PhD in PROGETTAZIONE ARCHITETTONICA, URBANA E DEGLI INTERNI / ARCHITECTURAL, URBAN AND INTERIOR DESIGN - 34th cycle

<table>
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<th>Number of scholarship offered</th>
<th>5</th>
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<tr>
<td>Department</td>
<td>DIPARTIMENTO DI ARCHITETTURA E STUDI URBANI</td>
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### Description of the PhD Programme

The Ph.D. programme promotes studies and research projects concerning the architectural design at different scales the urban space, the building, the interior space enhanced by the analysis and interpretation of the contexts, the investigation of history, theory and critical explorations of architectural design, and an open dialogue with the different disciplinary skills called to deal with the complex development of contemporary architecture.

The aim of the Ph.D. programme is the definition of theoretical and operational tools to foster the development of a critical approach to the understanding of the complexity of buildings and spaces, as well as to acknowledge the concise and strategic values of design in constructing connections between formal structures, utilitarian contents and functional requirements of architectural works and their contexts.

Within the **34th PhD Programme** the following subjects are proposed:

1. Architecture of public spaces and urban design: methods and tools for the design of the ground surfaces in all their articulation; detailed definition of open space morphology and equipment; architecture of public buildings: typology, composition, structure and interiors;
2. Regeneration and reuse of urban fabrics: architectural design tools and methods for a sustainable approach to built environments;
3. Design of living spaces and social housing: analysis of dwelling models; historical and current transformation processes; future models and structures of individual and collective living places, with a special focus on the relationship between interior space and furniture;
4. Environmental control and individual well-being: design criteria and tools; simulation and monitoring of the microclimate and environmental comfort (energy aspects, lighting, ergonomics, etc.);
5. Museography and exhibition design: architectural design of museums; display and communication systems; museums, territory, landscape; virtual museum;
6. Landscape architecture: analysis and coordination of cultural, architectural and environmental resources for the enhancement of contemporary territorial man made transformations; study design and testing of the relationships between transport infrastructures and landscapes;
7. New scenarios: multi-scalar, multi-cultural and interdisciplinary nature of contemporary architectural, urban and interior design; innovative typological, spatial and formal models; hybridizations and "neo-places"; dynamics of space-society relationships; the role of cultural heritage in the age of globalisation, migrations and multiculturalism;
8. Theory, history, philosophy and critique of architectural, urban and interior design.

The PhD Program welcomes both foreign and Italian students. English and Italian are the official language of the program and the specific research subject will be assigned with the agreement of the candidate and the PhD Board of Professors, within the first years of the PhD activity. PAUI PhD program is hosted by the Department of Architecture and Urban Studies, a Department of Excellence in recognition of the Italian Agency of Evaluation of Research.
### Monthly net income of PhD scholarship (max 36 months)

| € 1160.0 |

In case of a change of the welfare rates during the three-year period, the amount could be modified.

### Context of the research activity

The Ph.D. programme promotes studies and research projects concerning the architectural design at different scales: the urban space, the building, the interior space enhanced by the analysis and interpretation of the contexts, the investigation of history, theory and critical explorations of architectural design, and an open dialogue with the different disciplinary skills called to deal with the complex development of contemporary architecture. The aim of the Ph.D. programme is the definition of theoretical and operational tools to foster the development of a critical approach to the understanding of the complexity of buildings and spaces, as well as to acknowledge the concise and strategic values of design in constructing connections between formal structures, utilitarian contents and functional requirements of architectural works and their contexts.

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8. Theory, history, philosophy and critique of architectural, urban and interior design. |
| Methods and techniques that will be developed and used to carry out the research | 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.

- Multiethnic and multi/trans cultural structure of contemporary societies.

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, urban fabrics and architectures, 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 articrafts.

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.
- Subject-related issues concerning architectural analyzing and planning suitable scales and in different areas:

Educational objectives
| Job opportunities |

The Programme is aimed to train and prepare highly qualified researchers and professionals, who will work in academic institutions, research centers, public administrations, as well as in the private sector, in the different fields of architectural, urban and interior design.

- 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.
- Designers with tasks of high responsibility in institutions and professional structures and leading manufacturers, engaged in traditional residential and special utilities, office, cultural institutions (museums, libraries, universities, schools, cultural centers), public and private services, commercial networks, accommodation and leisure;
- Interior consultant in the areas mentioned above with a high level of innovation in technology skills, ergonomics, energy conservation, lighting, and corporate image;
- Researcher and lecturer in the field of Interiors for the needs of higher education scientific and educational institutions and universities, most notably the new levels of graduate school of architecture, building engineering - architecture and industrial design;
- Programmer and designer of scientific restoration and enhancement of historic buildings involving the field of interiors;
- Promoting the project to research and development agencies and centers or public institutions operating in the field of furnishing products, capable of processing and managing local and international cooperation programs with a significant socio-economic value, which involve the coordination of business institutions and the development of experimental and applied research projects at various levels, including cultural aspects of growth and dissemination of knowledge both in the production context and on the social front.

| Composition of the research group | 11 Full Professors  
8 Associated Professors  
0 Assistant Professors  
28 PhD Students |
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<td>Name of the research directors</td>
<td>Luca Basso Peressut</td>
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**Contacts**

