

UNIVERSITY OF PÉCS, FACULTY OF ENGINEERING AND INFORMATICS - FUTURE CAMPUS DEVELOPMENT

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ABSTRACT

Students at the University of Pécs had a project with current socioeconomic problems in architecture and urbanism through an academic semester. The theme of the semester explores current social issues of our time in an architectural and urbanistic guise. Perhaps the most important of these is to find an architectural response to mitigate the environmental emergency that is already a daily reality. During the semester, the students will propose a complex spatial unit of Pécs integrated into the urban fabric, and will develop the individual centres of the area in terms of building and architecture, with associated functions and programming. The studies of sustainable development emphasize the necessity of a change of attitude and the responsibility of universities. Students at the University of Pécs had a project with current socioeconomic problems in architecture and urbanism through an academic semester. The task was to recycle the buildings of University of Pécs, Faculty of Engineering and Informatics. Improving community spaces, creating a liveable, people-centred green campus. The solutions could show that sustainability is not only important when designing new buildings, but it is also essential to recycle our existing built infrastructure. The task is to design sustainable interventions in our built environment, in response to real social urban situations.

KEYWORDS _ *Sustainability, reconditioning, revitalization, heritage, architecture*

INTRODUCTION

This semester-long assignment explored the question: What does an environmentally sustainable university campus look like in the 21st century, and how can it meet the evolving needs of its users? Successful universities recognize that teaching, research, and creative spaces are part of a complex, multi-functional campus that must offer diverse services and foster an inclusive academic community. A well-designed campus should integrate seamlessly into the urban environment, promote both formal and informal interactions, and address urgent issues like climate change by focusing on energy efficiency, sustainability, and space optimization.

The redevelopment of the Faculty of Engineering and Informatics campus at the University of Pécs provides a valuable opportunity to rethink the academic environment. Rather than large-scale new construction, the focus is on creative architectural solutions that address contemporary challenges. Students were encouraged to experiment, drawing on their own experiences and international best practices, to create spaces that are functional, comfortable, and conducive to learning and collaboration. A questionnaire survey of university citizens provided valuable insights, reinforcing the importance of user-oriented planning in the campus's future vision.

PTE-MIKCAMPUS DEVELOPMENT - DESCRIPTION OF THE TASK

Subject name: Complex Planning I.

Dr. prof. Dr. Gabriella Medvegy, Dean of the Faculty of Arts, to define a sustainable vision for the PTE MIK campus.

Responsible for the subject: Dr. Gábor Veres, Associate Professor

Lecturers:

- Dr. Gábor Veres, Associate Professor, subject leader
- Dr. Greg András G. Gábor, Associate Professor, Dr. Greg András, Assistant Professor
- Dr. Andor Krisztián Kovács Andor, Associate Professor
- Zsolt Tolnai, Pro-Architectura award-winning architect, lecturer
- Péter Udvardi, Master Lecturer
- Zsófia Kotnyek, PhD student

Project Description:

The task aimed to integrate sustainable design principles, urban accessibility, and cutting-edge technology into a cohesive vision for the PTE MIK campus. Students were encouraged to consider both practical and innovative solutions that would respond to the needs of university citizens while addressing broader environmental concerns.

During the semester, students were tasked with developing a comprehensive development concept (vision) for the Faculty of Engineering and Information Technology (PTE MIK) campus, based on the following guiding criteria:

- **Site Analysis and Urban Integration:** The students examined the accessibility of the Faculty and its role within the broader urban context, emphasizing its potential for organic integration with the "Western Campus areas."
- **Defining the Action Area:** The designated action area is bounded by Gergely Bornemissa Street to the north, Witch Road and Bálicsi Road to the west, and Damjanich Street and Xavér Street to the south. This area encompasses the buildings and facilities of the Faculty of Engineering and Information Technology, as well as the International Education Centre.

