credits from PhD level courses to be acquired as indicated in paragraph 6.3 below.

The PhD Programme in Urban and Architectural Design includes acquisition of credits for the following activities: participation in design workshops in Italy and abroad, speaking at national and international conferences, participation in research activities in the department and abroad (internship activities).

6.2 Development of research and the PhD thesis
The aim of PhD programmes at the Politecnico di Milano is the development in candidates of a research-oriented mind-set, with expertise and skills in a specific research topic. To develop a research-oriented mind-set, candidates must acquire problem-solving capabilities in a complex context, including in-depth analysis of the problem, identification of an original solution and the capability of evaluating a solution and its applicability in given contexts. These skills provide PhD candidates with major opportunities for development of their research both in the academic field and in public and private organisations. The main objective is the development of an original research contribution. The PhD thesis must contribute to increasing knowledge in the research field of the candidate. Besides, it has to be coherent with the research topics developed in the department, in which the PhD Programme chosen by the candidate, is carried out.

The original research has to be submitted via a PhD thesis which contains and discusses the contribution, also in the field of the state of the art in the research community on the research issue. The PhD research will be developed under the guidance of a supervisor who supports the candidate in the setting-out and in the everyday activities regarding the development of the thesis. The supervisor does not have to be a member of the Academic Board and can also belong to an institution other than the Politecnico di Milano. The supervisor can be supported by one or more co-supervisors. To develop the capability of carrying out research activities, the candidate must attend courses according to the PhD programme, defined for his/her study plan and pass them with a positive evaluation. For each candidate admitted to the programme, a tutor, belonging to the Academic Board, is appointed. The tutor supervises and supports the candidate in the overall training path. The supervisor and the tutor can coincide. The choice of courses will be overseen by the tutor, and will be formalized in a study plan and approved by the Coordinator of the PhD Programme. Other activities for the development of personal skills and research expertise are encouraged during the PhD programme. The candidate must acquire the capability to present and discuss his/her work in his/her research community. Consequently both participation in international conferences and publication of research results in international journals with review are encouraged. Candidates are also encouraged to carry out part of their research activities in contact with other research groups in their field of interest, preferably abroad. Research visits of at least three months are strongly encouraged to research groups through which the candidate can acquire further skills to develop his/her research work and the thesis. The duration of the programme is normally three years.

6.3 Objectives and overview of teaching activities
The Ph.D. Programme and the Ph.D. School may activate various types of training with different valences (courses, seminars, project workshops, laboratories). All activities will aim at:

- creating common starting knowledge for the PhD programme;
- examining the basic research issues (problems, theories, research methods) which represent the cornerstone of the PhD Programme and which identify clearly its cultural position;
- exploring in a specialised manner certain research topics related issues developed in the thesis.

Courses are offered in English, unless otherwise provided for individual courses.

At least one path entirely in English is foreseen in the PhD programme.

Certain teaching activities entitle to acquisition of ECTS credits (Structured teaching activities); other activities, typically specialised and for which it is difficult to make an assessment of learning and quantification of the same, fall within the scientific activities which the Academic Board will take into account in the overall assessment, but whose value is not quantified in ECTS.

**Educational structure**

The PhD Programme training process consists of courses, seminars, design workshops and internships at universities and research institutions in Italy and abroad. During the first year the programme foresees the organisation of an Architecture and Urban Design Workshop, international seminars on specific topics and it is expected that PhD candidates follow at least one course activated by the PhD School as well as a residential design workshop.

The specific research training activities (participation in departmental research, seminars and conferences, in design workshops in Italy and abroad, internship) starts in the first year and progressively increases during the following two years and is supported by the workshop and research structures of the Department of Architecture and Planning.

*The Architectural Design and Urban workshop lasts one year and is supported by the International Thematic Seminar dealing with the intervention of architects, scholars and experts, with the active participation of PhD candidates, the core problems raised and the consequent updating of disciplinary and inherent approaches.*

The Architectural Design and Urban workshop will be conducted in Italian and English, Thematic Seminars will be held in Italian, English and the languages of speakers and tutoring in English for PhD candidates from abroad is foreseen.

For preparation of the research thesis, dedicated time which increases gradually from year to year, starting from the first year, is foreseen.

Programmes and bibliographies are available on line and will be communicated at the beginning of each activity.

