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	Harit Nitin Naik
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Studio		
Name / Theme	AR3CP100 Complex Project Graduation Studio 2024-2025/ Bodies and Buildings	
Main mentor	Yağiz Söylev	Mentor 1 (research and design)
Second mentor	TBD	Mentor 2 (building technology)
Third mentor	Hrvoje Smidihen	Mentor 3 (research and design)
Argumentation of choice of the studio	In today's world, the relationship between people and the buildings they use is constantly changing due to evolving science, technology, and their needs. With the graduation studio focusing on "Bodies and Building," it aims to study the changes that occur in the way bodies and buildings react to the evolving future of various fields. Architecture for health is a fascinating area of study, always evolving, and it's said that by the time something is designed and built, the technology it was designed for has already advanced, requiring architects to be visionary and plan for the future. Berlin, with its significant standing in the global healthcare market, serves as an example that has influenced and transformed the way we perceive hospitals, with its continuous interest in the medical field and the architecture that supports it. The introduction of the "Bodies and Building" studio in Berlin influenced my choice to work on a healthcare facility project, driven by my personal interest in improving how we perceive hospitals, which stemmed from past experiences. Overall, I aimed to be part of a studio that embraces collaborative and interdisciplinary approaches to design and research outcomes.	

Graduation project	
Title of the graduation project	Center Re-Gen: A collective of regenerative bodies

Goal	
Location:	Nordhafen, Berlin, Germany
The posed problem,	Hospitals serve as the bridge between people and the ever-evolving technological and scientific realm of medicine. They are commonly defined as institutions providing medical, surgical treatment, and nursing care for sick or injured individuals as mentioned in the Oxford dictionary. With the evolution of medicine and science, hospitals have seen a constant transition from places of healing to places of treatment and now as places of repair and replacement. Basically, the perspective towards the human body as it is treated has changed and is being seen as an industrial palace, as also mentioned in Fritz Kahn's lithograph, where any part can be replaced with a spare part, sometimes not biological in nature when needed, rather than enhancing the body's ability to repair itself and regenerate. In the year 1992, in the paper written by Leland Kaiser, the term 'Regenerative medicine' was found for the first time, which talked about the future of healthcare. Later in 1999, the term regenerative medicine was coined officially by William Haseltine and was made public as a specific medical field as we know it today. Regenerative medicine is defined as 'the process that deals with replacing, engineering, or regenerating human cells to restore or establish normal body functions.' Today, 80% of people over the age of 65 have at least one chronic disease, one in six people in the EU have mild to severe disabilities, rising health issues with old age, genetic health issues, body damages due to accidents and not recovering from them are increasing, and regenerative medicine is seen as the only solution that can deal with these major issues, a holistic solution. His healthcare field has the potential to develop therapies and solutions for previously untreatable diseases and conditions. Initially, regenerative medicine failed to capture people's attention, while the demand for body implants rose to its peak as they were seen as commodities. The lack of technology and equipment also hindered its acceptance at the time. But in today's time, regenerative medicine is seen as the future of the healthcare industry. With its rise comes the need for a specific piece of architecture that deals with the collaborative nature of regenerative medicine.

	Regenerative medicine is considered to work in a multidisciplinary environment in the presence of clinical staff, researchers, innovators, and bioengineers. But with the current hospital programs and design, it does not support such collaborations; rather, they have developed disciplinary and departmental borders resulting in a lack of communication between the clinical and other parts of the healthcare industry, namely research labs, production and innovation, and education. With these borders, there is a rising mismatch in the degree of care and what is being researched. For this highly specialized field of medicine to work efficiently and to rise, there is a rising need for a future hospital design which will deal with the needs of collaboration, patient-centric design, flexible and adaptable, and lastly a space that is not locked off but becomes an active part of the society enhancing the patient care and experience. In today's time, hospitals are made to focus more on the technical planning resulting in buildings that are very departmental, forcing the patients to move across the whole hospital for various checkups and other activities. Rather than the patient moving through all the spaces of care, what if the care moved towards the patient? What if the hospitals that were traditionally cordoned off become an active part of our lives? What if the caregiving spaces become decentralized and more optimized? What if the hospitals were regenerative in nature? This transformation in healthcare design will not only create an effective environment for regenerative medicine but will also be an instrument in the way we will see our hospitals in the future. A place of healing and holistic care.
Research Questions	With the context of the problem identification and the historical study of hospitals and its surgical settings, its relation to the city, trends in healthcare the following research question arises which would change the way the hospitals are perceived in current times. ***How does the architectural design of a hospital facilitate the production and delivery of personalized regenerative medicine while enhancing patient care and experience?*** The research question is further bifurcated into smaller topics to focus on much specific themes affecting the development of hospital for regenerative medicine.