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tel. +39/02/2399.5405

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<td>Housing - Out-of-town residents (more than 80Km out of Milano)</td>
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Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information

List of 5 Universities, Companies, Agencies and/or National or International Institutions that are cooperating in the research:

1. Universidad de Sevilla
2. ETSAB Barcelona
3. Ecole d'Architecture de Paris Belleville
4. New York Institute of Technology
5. Tongji University Shanghai

**Educational activities** (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences): financial aid per PhD student per year ("DOTE"):  
1st year: max 0 euros  
2nd year: max 1,534.33 euros  
3rd year: max 1,534.33 euros

**Housing support for Out-of-town residents (more than 80Km far from Milan)**
1 place available in a Polimi student residence at a reduced rate

**Teaching assistantship** (availability of funding in recognition of supporting teaching activities by the PhD student)
There are various forms of financial aid supporting the teaching practice. The PhD candidate is encouraged to take part in these activities, within the limits allowed by the regulations.

**Computer availability:** In the PhD candidates room are available workstations for shared use, connected with the printer. All the PhD students can use their own laptop with the wireless connection. Workstations and other equipment are available in the various laboratories linked with the doctoral programme.
PhD in PROGETTAZIONE ARCHITETTONICA, URBANA E DEGLI INTERNI / ARCHITECTURAL, URBAN AND INTERIOR DESIGN - 34th cycle

Research Field: SMART CITY: NEW TOOLS FOR THE SUSTAINABLE DEVELOPMENT OF THE FUTURE CITY

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<td><strong>Interdisciplinary PhD Grant</strong></td>
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<td>The PhD research will be carried out in collaboration with research groups of the PhD programme in &quot;ELECTRICAL ENGINEERING&quot;. See <a href="http://www.dottorato.polimi.it/index.php?id=242&amp;L=1">http://www.dottorato.polimi.it/index.php?id=242&amp;L=1</a> for further information.</td>
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In the current cultural context, the definition **Smart City** has assumed a role of strong centrality. Both within the scientific and academic community - in Universities and Research Centers - and at the level of policies and governance, in Administrations and Public Institutions. Of this strong interest is the allocation, in the context of Horizon 2020, of about 10 billion euros from the European Union for investments aimed to the transformation - both physical / spatial and administrative / management - of European urban habitats.

The city of the future faces the challenge of innovation in a process of evolution that involves society, economy, infrastructures and environment. This need arises from a background that, in the last decade, has known significant factors of transformation. The spread of immaterial computer networks has emphasized the importance of connectivity, and consequently of sharing, as an important development factor. Environmental crises have instead focused the attention on the topic of sustainability,
according to new paradigms and cultural models. The current phase is then characterized by a strong tendency to the change of models and cultural paradigms that can and must push to the definition of new ecosystem, which involves the consolidated physical/spatial structures. In this scenario, the research proposes a synergy between complementary disciplines able to construct a new innovative scientific-design approach, organized in a systemic way for an intelligent management of environmental and urban resources. It would be utopian to consider these components individually without an adequate push for inclusion, through participation paths. Citizenship can express its "right to the city" with a civic conscience on the part of the inhabitants who are increasingly aware and which manifests itself in the new IT channels, in a bottom-up process.

The research areas proposed converge in achieving common objectives, on the part of the two scientific sectors, for the experimentation of innovative Smart solutions able to launch conscious and inclusive urban regeneration and redevelopment processes.

The research topic is oriented to the realization of a study that allows integrating the recovery and the environmental transformation of the architectural heritage widespread in the contemporary landscape. The proposal is oriented to the definition of new methodologies of design, construction, and operation, through interactive software technologies and the adoption of innovative forms to produce efficient and renewable energies, fulfilling the increasing need for environmental sustainability.

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<td>The interdisciplinary methods and techniques include:</td>
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<td>• regeneration of built environments through actions and processes aimed at the transformation of contexts over time and the technological adaptation of infrastructural services.</td>
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<td>• networking of disseminated assets through the study of physical and virtual networks (hard and soft) with the structuring of networks and nodes where they form</td>
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"urban hubs" intended as places of social start up for the development and creation of new businesses with the contribution of universities and research institutions.

- prefiguration of new 'ecosystems' self-sufficient from an energetic, dynamic and interrelated point of view capable of producing and using clean and RES.
- use of innovative technologies for infrastructures dedicated to slow and fast mobility.
- study of the forms of participation in transformation processes through the use of digital technologies.
- definition of a regulatory framework for environmental transformation capable of accommodating and systematizing all the previous points, and of changing over time to cope with the changed conditions that may occur.

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<th>Educational objectives</th>
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<td>The expected result of this interdisciplinary PhD fellowship program is a new researcher's profile, able to bridge different aspects of the architecture and electrical engineering, in particular, energy efficiency, environmental sustainability of infrastructure systems, and use of intelligent technologies for energy and autonomous regeneration of vital processes.</td>
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<td>According to its international orientation, the PhD course intends to train highly qualified researchers and professionals in the architecture and electrical engineering. PhDs with such profile could be employed by Italian and International academic institutions, public bodies and research centres, public and private development agencies. In the particular case of the topic offered under this call, doctors with such a degree could be also employed by national and international organisations in research, consultancy and design on smart cities and sharing society challenges.</td>
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### Additional support - Financial aid per PhD student per year (gross amount)

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