The tables below show the foreseen path for candidates and refer only to coursework activities. At the same time, the programme foresees that the candidate is devoted to research activity in a continuous manner, following the guidelines of his/her Supervisor and of the Academic Board.
### First Year

<table>
<thead>
<tr>
<th>Courses</th>
<th>Possible details or reference to following tables</th>
<th>Number of credits (minimum-maximum)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PhD School Courses</strong></td>
<td><strong>To be chosen from the 2012-13 PhD School Programme</strong></td>
<td>5-10</td>
<td>The Board will indicate the recommended courses. PhD candidates may choose additional courses which, after approval of their study plan, will be credited as chosen activities.</td>
</tr>
<tr>
<td><strong>Courses characterising the PhD Programme</strong></td>
<td><strong>Urban and Architectural Design Workshop</strong></td>
<td>12</td>
<td>On significant case studies defined in relation to research issues</td>
</tr>
<tr>
<td><strong>International Thematic Seminar 1</strong></td>
<td><strong>International Thematic Seminar 2</strong></td>
<td><strong>International Thematic Seminar 2</strong></td>
<td><strong>International Thematic Seminar 2</strong></td>
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<td><strong>International Thematic Seminar 2</strong></td>
<td><strong>International Thematic Seminar 2</strong></td>
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<td><strong>International Thematic Seminar 2</strong></td>
</tr>
<tr>
<td><strong>Other PhD courses</strong></td>
<td><strong>Residential Design Workshop</strong></td>
<td>4-8</td>
<td>Workshop sponsored by the PhD Programme and/or the PhD School, Italian or foreign University approved in advance by the Academic Board.</td>
</tr>
<tr>
<td><strong>Courses offered by other PhD Programmes of the Politecnico di Milano, national and international</strong></td>
<td><strong>Courses offered by other PhD Programmes of the Politecnico di Milano, national and international</strong></td>
<td>5-10</td>
<td>PhD candidates may choose additional courses which, after approval of their study plan, will be credited as chosen activities.</td>
</tr>
</tbody>
</table>

### Second and Third year

During the second and third year the candidate should be devoted entirely to research and to the related activities of workshops, internship, participation in seminars and conferences, as well as to the development of the PhD thesis.
PhD Courses

A) The PhD Programme in Urban and Architectural Design organises the following Characterising Courses (see table A)

For admission to the final exam acquisition of at least 30 credits is mandatory. These credits must be acquired via the “characterising” PhD courses offered by the PhD Programme.

Every year the provision of at least 25 credits is ensured. For admission to the second year the credits relayed the Architecture and Urban Design Workshop, the seminars, the course of the PhD School must be fulfilled (30 credits minimum).

B) The PhD School organises every year general and Interdoctoral courses and courses with foreign professors. Acquisition of at least 5 credits is mandatory from type B courses.

C) Other PhD courses
PhD candidates will be able to choose among the PhD courses provided by other PhD programmes of the Politecnico and/or national or international external entities. These courses, after approval of the study plan, will be credited as chosen activities.

PREPARATORY COURSES

If the supervisor and the tutor find it useful or necessary for the candidate to attend preparatory courses (chosen among the courses activated at the Politecnico di Milano) the Academic Board of the PhD programme can assign a number of extra-credits to be acquired to complete the training path. The credits acquired in this manner will be considered as additional, in relation to the mandatory credits to be acquired with the PhD courses.

Foreign PhD candidates not having obtained a Master of Science in Italy will attend the following School of Architecture and Society Master of Science courses: ‘Storia e teorie dell’architettura del secondo novecento’/‘History and Theory of the Twentieth-Century architecture’ e ‘Teorie e tecniche della progettazione architettonica’/‘Architectural Theory and Practice’.

SPECIALIST COURSES, RESIDENTIAL SCHOOLS

Attendance of Specialist Courses, Workshops, Schools, Seminars cycles is strongly encouraged and (if these seminars, workshops are certified and evaluated) may permit acquisition of credits according the procedures established by the Academic Board and prior 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 “supplementary teaching”.

In the following table, the schedule for the 2012-13 and 2013-14 academic years is provided. It is possible that other courses are subsequently activated at the PhD School; in this case candidates will be promptly informed in order to be able to insert these new courses in their study plan.
Table A: PHD COURSES CHARACTERISING THE PHD PROGRAMME

<table>
<thead>
<tr>
<th>SDS</th>
<th>Name of Course</th>
<th>Professor</th>
<th>A.Y. 2012-13</th>
<th>Language</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICAR/14-ICAR/15</td>
<td>Urban and Architectural Design Workshop</td>
<td>Annual</td>
<td>Italian/English</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>International Thematic Seminar 1</td>
<td>1st semester</td>
<td>Italian/English</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>International Thematic Seminar 2</td>
<td>2nd semester</td>
<td>Italian/English</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>International Thematic Seminar 3</td>
<td>2nd semester</td>
<td>Italian/English</td>
<td>6</td>
<td></td>
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</tbody>
</table>

