



POLITECNICO
MILANO 1863

INDUSTRIAL PhD

in Science, Technology,
and Policy for sustainable
change

Industrial PhD in **Science, Technology, and Policy** for sustainable change

HIGHLIGHTS

The industrial PhD Programme in Science, Technology, and Policy for Sustainable Change offers a multicultural and trans-disciplinary research environment with strong connections to industrial partners, international organisations, and research centres. We prepare the future generation of scientific experts to address global challenges and steer society toward a sustainable and inclusive transition.

- › Highly interdisciplinary environment involving multiple engineering and social science disciplines
- › Extensive connections with international universities, research centres, organisations, and private players
- › Strong emphasis on the implications of scientific and technological innovation on society to support evidence-based policies
- › Aligned to the principle of science diplomacy and open to scientific cooperation with the global south
- › intense connections with the international community

STORIES & PROJECTS

Our research projects are supported by contracts with companies, research centres, and EU funds. They cover a wide range of topics, like Planning and management of natural resources in a changing climate and society - Global socio-economic trends are expected to increase the demand for water, energy, and food, threatening the sustainable and equitable use of natural resources, which will be further aggravated by climate change. In this context, we need to rethink the way natural resources are allocated, managed, and used at the continental, regional and local scale.

Exemplary Project: Developing novel tools to support the design of robust, multisector, multiactor climate adaptation strategies capable of adapting to evolving conditions characterised by growing water, energy, and food demands and increasingly uncertain hydrometeorological regimes. Rather than considering single sectors independently producing analyses that are prone to underestimate both overall risks and multisectoral capacities to buffer them, we focus on developing holistic approaches for better understanding the complex coevolution of human and natural systems, including both interconnected multisector dynamics and multiactor adaptation pathways.

Exemplary Project: Integrate Engineering and social science instruments and approaches to improve energy modelling capabilities to become valuable instruments to provide context-relevant evidence to African policymakers. We expand existing energy models and adapt them to the context of interest, supported by tools from other disciplines, to embed socio-political dynamics beyond cost-optimal solutions. The research is challenge-driven and oriented and can spill over the policymaking community at different scales (local authorities, national ministers, overarching transnational partnership).

EXPERTISE

The program offers a multicultural and trans-disciplinary research environment with faculty from eleven departments. Students will acquire research capacity and skills and in-depth knowledge about the complexity of Earth's natural and artificial systems; they will learn advanced methodologies to understand and model physical, industrial, societal, and digital processes impacting our planet's ecosystem; and will develop projections of technological, ecological, and social trends to envision new sustainable solutions and systems, assessing their global environmental and societal impacts as well as related philosophical and ethical issues. At the end of the program, our PhD candidates are expected to possess the competencies and capacities required to support and inform the process of policy and strategy design for innovation-driven responses toward sustainable development.

CONTACTS

Email: phd-step@polimi.it