Graduation Plan

Master of Science Architecture, Urbanism & Building Sciences
Graduation Plan: All tracks

Submit your Graduation Plan to the Board of Examiners (Examencommissie-BK@tudelft.nl), Mentors and Delegate of the Board of Examiners one week before P2 at the latest.

The graduation plan consists of at least the following data/segments:

<table>
<thead>
<tr>
<th>Personal information</th>
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<tbody>
<tr>
<td>Name</td>
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<tr>
<td>Student number</td>
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<td>Telephone number</td>
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<td>Private e-mail address</td>
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<tr>
<th>Studio</th>
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<tbody>
<tr>
<td>Name / Theme</td>
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<td>Teachers / tutors</td>
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<td>Argumentation of choice of the studio</td>
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The studio offered the unique possibility to work in an interdisciplinary group with urbanists, landscape and water management students, which I consider to be of essential importance for the field of architecture. Furthermore, the studio has a distinct focus on research, where the design is integrated into a research approach. Both of these led to my decision to choose Transitional Territories (TT).

Transitional Territories focuses on water related problems in the built environment with a focus on the North Sea. As such it includes climate change adaptation and the cultural context that has come into existence between humankind and the Sea. The Netherlands and TU Delft have vast knowledge in this field, which I can make use of for my project and which allows me to make the most of my education in Delft.

From the perspective of architecture the consideration of these territorial factors allows me to actually give more meaning to the projects while making them more sustainable in the long term. At the same time the dynamics of water and large scale urban changes can also be inspiring from a formal perspective.

Lastly, the studio offered its students to define their own topic within the larger framework. This was especially interesting for me, as it allowed me to focus on ICT infrastructures and the Network Society, which have been driving my theoretical research for the honours programme. Therefore, the studio allows me to enrich my own interests with those of the studio, broadening my scope and understanding of architecture.
## Graduation project

<table>
<thead>
<tr>
<th>Title of the graduation project</th>
<th><strong>Rhizomatic Network</strong></th>
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<td></td>
<td>Investigating the Infrastructure Space of Data</td>
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## Goal

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<th>Location:</th>
<th>Dutch Coast, Zuid-Holland</th>
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The posed problem, is a wicked problem that cannot be fully resolved and therefore needs to be divided into a number of separate categories.

**Theoretical Understanding**

The challenges concerning the development of digital technologies extend beyond architecture and urbanism also into the fields of philosophy and sociology. A theoretical understanding of this problem is essential to inform the project and enable a thorough approach.

**Infrastructural System**

Submarine Cables that span the North Sea are only one of the components that make up this system. As such the system is really complex and involves a number of buildings and structures, as well as actors. This also extends to the historical development of telegram cables.

**Urban System**

The integration of ICT structures within the urban structure is of high importance for my research. The cables are laid along existing systems, for example along train lines for the backbone of the internet. Data Centres are developed according to regulation and urban policies, energy availability and glassfibre connectivity. The problem of these systems and their relation to the other urban systems pose an essential problem.

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<th>research questions and Territorial Scale:</th>
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What is the impact of a territorialized North Sea on the development of Internet Communications Technologies? How to submarine Sea Cables interact with urban centres in the North Sea region?

**Urban Scale**

How does urban life and form impact Internet Communication technologies and vice versa? How do the existing urban and digital structures inform each others development? Which are the power relations determined by the structures of these developments?

**Architectural Scale**
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<th>What is the spatio-real component of digital spaces? How can data infrastructures be integrated into our existing built environment?</th>
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| **Urban Transects**  
Transects ranging from the sea to the urban spaces behind are developed and overlaid with the ICT systems. Instead of providing a masterplan these transects are a map investigating the potential integration of urban systems and ICT infrastructures. As such they investigate the direct relationship between the sea, landings stations, data centres and the existing urban morphology. Equally, these transects highlight the network topology and thereby centralization/decentralization of the network. By doing so different layers of urban structures can be highlighted and the social relations that they cause explained. |
| **Architectural Interventions**  
A network node will be designed within the urban context of The Hague. The location is informed by the intention to combine a connection to the global network through the sea as well as the system edge in the urban context. The project will integrate the ‘industrial’ infrastructure of a data centre with an urban context of living and working. Thereby it will be the materialization of the integration of energy networks, urban morphology, social life and ICT infrastructures. The architectural language will determine a position with regards to the relationship of these technologies and our society. |