- **Spatial and Environmental Analysis:** The student teams conducted a detailed spatial analysis of the natural, economic, and social conditions of the action area and its adjacent public spaces.
- **Sustainable Campus Vision:** One of the primary goals of the development concept was to create a campus that is free from car traffic, essentially green, and dedicated to community, educational, and recreational uses for students and staff. This vision aligns with the broader objective of fostering an environmentally sustainable and socially inclusive campus.
- **Accessibility:** The students carefully considered the immediate accessibility of the action area and identified key areas that can be accessed by car, ensuring that through-traffic is minimized.
- **Parking Strategy:** The design teams evaluated parking within the campus area, addressing the location, type (e.g., surface parking, underground parking, parking garages), number of spaces, and their visual integration with the overall campus design.
- **Pedestrian Areas:** The location, function, and appearance of pedestrian areas within the action area were specifically defined, with careful attention to the activities and functions supported by these spaces.
- **Detailed Site Plan:** A detailed site plan at a 1:500 scale was produced, showing the community spaces and their associated functions within the campus area. These functions were designed using 21st-century smart technologies and sustainable solutions.
- **Green and Blue Spaces:** A second 1:500 scale detailed site plan illustrated the green and blue spaces within the campus, outlining their functionality and importance to the broader ecological and social framework of the campus.

BUILDING DESIGN FEATURES:

The primary objective of the campus development is not only to physically expand the teaching spaces but also to create environments that meet the everyday needs of both faculty and students. The design process aims to enhance the educational experience by providing state-of-the-art learning environments, as well as by fostering community engagement through versatile, inspiring spaces that encourage creativity and effective collaboration.

PLANNED DESIGN FEATURES:

- **Development of Educational and Research Spaces:** The design will focus on expanding and upgrading educational and research facilities to support cutting-edge teaching methodologies and research initiatives.
- **Functional Redesign and Reuse of Existing Laboratories (C Wing):** The basement and ground-floor laboratories in the C Wing will undergo functional redesign and reuse. In addition, new laboratory spaces will be constructed either on top of or adjacent to the existing structure, ensuring efficient use of the current building's footprint.
- **Community Spaces and Student Centre:** A central student hub will be created to facilitate social interaction, support services, and student life. This will include a variety of flexible spaces tailored to the diverse needs of the student body.
- **Student Union Office and Service Facilities:** A dedicated office space for the student union, alongside essential service facilities, will be designed to serve as a point of contact and support for students throughout their academic journey.
- **Library and Digital Space:** A modern, technologically advanced library will be integrated with

digital spaces, providing access to physical and virtual resources that support both independent study and collaborative learning.

- **24-Hour Community and Study Space (300 m²):** A flexible, open-access space of 300 m² will be available to students and staff 24 hours a day, offering a place for study, relaxation, and informal gatherings.
- **Student and Staff Club:** A dedicated club space for both students and staff will foster community interaction and provide a venue for social and professional activities.
- **Event Space (300-400 m²):** A flexible event space will be designed to accommodate various activities, including academic conferences, workshops, exhibitions, and social events.
- **Building Reuse:** Where possible, existing buildings will be repurposed, maximizing sustainability through adaptive reuse and minimizing the environmental impact of new construction.

RE-USE OF BUILDINGS IN ARCHITECTURAL EDUCATION

At its 2023 conference, the International Union of Architects (UIA) introduced the Copenhagen 10 Points, highlighting the social responsibility of architects. One key principle emphasizes building recycling, which aligns with complex design education. This approach focuses on preserving cultural and architectural values while addressing modern social, environmental, and user needs. Building recycling goes beyond salvaging materials; it involves adapting old structures to new functions, reducing the environmental impact of new construction. By prioritizing the transformation of existing buildings, architects contribute to sustainability and urban well-being.

In architectural education, this principle is integrated through teaching methods centered on building reuse. Annual planning exercises focus on revitalizing abandoned or underused urban sites with significant social or historical value. The goal is to transform these spaces into active, sustainable urban places, blending building design with urban development for long-term impact. This approach fosters a deeper understanding of how architecture can contribute to both environmental and cultural sustainability, teaching students to design with respect for existing structures and urban heritage.

