

TECHNOSOPHICAL INTERFACES

Science Center Innsbruck

i.sd // STRUCTURE AND DESIGN WS2024
EM1 - TECHNOSOPHICAL INTERFACES
ROBERT R. NEUMAYR & JULIAN HÖCK

INSTRUCTORS
Robert R. Neumayr
& Julian Höck

MODE
Weekly meetings at the
institute - Thursday 13:00

LANGUAGE
English & German

FIRST MEETING
03.10.2024 - 13:00 - i.sd

THE COURSE

As part of isd's vertical studio project, this semester's design studio EM1 will ask students to speculate about the urban, architectural, educational, economic, and socio-cultural potential of implementing a new science centre for Tyrol within Innsbruck's existing city fabric making use of the historical landmark building of the Rauchmühle.

Today, conducting and communicating high-quality research has become more important than ever, helping to broaden scientific understanding and to jointly tackle the big issues of our time, from climate change to human health. At the same time, the free practice of science and education is endangered by political and social agendas, questioning its values and merits, resulting in the need to strengthen and manifest its position within contemporary society.

We as architects are called to provide the conceptual, spatial, and architectural framework to strengthen scientific work and knowledge collection, storage, transfer, and dissemination by developing novel concepts and typologies for these kind of spaces, in which scientists, educators and the general public can work, evolve and collaborate by exchanging thoughts, information, and ideas.

Students will develop individual strategies and architectural concepts by using novel digital and analogue design tools. The goal of the studio is to design contemporary buildings based on spatial,

programmatic and geometric explorations, with a special focus on volumetric design. Abstract architectural concepts and spatial prototypes will be contextualised on the specific historical site of the Rauchmühle, at the same devising strategies about how to sustainably reuse the existing buildings and (infra)structures.

Within the framework of this studio the question of *Technosophical Interfaces* will be addressed simultaneously on various different yet interconnected levels:

On a conceptual level, students are encouraged to develop contemporary strategies for the research, collection, storage, organisation, education and transfer of scientific knowledge - either related to *techne* (practical knowledge) or *sophia* (wisdom and theoretical skill) within the scientific community as well as in relation to the general public.

On an architectural and urban level, students are required to hypothesise about the physical and semiological spaces and spatial envelopes that frame, enable, and foster the social interactions connected to these contemporary modes of knowledge transfer. All architectural interventions, in turn, must be carefully interfaced with the historic building in place on the site in question making careful use of the existing spaces and infrastructures.

THE SITE



The historic “*Rauchmühle*”, located along the Hallerstraße in Innsbruck, will serve as the site for this semester’s design studio. This industrial complex, which has witnessed significant events and transformations over the last century, stands as a testament to the evolution of industrial architecture in Austria. The *Rauchmühle* site, still operational today, is not only a modern milling facility but also a symbol of resilience and innovation, having been rebuilt multiple times after devastating incidents in the early 20th century.

The post-World War I era brought further challenges, including a severe shortage of grain that led to the use of chestnuts for milling—a task for which the machines were unsuitable. This resulted in a fire on August 28, 1919, that destroyed the old mill down to its foundations. Undeterred, the sons of the mill’s founder, Leopold, undertook the task of rebuilding the facility at a new location. By 1923, the new mill complex was operational, and in 1927, a grain silo was added, which continues to define the site’s silhouette today. The *Rauchmühle* complex is considered a remarkable example of inter-war industrial architecture.

The existing buildings, characterized by their robust industrial design and historical significance, alongside the surrounding site, will be the focus of this semester’s exploration. The challenge lies in reimagining and transforming this industrial heritage into contemporary, innovative spaces that reflect today’s technological, societal, and cultural shifts. Students are encouraged to critically examine the existing structures, explore their historical and functional layers, and envision new interventions that honor the past while pushing the boundaries of architectural design. This studio will serve as a platform to experiment with volumetric concepts and sustainable solutions that breathe new life into this iconic site.

vgl. <https://www.rauchmehl.at/geschichte/> [29.08.2024]

RESEARCH TOPICS

Preliminary research will focus on two areas of investigation:

1. The examination of contemporary modes of scientific and artistic research, knowledge transfer, and art education.
2. The analysis of existing science centres and other buildings for the exchange of scientific and artistic knowledge such as the Science Centre Wolfsburg (ZHA), Zeitz MOCAA Cape Town (Heatherwick Studio), National Studio for Contemporary Arts - Le Fresnoy (Bernard Tschumi), Science Centre Glasgow (Richard Gordon & BDP), or the Competition for the ZKM Karlsruhe (Various Architects).

