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:

Personal information	
Name	Martin Sitorus
Student number	4863992

Studio		
Name / Theme	Complex Projects – Bodies & Buildings - Berlin	
Main mentor	Jelmer van Zalingen	Architecture – Section of Building Knowledge
Second mentor	Jan van de Voort	Building Technology – Chair of Architectural Engineering + Technology
Third mentor	Edyta Milczarek	Architectural Research mentor
Argumentation of choice of the studio	The Complex Projects Studio focuses on an array of public building typologies which play a key role within society in their own significant way. The studio thus offers an opportunity to learn about the design approach within the context of society, while designing from a bilateral perspective of the people and the building that they inhabit and use (theme of the studio: bodies & buildings).	

Graduation project	
Title of the graduation project	Institute of Augmented Bodies
Goal	
Location:	Görlitzer Park, Berlin, Germany.
The posed problem,	The hospital is one of the most important buildings within a functioning society but is only part of it during times of necessity. Following the concept of maximum efficiency, hospitals have been transformed into 'healing machines', with a singularity in use. This has transformed the typology into a labyrinth of circulation spaces that connects the vast amount of complex program. While in turn creating a labyrinth in the built environment that society rather avoids, than partakes in,

	discover, and be associated with. Innovation in the field of human body augmentation has started the transition from buildings to bodies as a healing machine. Not only changing the human body, but also the hospital typology as we know it today.
research questions and	How will human body augmentation reflect change in the hospital typology of the future? The research question translates into the following design-oriented research questions from the perspective of the studio theme 'Bodies & Buildings': [Bodies] "How will augmentation change the hospital process for the human body, and thus the building program?" [Buildings] "How can we create a living hospital structure, that can grow, upgrade, and get augmented through time?"
design assignment in which these result.	The assignment is to design a new typology for the hospital, that bridges the gap between society (the user) and the building, while focusing on the opportunities that arise from specialising in human body augmentation.
The goal of the project is to create a new hospital typology, that bridges the gap between the users (society) and the building, that has been developed due to the development of the typology as a 'healing machine'. The development of human body augmentation will offer new opportunities for organising the flow of human bodies through the building, while also changing the role and the image of the hospital within society and the built environment simultaneously.	

Process

Method description

To answer the research question and its related sub-question, the research will be structured into three different topics that together form the 'Design Brief'; namely the program, client, and site. Each aspect will be treated as a separate element of the project, but will simultaneously also inform the other aspects through narrowing down the scope of the research development. As a result, this will provide a 'design brief' which will be constantly updated based on the findings within the realm of each aspect. In the end, the design brief will be an over compassing framework, which will describe the parameters of the project, through the aspects of the program, client, and site. Each topic has their own research methodology and techniques of research and design, which will be addressed in the following paragraphs.

PROGRAM

Hospital specialisation

The program scope of the hospital has been framed based on the procedure that will be specifically carried out at the Institute of Augmented Bodies; the augmentation of the human body through the fusion of organic and mechanic material. To get a better understanding of what this medical procedure entails, a literature study has been carried out based on an example of an augmentation procedure that has been carried out and described in an article, sourced from the Lancet Neurology Medical Journal.

Hospital case study and benchmark

In order to determine the approximate size of the hospital program, a comparative case study research has been done using a selection of several existing hospitals, varying from small to large scale, based on the amount of beds located within each hospital.

Flow, area, and space analysis

To determine the specific relevant program of the hospital; including the flows, areas, and space-relation schemes - multiple floor plans and dimensions have been consulted and sourced from literature; mainly from 'Architect's data', by Neufert (2023) - and from available floor plans that are published online.

CLIENT

To get a better grasp of potential clients for the project, two bilateral perspectives will be used to distinguish different stakeholders within the development of medical procedures of body augmentation. The first perspective will use the market perspective to narrow the scope for potential industry backers for the project. Using market analyses about the Human Augmentation Market will give a more objective approach to the potential clients who could invest in this project. The second perspective will use the perspective from a more ethical and academic approach to the subject of human body augmentation and the institutes that are already focused on the research and development, based on a solely non-profit, and ethical approach.

SITE

Group - site requirements

The site of the project is determined through a inter-disciplinary approach, that consists out of two different parts: the site requirements following the group ambition of the 'material' group (group-work), as well as the typology-specific requirements which are connected to the hospital as building typology.

Typology - site requirements

In addition to the overarching site requirements of the group, the site-requirements tied to the typology specifically, also need to be taken into account. As the hospital also has a necessity for certain site-specific requirements, such as accessibility, density, and contextual requirements. These site-requirements will be sourced from the same case-study research done for the program of the Hospital.

Site analyses, point-matrix, and massing studies

After selecting potential site-locations using the predetermined super-imposed maps, that contain the site-requirements of the group and the typology. A matrix will follow, that considers the group and typology site-requirements on all relevant requirements, in addition to emphasis, and priority; by adding a multiplier, which will give more weight to certain aspects that play an important role in the site-specific aspects of the project, and aspects that might inform the program of the hospital as well. In addition to the data gathered about the potential sites, a mass study analysis will be done. This will show the program organisation potential, following the estimated size of the program from the respective chapter. In the end this led to a chosen size: Görlitzer Park, Kreuzberg, Berlin.

All-in-all, each of the chapters will be concluded with a summary of spatial design principles or requirements, which all will be addressed in the design brief.

Literature and general practical references

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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)?

   Hospitals are one of the most critical and important buildings for a functioning society. Nonetheless, the focus on the efficient process of healing human bodies, has caused the architecture of these buildings to be designed as machines. Hence, the term hospitals as 'healing machines' was coined. Looking at the development and innovation within the field of medical devices, bodies are slowly transitioning in 'healing machines' themselves. Human body augmentation has started the process of synthesising human organic material and artificial material, which slowly enables the human body to function as a healing machine on its own. Using this trend of human body augmentation, the studio theme 'bodies & buildings' offers a bilateral perspective on the development of the human body within the hospital process, as well as how this affects the architecture of the hospital building/typology we know today. This challenges the current role of the hospital within society through the science and art of Architecture. While also taking into account how the hospital plays a significant role in multiple scales of society; within its direct and surrounding context of the city of Berlin, Germany. All-in-all, the Complex Projects Studio and its theme 'Bodies & Buildings' offers a multidisciplinary approach on the topic of one of the most important buildings within society: the 'hospital'. While challenging its development through the perspective of bodies and building, and thus its major role within society and the built environment, the studio offers a relevant topic within the field of design for the Master Track of Architecture, and a societal challenge for the Master Programme of Architecture, Urbanism, and Building Sciences.

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

   The stigma and singularity in use has affected the role of the hospital negatively as it hides the important public role of the hospital within our society. As well as the activities that happen behind the walls, corridors, and doors, that are synonymous to the hospital experience we all are exposed to, whenever we are visiting a hospital. This will also affect the awareness surrounding the development of new medical treatments, and the public discourse surrounding the development of Human Body Augmentation, taken as research subject in this case. The design assignment challenges the current notion of hospital architecture and offers new insight of what the future hospital typology could be. By looking at how human body augmentation will change the process of human bodies moving through the hospital, we can also look at how this will affect the architecture facilitating this complex process. All-in-all, this will offer relevance by challenging the design potential of hospitals through multiple scales of the built environment, while also challenging the current role and participation of the most important public building typology within society.