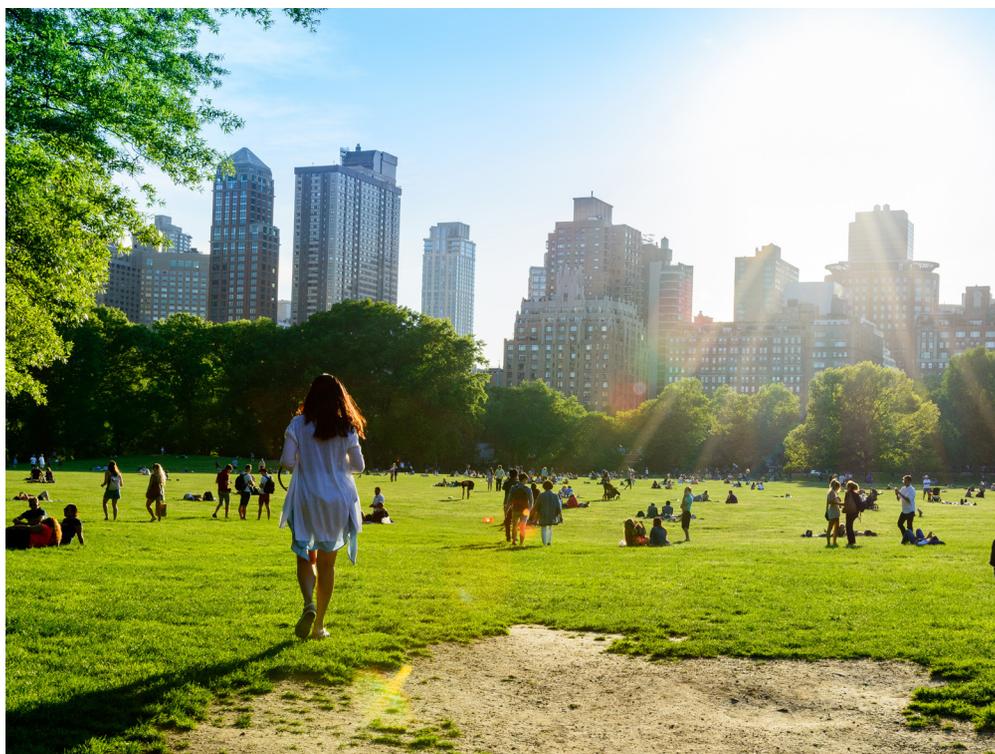


Executive Master in Resilient and Carbon Neutral Cities



Cities and metropolises worldwide are reinventing themselves in order to adapt to the global climate change challenges. At the beginning of the third Millennium, sustainable development as a response to the climate trends calls to a new, radical transformation of the urban humanity, where everyone needs to act responsibly. A great number of cities have to rethink their energy resources consumption, as well as their food and material resources management. The City Scan Method reveals a constellation of different, interconnected systems. While checking their system connections, climate challenges demonstrate that their effectiveness depends mostly on their mutual interaction and their synergies – similar to the chemical chain reactions in human metabolism. For future cities, there is the need to think and start the urban mutations from topics connected to the environment: not only planning our urban forms, but also to unleash evolution potentials, tangibles or not.

While the EU aims to be climate-neutral by 2050 - an objective at the heart of the European Green Deal and in line with the EU's commitment to global climate action under the Paris Agreement -, this Executive Master intends to:

- I. describe and develop the levers towards a carbon-neutral and resilient city. These levers are related to all urban systems through needed material and energy, but also related to actions aiming to a better resilience towards climate change.
- II. design a Climate Carbon-Neutral Strategy allowing to mobilize the entire potentials of the urban system and in particular to reintegrate a dynamic process on the triptical system Social – Environment – Territory.

The Executive Master Courses are delivered by high-level experts from different University Faculties, but also by external experts from international partner universities and European / global organizations, such as UN-Habitat and European Commission. The Course is contributing to the New European Bauhaus initiative of the European Commission and acknowledged by the World Urban Campaign of UN-Habitat.

Programme

The first 3 modules are focussing on technology and material knowledge – the 3 last modules on the strategies, planification and management of the urban fabric.

Module 1: Introduction to the concept of circular and resilient city

- Session 1: Notions of Urban Resilience and Circular Economy - Notions of Circular and carbon-neutral Solutions - Sustainable territorial development
- Session 2: New technologies - Intelligent Cities and Artificial Intelligence - Power of Urban Innovation - City as a System: 360° City Scan methodology

Module 2: Resources and Energy dimensions in urban fabric

- Session 3: Building materials and Energy - Carbon-neutral energy production - Intelligent Energy networks and Blocks
- Session 4: Local Resources and bio-sourced materials - Energy efficiency approach - Positive Energy districts - Bold City Vision

Module 3: Carbon-Neutral Approach and Strategies

- Session 5: Carbon performances - Carbon neutrality concept - Carbon-neutral urban fabric
- Session 6: Low-carbon mobility - Concrete application: carbon balance calculation

Module 4: Carbon-neutral methodologies and tools

- Session 7: Masterplanning Energy / Mobility / Built Environment - Urban Climate management
- Session 8: Carbon-neutral tools and strategies - Methodological management

Module 5: Nature-Based Solutions and Green Infrastructure

- Session 9: Vegetalisation systems - Carbon Capture systems - Environmental Management - Natural Resources Management
- Session 10: Green Infrastructure development and management - Advanced natural and environmental resource economics

Module 6: Implementation and financing the carbon-neutral city

- Session 11: Mutualisation techniques - Governance and stakeholders identification and management
- Session 12: Financial management of carbon-neutral city - Scientific Communication - PPPs and other financial forms

Module 7: integrative seminar

- Integrative Seminar with stakeholder interaction (Living Lab)

Module 8: Master Thesis (TFE)

Practical information

Credits: 30

Contact hours: 60

Fees:

- Course fee: 2295 euros
- Reduced fee for Faculty and Alumni of the Faculty of Architecture La Cambre Horta: 1795 euros
- Full fee waivers are available for students who commit to undertake a 6-month traineeship at Engie during / following the course. A cover letter will be required in the application.

Prerequisites: Admissions are based on applications. Candidates must provide a certificate of completion of a first cycle higher education diploma or proceed to a VAE (validation of acquired experience).

Languages

English

Location

Online, Paris, Brussels

Schedule

Courses are organised on Tuesdays or Thursdays (working time) over 14 days.

Contact & Information

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