

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	(Frieke) Fleur Frederique Oosterheert
Student number	4726723

Studio		
Name / Theme	Urban Architecture - Last green in town	
Main mentor	Rosie van der Schans	Architecture
Second mentor	Lex van Deudekom	Building technology
Research mentor	Eireen Schreurs	Architecture & Architectural research
Argumentation of choice of the studio	<p>The studio's commitment to being site-specific fits with my aspiration for an in-depth exploration. Working with 35 students provides a unique opportunity for more in-depth research compared to exploring a location individually. The Urban Architecture studio offers a realistic assignment and its theme: 'last green in town', calls for a nuanced approach, addressing urban issues, social relevance and ecological resilience. This perspective resonates with my belief in architecture's role as a mediator between the built environment, social needs and ecological sustainability. Brussels, being a complex world city with lots of political debate and intricate urban dynamics, particularly intrigues me. The studio's focus on the Josaphat Friche, an unorganized greenfield, presents a unique challenge and opportunity. The site's delicate ecosystems, coupled with the urban demand for more housing, create the potential for architectural interventions to harmoniously coexist with nature. I value the progressive mindset of the studio. Creating time and space to challenge conventional approaches and explore new perspectives. In choosing the Urban Architecture studio, I embrace the opportunity to explore the interplay between nature, human interaction and the built environment.</p>	

Graduation project	
Title of the graduation project	Nature's classroom

Goal	
Location:	Brussels – Josaphat Friche
The posed problem,	<p>Abandoned by humans, the Josaphat Friche, thriving with remarkable biodiversity, has evolved into an exceptional open green field in the busy urban landscape of Brussels. This exceptional oasis, untouched by human activity, prompts contemplation and debate in the context of a densely populated city.</p> <p>The absence of human intervention has allowed flora and fauna to thrive, which is in contrast to the increasing human demand on our planet. While recognizing the importance of preserving biodiversity, the urgent need for housing in our overpopulated world, especially in urban centers such as Brussels, creates a complex dilemma. Can there be a symbiotic coexistence where human-built environments and nature interact harmoniously, with potentially positive outcomes for both?</p> <p>This complex tension between human activity and nature at the Josaphat Friche reveals a profound question: Could there be a way that humans and their built environment coexist with nature harmoniously and even have a positive effect on each other? As we continue to struggle with the challenges of rapid urbanization, and environmental sustainability, the Josaphat Friche could stand as a potential model for addressing these complex issues.</p>
research questions and.	<p>I think a possible way to explore how nature and the built environment can coexist and help each other, is through education. With education as the cultural template for the next generation, encouraging a deeper understanding of nature's intricacies, creates the potential for a mutually beneficial relationship where both the knowledge gained and the</p>

contributions made promote harmonious coexistence. As urban development emerges around the Josaphat Friche, the challenge is to accommodate more residents while preserving its biodiversity.

Located at the intersection of nature and the city, the site offers the opportunity for humans to cultivate a harmonious coexistence with the natural environment. A great location for the collaboration of education and nature.

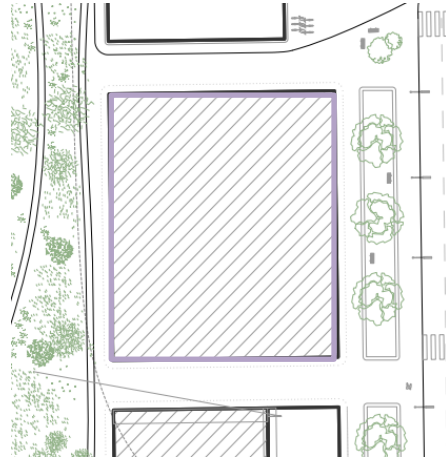
Education is the seed of change, so we could start from the perspective of the youngest, the children. My aspiration is to explore the relationship between education, nature and the child.

These are questions I will explore during my graduation to learn more about education and nature and the perspective of the learning child:

- *What systems can be explored to ensure the educational aspect in a school garden?*
- *How do educational gardens influence a child's attitude toward learning and their connection to nature?*
- *How can the design of a school foster a strong connection between children and nature?*
- *How do children perceive and interact with natural elements in an educational setting?*
- *Does children's engagement in gardening activities contribute to the development of a sense of responsibility toward the environment?*
- *What can we learn from different types of natural environments?*

design assignment in which these result.

For my project, I have chosen to design an elementary school that prioritizes nature-based learning in the newly created neighborhood. A place where children are connected with nature through education. The proposed school, accommodating approximately 200 children, will include an educational garden. The school will also offer opportunities for extracurricular activities like outdoor classes, workshops, a scout area, a kindergarten and a possible sports facility. While the school will prioritize a connection with nature, it will be integrated into an urban context. The chosen location is on the premises of an existing film studio/event lounge, suggesting the potential reuse of certain parts of the building. The design aims for a minimum of two stories with a strong emphasis on an outdoor connection. An educational garden will be designed to facilitate outdoor classes and lessons about nature.



Process

Method description

During my research, I won't be able to observe children in the educational garden due to the winter season, but outdoor classes will resume in the spring. In the winter, I will explore the Essenburgsingel educational garden in Rotterdam. This location will serve as the subject of my research, where I'll familiarize myself with the garden's intricacies, focusing on its educational aspects. I aim to understand the necessary facilities for an educational garden and what children can learn from it. Literature research will be a supportive tool in conducting my research.