STUDENT DESIGNS AND SOLUTIONS:

MÍRA FRANK'S MASTER'S STUDENT PROJECT

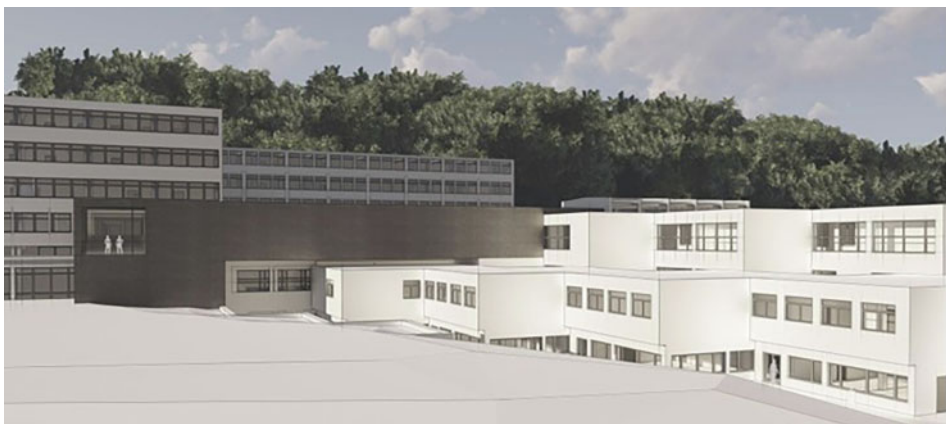


Figure 1: Míra Frank's master's student project – visual design

The visual design presented in the image is the work of master's student Míra Frank, who offers a contemporary reinterpretation of the „C” wing of the building, adhering closely to the principles of sustainable recycling. The student's design sought to preserve the existing structure while providing the educational wing with a new functional and aesthetic character. This was achieved with minimal intervention in the building's physical form and by utilizing modern tools and technologies. Frank's approach also explored new points of connection between the fragmented campus buildings, fostering stronger relationships between the structures. Additionally, by rethinking the internal circulation systems, the design resolved the previously disjointed and labyrinthine pathways, creating a clearer, more logical flow. This transformation made the space more accessible, user-friendly, and efficient.

BALÁZS SÁRKÁNY'S MASTER'S STUDENT PROJECT



Figure 2-3: Balázs Sárkány's master's student project– exterior visual design

Another exemplary student work comes from master's student Balázs Sárkány, whose design focuses on reinterpreting three key entry points to the campus. His approach not only preserved the existing entrance conditions but also expanded and accentuated them with contemporary architectural elements. By doing so, he enhanced the primary directional flows into the campus, making the key entry points more pronounced and clearer to visitors. The objective of these interventions was to create welcoming, inviting, and functionally coherent entrances that would introduce visitors to the campus in a dignified manner. Sárkány's design is architecturally striking while also integrating seamlessly into the overall campus, thanks to its thoughtful alignment with the surrounding landscape architecture.

ZSÓKA MERÉNYI'S MASTER'S STUDENT PROJECT

Zsóka Merényi's concept offers a thoughtful reflection on the spatial structure and functioning of the campus, achieved through subtle yet impactful interventions. In her design, she introduces new entrance zones by adding small-scale, yet well-defined architectural elements. These modifications replace previously ambiguous community spaces with clearly articulated and intuitive entry points. By creating these new paths of exploration, Merényi not only strengthens the connections between buildings but also enhances the overall visitor and user experience, providing a more seamless transition across the campus.



