



# PhD in ARCHITECTURAL URBAN INTERIOR DESIGN - 38th cycle

## PARTENARIATO PNRR Research Field: ADVANCED AIR MOBILITY IN ITALY: CHALLENGES AND OPPORTUNITIES IN VERTIPORT DESIGN

### Monthly net income of PhDscholarship (max 36 months)

**€ 1195.5**

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

### Context of the research activity

#### Motivation and objectives of the research in this field

The Program studies architectural, urban, and interior design through the methodological frame of design-driven research, where design is the cultural environment to test and produce theoretical and technical knowledge.

The research will explore the implementation of Advanced Air Mobility in Italy testing through design-driven actions, the possibilities, and the problems in developing this new form of aerial mobility and its infrastructures.

The research will concern the study of the architecture of such innovative infrastructures, the impact, and the integration of vertical mobility.

The development, at different scales, of new vertical mobility infrastructures, with the facilities which can integrate them, can lead to new urban, suburban, and rural scenarios, linking the main hubs, such as airports, train stations, ports, highways, with minor points of attractions, weaving a network of aerial mobility with reduced impact on the environment, under all aspects.

The research will investigate the peculiar potentialities related to aerial urban mobility and the electrically powered vehicles, "eVtol" (Electric vertical take-off and landing), that need airfields of limited dimensions and produce a minimal amount of aerial, visual, and noise pollution.

#### Methods and techniques that will be developed and used to carry out the research

The candidate will develop a research methodology starting from the lectures and assignments of the AUID



	<p>starting from the lectures and assignments of the AUID courses and the courses of the Polimi Ph.D. School. During its three-year development, the research will include various phases, starting from a survey of ongoing projects concerning international case studies and investigating and testing, with research by design processes, the frontline issues related to the concept, development, and implementation of vertiports in Italy. The doctoral research will be integrated into the scientific activities conducted inside the Mobility National Centre (PNRR) Spoke 1 - Air Mobility. It will be subject to reviews, discussions, and milestones with professors from the different departments involved in the project. The research activities will be conducted in cooperation with the Department of Aerospace Science and Technology (DAER), Politecnico di Milano, with professors Giuseppe Quaranta, Marco Lovera, and Alex Zanotti. The applied research will be conducted by studying the design of innovative solutions and prototypes for vertiports in Italian cities, following the direction taken by the activities of the Mobility National Centre (PNRR) Spoke 1 - Air Mobility. Especially with a deep focus on the cooperation between engineering aspects and architectural design, exploring images, structure, and forms of contemporary vertical air mobility infrastructure.</p>
<b>Educational objectives</b>	<p>Educational objectives focus on the deep understanding a well-selected and defined topic oriented to the new design of vertical mobility infrastructures and facilities. The candidate will define specific research containing a comprehensive overview of the scientific question and an original track and output, mainly oriented on a design-driven approach and methodology. The candidate will acquire the skill to organize a consistent analysis of case studies, formulate a clear proposal for an original approach to a question, and elaborate innovative strategies and research methods.</p>
<b>Job opportunities</b>	<p>The Program aims to train highly qualified researchers and professionals who will work in academic institutions, research centers, and public administration, as well as in the private sector in the fields of architectural, urban, and</p>



	<p>interior design:</p> <ul style="list-style-type: none"> <li>• University researchers and lecturers in the scientific fields of the Ph.D. Program.</li> <li>• Researchers with an excellent scientific profile in complex architectural developments and interventions of recovery and transformation.</li> <li>• Researcher with an excellent scientific profile in the International Cooperation Agency, UN Agency, and private international companies.</li> <li>• Independent professionals qualified in the management of highly complex design processes.</li> <li>• Designers with tasks of high responsibility in institutions and professional structures and leading manufacturers engaged in traditional residential and special utilities, cultural institutions (museums, libraries, universities, schools, cultural centers), public and private services, commercial networks, accommodation, and leisure.</li> </ul>
<b>Composition of the research group</b>	15 Full Professors 23 Associated Professors 7 Assistant Professors 64 PhD Students
<b>Name of the research directors</b>	Giulia Setti

<b>Contacts</b>	
<p>AUID email contact  <b>phd-auid@polimi.it</b></p> <p>AUID Program Head  <b>prof. dr. Alessandro Rocca</b>  <b>Alessandro.Rocca@polimi.it</b></p> <p><b>prof.ssa Giulia Setti:</b> giulia.setti@polimi.it</p> <p>Departmental Ph.D. Office  <b>Marina Bonaventura</b></p>	



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Further information is available at: <http://www.auid.polimi.it>

Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad	
Amount monthly	597.76 €
By number of months	6

**Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information**

#### **Companies, Agencies, and Institutions that are cooperating in the research**

- ENAC (Ente Nazionale per l'Aviazione Civile)
- EASA (European Union Aviation Safety Agency)
- SEA Group (Società Esercizi Aeroportuali)
- Azienda Leonardo S.p.A.
- Thales Alenia Space

**Educational activities (purchase of study books and material, funding for participation in courses, summer schools, workshops, and conferences)**

total budget for research costs per three years: **4872,90 euro**

#### **Workspace**

In the AUID hall, on the 4<sup>th</sup> floor of Bldg 12 in Leonardo Campus, is available workstations for shared use.

All Ph.D. students can use their laptops with a wireless connection.