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Teams of students will conduct this research during the first weeks of the semester in preparation for the design project ahead.



Science Centre Wolfsburg
ZHA



Zeitz MOCAA Cape Town
Heatherwick Studio



National Studio for Contemporary Arts
Bernard Tschumi

METHODOLOGY

Students will analyse and explore a variety of best practice examples of relevant building typologies. In combination with input lectures by the tutors, the students collective research on educational spaces will help to develop a fundamental understanding of the topic's key aspects.

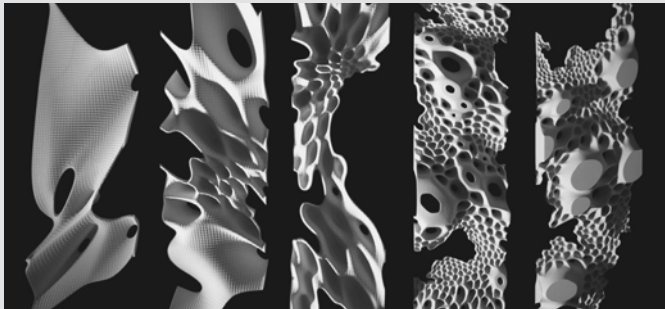
The referenced projects will be understood as complex architectural systems, consisting of a series of systems and interrelated subsystems that together contribute to the building design as a coherent and functional architectural space. Systems and Sub-

systems to be analysed include program, circulation, spatial organisation and hierarchy, structure, materiality and facades. In this course, students are challenged to select and thoroughly rethink one of these systems, developing new and experimental solutions for it. The studio's underlying assumption is that a profound shift of one significant building system will - due to the interwovenness of all the building's systems - push the building design towards an entirely new and novel typological solution.



1 RESEARCH

Contemporary references will be examined to build a catalogue of collective knowledge, theses and projects.



2 PROCESS & STUDY MODELS

Research based design thesis will be explored and developed in prototypical spaces and diagrams.



3 CONCEPTUAL DIAGRAMS

Architectural ideas and processes shall be visually communicated via conceptual diagrams. The diagram is therefore not only an instrument for documentation but a design tool itself.



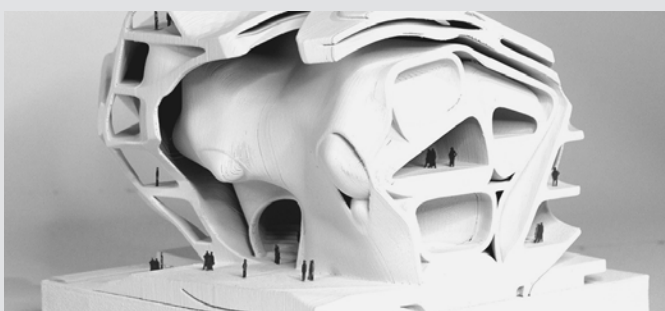
4 ARCHITECTURAL DRAWINGS

Typology and programme will be refined and represented using architectural drawings and illustration techniques.



5 DIGITAL REPRESENTATION

Spatial and atmospheric qualities will be explored and demonstrated in threedimensional digital models.



6 PHYSICAL REPRESENTATION

Spatial and atmospheric qualities will be explored and demonstrated in threedimensional physical models.