Figure 4: Zsóka Merényi's master's student project– exterior visual design



Figure 5: Zsóka Merényi's master's student project– interior visual design

A key aspect of the design is Merényi's careful rethinking of the interior spaces in Wing C. Through a structured and functionally thoughtful organization, she has created „home spaces” that are tailored to the daily needs of students. These spaces transcend the traditional hybrid educational purpose, offering dedicated zones for learning, relaxation, social interaction, and direct access to the garden. The design promotes an environment that fosters well-being and supports various facets of student life, balancing academic and social functions within the same space.

ZSOLNAY BUILDING CERAMICS STUDENT DETAIL DESIGN

One of the key highlights of the semester's design assignment was the creation of an emblematic façade detail, in which students utilized Zsolnay building ceramics elements of their own design. The goal of this assignment was not only to craft a visually striking architectural feature but also to encourage students to explore the relationship between cultural heritage and contemporary innovation. Through a modern reinterpretation of the Zsolnay tradition, the students created unique façade elements that both honor the local values of Pécs and embrace the possibilities of modern architecture, particularly in terms of material use and form. The ceramic elements were designed with both aesthetic and technical considerations in mind, ensuring that the solutions are not only visually engaging but also feasible for real-world execution.

BUILDING CERAMICS DESIGN BY MASTER'S STUDENT ANETT LÍDIA PAPP

Anett Lída Papp's design focuses on a new wing of the university, referred to as the “Artists” wing, which adjoins a community courtyard next to the C-wing. The proposed building features a curved form, behind which is a covered atrium space. The Zsolnay ceramics on the façade are designed to reflect and follow this curved architectural movement.

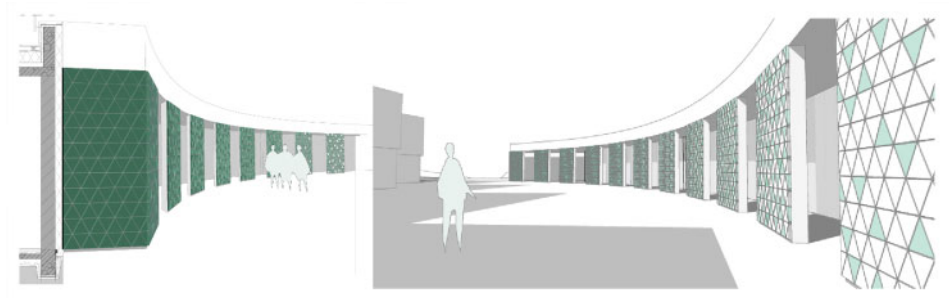


Figure 6-7: Anett Lída Papp's master's student project – exterior visual design

The ceramic elements themselves are based on a simple triangular geometry, which is both easy to produce and aligns seamlessly on the façade. The ceramic detailing also introduces a color gradient: starting with green-tinted cladding at the beginning of the new wing, it gradually transitions to white as the façade guides visitors towards the main entrance, located in the basement. This color transition not only serves as a visual cue to direct visitors, but it also creates a clear spatial transition between different zones of the building, reinforcing the functional shifts in the design.

CONCLUSIONS

The semester-long student design assignment for the PTE-MIK campus focused on rethinking university spaces for the 21st century. Students were tasked with addressing the operational needs of modern higher education while considering sustainability, ecology, and social responsibility. The

student proposals not only serve educational purposes but also provide valuable input for future development strategies at the Faculty of Engineering and Information Technology. The diverse solutions and space models offer fresh perspectives for institutional decision-making, reflecting the needs of the university community who will ultimately use the campus. The empirical data, particularly the questionnaire survey, helped map the actual needs and preferences of university citizens, ensuring that the proposals were grounded in real-world feedback. This project, therefore, catalyzes both education and strategic campus development. In conclusion, the student work not only develops professional competencies but also nurtures students into responsible, innovative planners who address contemporary challenges.

REFERENCES

- **Conference:** At the 2023 UIA World Congress of Architects in Copenhagen, the International Union of Architects introduced the "Copenhagen Lessons"—ten principles aimed at driving rapid and radical change in the built environment to achieve the UN's Sustainable Development Goals
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