Table B SUGGESTED CROSS-SECTORS COURSES OR WITH A FOREIGN PROFESSOR

<table>
<thead>
<tr>
<th>SDS</th>
<th>Name of Course</th>
<th>Professor</th>
<th>A.Y. 2012-13</th>
<th>Language</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Epistemology of scientific and technical research</td>
<td>English</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Course dedicated to the 150th anniversary of the Politecnico</td>
<td>English</td>
<td>5</td>
<td></td>
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</tbody>
</table>

Table C OTHER PhD COURSES

<table>
<thead>
<tr>
<th>SDS</th>
<th>Name of Course</th>
<th>Professor</th>
<th>A.Y. 2012-13</th>
<th>Language</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Courses chosen by the Ph.D. candidate</td>
<td></td>
<td>5-10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Residential Workshop</td>
<td>2nd semester</td>
<td>Italian/English</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

6.4 Study plan submission
Each PhD candidate must submit his/her study plan. Candidates will have the opportunity to review it periodically (every three months) in order to adapt it to possible changes in the training offer or to needs justified by the development of his/her study plan. The study plan is approved by the Coordinator of the PhD Programme, according to the procedures established by the Academic Board of the PhD Programme itself.

6.5 Annual exam procedures
Every year the candidate is evaluated for admission to the next year. In the annual exam of the third year, admission of the candidate to the final exam (held by the external Commission) is evaluated. The candidate presents his/her work to the Academic Board at least once a year. After each annual evaluation, the candidate will receive an evaluation (A/B/C/D) or, if the candidate does not pass the exam, the candidate will be qualified as a “Repeating candidate” (Er) or “not able to continue with the PhD (Ei)”.
In the last year, candidates having achieved sufficient results but who need more time to write their thesis may obtain an extension up to a maximum of 12 months.
6.5 Other foreseen reviews

Half-yearly reviews of the PhD thesis with the Academic Board (thesis milestones).

6.6 PhD thesis preparation procedures

The PhD study and research work will be carried out, full time, during the three years of the PhD course. The possibility of internships or study periods in Italian or foreign companies or external entities and universities is foreseen.

The main objective is the development of an original research contribution. The PhD thesis must contribute to increasing knowledge in the research field of the candidate. The thesis must also be coherent with the research issues developed in the department in which the PhD programme, chosen by the candidate is developed. The candidate must present the original thesis, discussing its contribution to the state of the art in the research field in the research community.

The PhD research will be developed under the guidance of a supervisor who supports the candidate in setting out and in everyday activities regarding development of the thesis. On termination of studies, admission of the candidate to the final exam will be evaluated by the Academic Board and, subsequently a final exam is taken in order to attain the qualification, in which the research work carried out and the thesis will be evaluated by an Examination Committee composed of three members, of which at least two external examiners.

In the PhD Programme in Urban and Architectural Design the PhD thesis will be developed on a theoretical-experimental issue defined together with the Academic Board. **Phase 1** – During the first year, after attending introductory and main courses, the thesis topic is chosen together with its theoretical and methodological implications, the preliminary table of contents is defined, as well as the basic bibliography and organisation of documentation is finalized. At the end of the second semester, PhD Students submit the “Research project” document to the Academic Board (1st milestone).

**Phase 2** – The second year is devoted to the development of essential elements and documentation: annotated tables of contents, bibliographical documentation, graphic and iconographic material (2nd and 3rd milestones).

**Phase 3** – The third year is devoted to detailed thematic, experimental and design issues and to the draft of the final thesis (4th and 5th milestones). The Academic Board meets with PhD Students during thesis evaluation seminars at the end of each year (1st, 3rd and 5th milestones). Intermediate evaluations are conducted at the end of the first semester by the thesis Tutors and Supervisors, with ratification by the Academic Board (2nd and 4th milestones).

At the end of the third year the thesis is presented during a Final public seminar, attended by qualified external scholars.

7. Laboratories, PhD Secretary Services

The PhD has a Laboratory equipped with network workstations.

PhD Secretary:
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Fax. +39-02-23995435
e-mail: marina.bonaventura@polimi.it
8. Internationalisation and other activities
Carrying out study and research at other laboratories is strongly recommended. The University also offers the possibility of PhD programmes with foreign universities as well as double and joint PhD programmes. Further information can be found on the PhD School and PhD programme websites.