

Educational framework

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City of the Future Graduation Lab

Experiences in Multidisciplinary Education

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City of the Future Graduation Lab: Experiences in Multidisciplinary Education

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As part of their graduation projects, some parts of the texts written by the former students can be found in the repository of the TU Delft.

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1

Educational framework

The world urbanises. More and more people move to cities and cities grow increasingly. Consequently, global urbanisation is becoming a pressuring issue. This has a direct influence on the functioning of urban systems such as mobility and accessibility, food and waste cycles, energy supplies, infrastructure, as well as well-being, social connections and inclusiveness, and the way people work.

Future cities must cope with several pressing challenges, whereof the first and foremost is the need for space. Where do we build homes and facilities that are needed to house everyone? How do we ensure a good business climate? How do we deal with the displacement of people? And how do we make sure that all these transformation tasks are carried out compactly, preventing undesired effects on existing urban fabrics and landscapes? In addition, we also live in times of major innovations: e.g., in the field of energy, traffic, transport, circularity, automation, and digitisation, where major system changes are coming to the fore. Yet, uncertainties and unpredictable events will more and more raise the degree of difficulty in facing those issues. In other words: what will future cities look like?

The City of the Future Graduation Lab is a multidisciplinary graduation studio focusing on these challenges and other questions related to the transformation of our cities towards attractive and inclusive future urban environments. This studio is a special thesis laboratory for students that would like to develop their own research and design fascinations in a multidisciplinary setting. Students with different backgrounds and from different master degree tracks work on common challenges, while sharing insights, approaches, and methodologies proper of their disciplines.

The Graduation Lab and its position

Within the Faculty of Architecture and the Built Environment, the City of the Future Graduation Lab holds a peculiar place within the two-year master program.

The master curriculum of our faculty offers five tracks: Architecture, Building Technology, Geomatics, Landscape Architecture, Management in the Built Environment, and Urbanism. When starting the first year of one of these domains, students have the freedom to investigate different specialisations and themes—but only within the track of their choice. After that, in the second year, students have to pick, logically, a graduation studio within that same track.

During their master education in Delft, except for a few elective courses, students would only study and learn together with students within the chosen track's discipline. Throughout the curriculum, there are no possibilities to meet and study with students from the other tracks—at most at extracurricular activities.

But working on the built environment in practice, especially when working on the aforementioned City of the Future, reflects a different reality. The current and future transformation of cities and its many challenges in the built environment are not only to be solved by one (spatial design) discipline. Architects need to talk to architectural engineers, and urban designers interact all too often with managers of the built environment. In fact, the professional field of work is already multidisciplinary by nature and if we look into future perspectives on the matter, its multidisciplinary character is only growing and evolving.

The City of the Future Graduation Lab offers students of different master tracks the opportunity to study together in their own graduation studio. And even beyond the faculty, students can be part of this multidisciplinary lab. In the past three editions of the studio, we have had students from Architecture, Urbanism, Management in the Built Environment, Geomatics, but also from Transport, Infrastructure and Logistics—a combined master track of the Faculties of Civil Engineering and Geosciences; Mechanical, Maritime and Materials Engineering; and Technology, Policy and Management—and Construction Management Engineering.

'Multidisciplinarity'

The framework of a collaboration among *disciplinaries* consists of a constellation of different flavours collected under the common denominator multidisciplinary. Besides the—in our faculty's often interchanged—crossdisciplinary approach, we also consider inter- and transdisciplinary as parts of this family.¹

This all starts off with intradisciplinary work that occurs within the boundaries of a single discipline. Towards the most complex entity of the disciplinaries the multidisciplinary approach follows, focusing on the juxtaposition of knowledge: students working together, but drawing only from their own disciplinary knowledge. Crossdisciplinary thinking approaches one's discipline through the perspective of someone else's perspective. Interdisciplinary collaboration truly integrates methods and knowledge from other disciplines, working towards an interacting synthesis. And finally, transdisciplinary: merging intellectual frameworks beyond the individual disciplinary perspectives towards one network of interaction between all involved disciplines.²

In the discourse of the disciplinaries, the use of mainly crossdisciplinary and interdisciplinary approaches positions the Cross Domain City of the Future Graduation Lab relatively in the middle of this hierarchy. Even though students are willing to collaborate and share their expertise on their discipline as much as possible, they still need to deliver an individual thesis project as part of the final examination. And that project is bound to each master track's individual and intradisciplinary study goals, rules, and regulations. Nevertheless, the collaboration with our colleagues on the other master tracks is outstanding and is of a true interdisciplinary nature.

1. As a matter of fact, a plethora of disciplinaries come up after searching for cognates of "Disciplinary" within the academic field: Interdisciplinary, Transdisciplinary, Crossdisciplinary, Intradisciplinary, Subdisciplinary, Postdisciplinary, Unidisciplinary, Pluridisciplinary, Extradisciplinary, and Metadisciplinary (Bardecki, "Multi-Disciplinarity"), 2019.

2. Mehta, 2019; Jensenius, 2012.

Educational structure

This interdisciplinary studio setup starts already in the very first weeks of the Graduation Lab. In the first semester, students explore their own fascinations, being responsible for their program and agenda. On top of that, the studio offers a range of lectures, a seminar, and masterclasses. Invited colleagues from within and outside the faculty share their knowledge in the academic field and guest lecturers from practice provide insights into the actual practice of their discipline.

Because mutual criticism and collaboration are central means of interdisciplinary education in this lab, students are expected to be working together as much as possible throughout the graduation year. Therefore, students also organise workshops for each other and invited guests, in which their bundled disciplines are shared with a faculty-wide audience. A student-driven multi-day excursion to a European metropole gives all studio participants, working on their various themes, the opportunity of sharing insights and perspectives on the multifaceted future challenges of cities.

Finally, there is a connection with national and international design studies that brings practice, other institutions, and academia together. The Graduation Lab always participates in such a study, providing the students a unique opportunity to directly connect and collaborate with the professional field.

Not only within the Faculty of Architecture and the Built Environment, but throughout Delft University of Technology, the City of the Future Graduation Lab proves to have a truly unique position. It is a laboratory where students are challenged to think beyond their own discipline, creating an interdisciplinary synergy between different fields of expertise in order to find solutions for the City of the Future.