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<th><strong>Process</strong></th>
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| **Method description**  
My project can be defined as context-led, where the context is informed by theory and methodology. One of the important considerations I use to support my research methodology is the consideration of cities in levels or layers. One of these is brought forward by the French urbanist Gabriel Dupuy, another by the sociologist Manuel Castells in the form of a space of flows and lastly the Dutch planners have used the so-called Dutch layers approach for a significant part of their planning in recent years. These considerations form part of the theoretical framework for my methodology.  
Furthermore, the literature review of sociological, philosophical and urbanistic, as well as some prosaic literature will be continued and an essay will be formulated in accordance with the honours programme. This literature will help with the general understanding of the relationship between society and Internet Technologies. It will also be used to define my position towards the agency and political nature of technological systems in general.  
In alignment with the general approach of the studio a process of mapping and cartography will be used. A wide range of mapping activities in the fields of architecture and urbanism can be drawn together and extended by further examples. Many of these have informed the process of mapping in the studio and in my project, although it has often involved a certain degree of trace cartography that helps reframe the representation that has been made by someone else, including their personal bias. |
To do so I will use crowd-sourced information from OSM, use evocative mappings (Alan Berger) that include architectural and artistic information and utilise GIS information where possible. While it is essential to understand the context of the map and the embodied values for my methodology, I am confident that the process of mapping will embed my project in its local and territorial context.

Another approach that finds origins in the studio’s general methodology is the use of scenarios to develop a vision for the future. Some of these scenarios have already been built in the studio for the overall vision of the North Sea. I will continue to define scenarios to base the actions and designs of the architecture upon.

Lastly, looking at case studies and existing typologies of data centres and network nodes, as well as other industrial architectures from the past will be essential in informing my design decisions for the architectural intervention. In accordance with the studio’s attitude to treat design as research, the design will investigate a variety of relationships between its function and cultural or urban factors. By making these explicit through the urban transect, but also traditional architectural means such as drawings and models.

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### Literature and general practical reference

**General Literature:**


**ICT/Submarine Cables Literature:**


Reflection

1. What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A,U,BT,LA,MBE), and your master programme (MSc AUBS)?

The studio Transitional Territories approaches architecture from an interdisciplinary point of view, which integrates architecture, urbanism, landscape design and water management. As such the view of the professions of the faculty of Architecture and the Built Environment is integral. The effectiveness of the our work in each field is dependent on exchange and interaction with the other fields, which is fostered through the studio.

My project, concerned with the urban and architectural consequences of the evolving ICT technologies fits within this research framework. As such it begins from the territorial concern of the studio, centred around the impact of the North Sea on urban networks and then departs to specialise and specify the investigation. Nonetheless, communications are increasingly important for our society and will have an ever greater impact on processes of territorialisation in the North Sea.

I try to consider architecture and planning as relevant to the landscape and urban design, but also the engineering fields in general. As a student of the Architecture track I can contribute to making our cities more liveable, resilient and sustainable by integrating a variety of these disciplines. Especically the research phase of the graduation process in the Architecture track allows me to embed the project in this wider picture.

2. What is the relevance of your graduation work in the larger social, professional and scientific framework.

The graduation project draws its relevance from two main factors. Firstly, the project tries to unite the ambitions of different professions and stake holders in the development of the built environment in our cities. This includes on the one hand the urbanists, architects and landscape architects within the faculty. On the other hand, my project tries to involve the engineers and businesses that are involved in the process of deploying new ICT infrastructures all over the world. Their interests can be aligned with those of the planning professions through the development of this speculative project.

Secondly, the relevance is large due to the current trends in technology. As computing and communications become more and more ubiquitous in our society their research gains relevance too. Same is true for the smart city and internet of things. As these technologies are deviced mainly by engineers it is of great importance to investigate their impact on the urban and architectural environment. In order to implement them effectively and while maintaining social and political achievements. My research addresses these issues and thereby fits into a contemporary discourse.

Time Planning

P1 (week 1-10)
• thematic research- for both concept/project level (typology, structure, etc.)
• site analyses
• situational research - for the larger system of the North Sea and Wadden Sea
• draft research

P2 (week 11-20)
• urban draft / master plan
• programme of requirement
• draft design (plans, sections, elevations) 1:500 / 1:200
• urban draft / master plan (on an appropriate scale)

P3 (week 21-28)
• draft reflection
• plans, facades, cross-cuts, 1:200
  • part of the building, plan and cross-cut (on an appropriate scale)
  • façade fragment with hor. and vert. cross-cut (on an appropriate scale)
  • set up details

P4 (week 29-38)
• theoretic and thematic support of research and design
• final reflection on architectonic and social relevance
• site 1:5000 / 1:1000
• plan ground level 1:500
• plans elevations, sections 1:200 / 1:100
• part of the building, plan and drawings 1:50
• façade fragment with hor. and vert. cross-cut (on an appropriate scale)
• details

P5 (week 39-42)
Same as for P4
• models