I will be instructed by the garden staff, including Robert, the gardener, and Dewi, the educational officer. They will have a walkthrough with me through the garden and the human activities that it includes. They will explain to me how they work and what it can create for children. These findings will be documented and visualized in a easy to understand way.

In the design and research-by-design process, I will engage with children through talks and workshops both in schools and in the educational garden. Seeking their opinions and creativity, I hope to involve them in the decision-making for my design. Interviews and observations will provide insights into children's perspectives on nature and learning environments.

My interaction includes schools connected to the educational garden, where I want to propose a research plan to the communications officer. This collaboration will take place in the spring and help me shape the design of the school.

I have prepared stimulating questions for the children, with the intention of encouraging engagement and creativity. By designing their ideal schoolyard or participating in a photo workshop, the children can express their perspectives on nature, learning and sustainable practices. Despite the complexity of these questions, I believe that fostering trust and encouraging the children's creativity will provide valuable insights for my design.

Regarding more technical aspects, such as building technologies, I will research the existing building on the plot to explore possibilities for reuse and integration into my school or garden. The theme of nature-inclusive building and the consideration of climate zones will be central to my design research on detailing.

Literature and general practical references

Literature:

Jagiello, M., Malkusz, G., & Szostek, S. (2021). School and kindergarten gardens as a place of education.

History and contemporary design trends. *Architectus*, 2(66).

<https://doi.org/10.37190/arc210203>

Waliczek, T. M., & Zajicek, J. M. (1999). School Gardening: Improving Environmental Attitudes of Children

Through Hands-On Learning. *Journal of environmental horticulture*, 17(4), 180–184.

<https://doi.org/10.24266/0738-2898-17.4.180>

Beery, T., Chawla, L., & Levin, P. (2020). Being and Becoming in Nature: Defining and Measuring Connection to Nature in Young Children. *International Journal of Early Childhood Environmental Education*, 7(3), 3–22.

Van den Berg, A. v. d. B. (2023). De Nationale NQ test: Onderzoek naar de natuurintelligentie van schoolkinderen in groep 7/8. Natuurvoormensen Omgevingspsychologisch onderzoek.

Blair, D. (2009). The Child in the Garden: An Evaluative review of the benefits of school gardening. *The Journal of Environmental Education*, 40(2), 15–38.
<https://doi.org/10.3200/joee.40.2.15-38>

Thorp, L., & Townsend, C. D. (2001). Agricultural Education in an Elementary School: An Ethnographic Study of a School Garden. 28th Annual National Agricultural Education Research Conference.
<https://www.ea.gr/ep/organic/academic%20biblio/Agricultural%20Education%20in%20an%20Elementary%20School.pdf>

An initiative for a regenerative idea of a school, the Nowschool, where children become more 'rooted' in the earth:

Decade of Action. (2023, 14 november). Juliëtte Schraauwers: "Hoe we leren, bepaalt hoe we de wereld vormgeven". Re-Generation. <https://re-generation.cc/pionier/nowschool-juliette-schraauwers/>

Nowschool - open source tools voor schoolmakers. (z.d.). Nowschool. <https://now-school.com/>

The initiative ArchiKlas, that organizes workshops for children to learn more about nature and sustainability:

ArchiKlas. (z.d.). Kinder Klimaat Atelier - archiklas. Archiklas.
<https://www.archiklas.nl/portfolio/kinder-klimaat-atelier>

The educational garden along the Essenburgsingel in Rotterdam. An initiative from Natuurstad:

EssenburgSingel | Natuurstad. (z.d.). <https://www.natuurstad.nl/essenburgsingel>
<https://maps.app.goo.gl/P3edgX9S1NQqQhE48>

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)?

My graduation project explores the relationship between children and nature through education, fitting into the theme of 'last green in town' within the studio. In the context of the Architecture master track, my focus is on creating a nature-centric elementary school in a newly developed neighbourhood. My project examines the challenges of urban development with ecological considerations, adding to discussions on sustainable and nature-inclusive architecture. This combination aligns with the goals of my master program, promoting an interdisciplinary approach to urban and architectural studies.

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

In a rapidly urbanizing world, where the relationship between humans, nature, and the built environment is becoming more critical, my work addresses the need for sustainable and harmonious coexistence. By focusing on nature-based education and designing a school that prioritizes this approach, I contribute to fostering a deeper connection between children and the natural world. This holds significant implications for the overall well-being of society, as establishing an early and meaningful connection with nature can positively shape future generations, fostering a commitment to environmental protection and a sense of responsibility.

In the field of architecture and education, my research and design approach align with evolving perspectives on creating spaces that not only serve functional purposes but also contribute positively to the environment. The design of educational buildings is increasingly recognized as a powerful tool for shaping attitudes, behaviours, and values. By emphasizing nature-based learning and incorporating sustainable design principles, my work responds to the growing demand for innovative and environmentally conscious educational spaces.

In the academic field and research, my work contributes to the exploration of the intricate relationship between humans, architecture, and nature. The study of nature-based education is an evolving field, and my research provides insights into how educational environments can be designed to enhance the connection between children and nature. My research, which incorporates elements of architecture, education and environmental science, contributes to the wider scientific debate on sustainable urban development and the role of education in shaping ecological awareness.