	1. How will this collaboration and decentralization change the hospital process and thus the building? 2. How can we create a patient centric hospital design enhancing care and experience? The project will highlight and represent an example that would serve as an inspiration for the future of healthcare architecture.
Design assignment in which this result.	The research culminates in a project aimed at critically examining and designing a specialized hospital. The development of a new "Center Re-Gen" (a collective of regenerative bodies) will be in the city of Berlin. It aims to explore the evolution of these specific healthcare treatments and see how architecture can play a role in defining a hospital that meets future requirements while dealing with the personalized and collaborative nature of regenerative medicine. The project's initial concept is based on the overarching theme of a hospital as a regenerative farm (a space of production and consumption), emphasizing sustainability, healing, and connection to nature. The focus is on designing decentralized modules connected to a centralized bio repository, which acts as a reservoir of biological matter like stem cells. The decentralized modules will be designed to be flexible enough to adapt to various procedures that regenerative medicine offers and, at the same time, work as independent units that can both produce and deliver regenerative medicine to patients. Depending on the number of these modules used and the supporting medical spaces, the combination can function as a small clinic or a mega hospital. In the second half of the project, the focus shifts to creating a hospital that is open to nature and has infrastructure capable of self-regeneration, creating a sustainable and healthy environment. The hospital is envisioned as an active urban space, using the bio repository as an urban artifact to educate people about the rising field of regenerative medicine and how it works. The resulting project will produce an intervention that aims to celebrate every citizen’s integration and access to regenerative health.

Process

Method description

The graduation project employs a systematic approach to design a complex hospital typology. The methodology includes crafting a comprehensive design brief, comprising a compelling narrative, understanding the client's needs, defining a building program, and selecting a suitable site.

In the initial phase of research, we aim to construct a narrative by identifying gaps in Berlin's healthcare system and examining the evolving role of hospitals in today's information society. This involves analyzing the historical evolution of hospital typology, considering architectural developments, functions, and societal roles over time. We also delve into understanding regenerative medicine and its implications for hospital design. This collective exploration forms the foundation for crafting a project narrative and defining a relevant research question.

Understanding the client is essential, as the Architect's main goal is to design a building that aligns with their ambitions. To create a compelling narrative, we delve into the client's agendas, goals, and development ambitions. This understanding guides us in defining how the future hospital should function and meet their expectations.

Given the specialized nature of hospitals, attention to spatial relationships among different spaces is crucial for cohesive functioning. Through benchmarking case studies, we gain insights into successful hospital designs, particularly those addressing regenerative medicine. Our research also involves examining German and European guidelines for hospital buildings and current developments in the information society.

In selecting the optimal site, we establish parameters based on project-specific requirements and client needs. This ensures we identify a site that maximizes operational efficiency and meets architectural needs.

The subsequent steps involve creating a narrative that aligns with project objectives and providing a detailed design brief. The focus then shifts to developing the architectural concept through drawing and model-making, translating ideas into tangible designs.

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)?

   Throughout the master track how architecture and urban design have been shaping the relations with the city and its people have been the major point of my interest. How various spaces and functions can provide for building social relations and adapting to the changing needs of science and technology in various fields.

   For MSc. 1 as part of the Complex projects' studio – The Dutch change the idea was to focus on the food chain of the city. The research and my proposal were focused on how the industries involved in waste recycling could be designed in a way making them part of the city and providing spaces for the city to engage in social relation building and educating people about the unseen process.
   For MSc. 2 as part of Architecture design crossovers situated in Genova the main idea behind the project was to develop public infrastructure reconnecting the fragment city. The focus of the project was using water as the communal element to overcome the infrastructural and social barriers of the city. Reusing historic towers to purify and store water adjoined by various public functions using water as the main element.

   On similar lines and with an interest in studying a particular typology and its future evolution, I aim to explore how it connects to social relations and creates spaces for bridging barriers seen in the healthcare industry. The current graduation studio, themed "Bodies and Buildings" and based in Berlin, provides an opportunity for me to delve into the field of regenerative medicine and understand how hospital infrastructure operates. I aspire to create a space for futuristic and specialized treatment procedures, incorporating patient-oriented design to enhance their experience and care.

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

The graduation project holds significant relevance in the current context, drawing inspiration from near-future predictions of medical transformations and technology that will revolutionize healthcare. The envisioned transformation from generalized to personalized care, facilitated by regenerative care and the highly specialized surgical setting, forms the crux of the project. The primary focus of the project is to design a hospital that is specialized, not general; open to people, not closed; flexible and adaptable, not obsolete; a place where care moves toward the patient and not vice versa; a hospital that operates on regenerative parameters. By addressing the intersection of technology, healthcare, and design, it aims to contribute not only to the architectural profession but also to the larger scientific and social frameworks shaping the future of healthcare environments.