STUDIO CULTURE & RESOURCES

“Self-education is, I firmly believe, the only kind of education there is. The only function of a school is to make self-education easier; failing that, it does nothing.” - *Isaac Asimov*

This design studio is organised as a collaborative studio, based on the idea that participants in this studio will learn as much from each other as from professors or tutors of the institute. Students will, therefore, form teams of two persons each to develop, present and submit their design thesis together. Within the framework of the studio's brief, teams will work on their own schedule and organise themselves to meet deadlines, prepare presentations and subdivide the design and research work. Reviews will take place once a week. Meetings will be held at the institute, online only or hybrid.

Review Schedule: Every Thursday at 13:00

Also, all teams are encouraged to discuss and exchange ideas, tools, techniques, and skills and contribute to a large studio archive of ideas and concepts furthering their experience and fostering their architectural knowledge. This constant exchange of information will – in addition to the weekly meetings in person – largely rely on digital tools. The university and the institute, therefore, will provide a series of tools and resources which we will use throughout the design course to upload, structure, organise, store, distribute, share, and present information and knowledge among all participants. Additionally, the studio will make use of online tutorials, courses, and other resources about digital design tools and technologies that are available on the internet.

OLAT will be used to upload, collect and distribute the weekly briefs and other important documents and information, such as access links, reading lists, or submission materials.

MIRO will be used to organise, structure and display the (preliminary) results of your work. All work will be uploaded to the respective MIRO board and remains there throughout the entire design process. In that way a comprehensive digital archive of all work is assembled that can be used for collaboration, information exchange and presentations. A link to the board will be sent out in time.

Every week, all work in progress and other materials for discussion will be uploaded to MIRO before the review and presented from the MIRO board during the review.

Work includes research, analysis, and synthesis in order to deduct and organize one's ideas to form a coherent architectural proposal. Design research is conducted via state-of-the-art design methodologies, that will be individually developed in digital and physical models. The architectural proposals will be represented via diagrammatic and architectural drawings, visualisations and physical model building to communicate the individual concept of the students' work.

A reading list will be provided.

SEMESTER SCHEDULE

03.10.2024	FIRST MEETING INTRODUCTION
10.10.2024	research & concept phase
17.10.2024	proto systems / proto spaces phase
24.10.2024	pinup with guests
31.10.2024	proto systems / proto spaces phase
07.11.2024	design phase
14.11.2024	design phase
21.11.2024	design phase consolidation / preparation for midterm review
28.11.2024	MIDTERM REVIEW
05.12.2024	design phase
12.12.2024	design phase
19.12.2024	(xmas break)
26.12.2024	(xmas break)
02.01.2025	(xmas break)
09.01.2025	pinup with guests
16.01.2025	preparation of presentation / submission
23.01.2025	preparation of presentation / submission
30.01.2025	FINAL REVIEWS

ABOUT THE INSTRUCTORS



Robert R. Neumayr

architect, researcher,
and educator

Robert studied architecture in Vienna and Paris and received a M.Sc in architecture from the Technical University Vienna before completing his M.Arch II with distinction at London's renowned Architectural Association Graduate School Design Research Lab (AADRL). He holds a doctoral degree from the University of Applied Arts in Vienna.

Since 2000 he has been researching contemporary digital design practice, focusing on responsive architecture, parametric urbanism, algorithmic design, evolutionary design strategies, and machine learning and AI in architecture. His research and projects have been published and exhibited internationally and been awarded numerous prizes.

He has been teaching at Studio Zaha Hadid and Studio Kazuyo Sejima at the University of Applied Arts in Vienna, as well as at the University of Pennsylvania (US) and the Institute of Experimental Architecture Hochbau with Patrik Schumacher. He is currently a lecturer at the Institute of Design (i.sd) at the University of Innsbruck.

After working with Will Alsop, ocean_UK,, and Zaha Hadid Architects in London and Vienna, he co-founded HuP architects in Vienna in 2020. Robert's website unsquare.org operates as a design and research platform aiming to bring together academia, design research and professional practice.



Julian Höck

multidisciplinary architectural
designer & photographer

Julian studied architecture at the Faculty of Innsbruck with a keen interest in computer-generated design strategies.

Prior to pursuing architecture, he has an education in graphic-design and also works as a photographer for several industries like hotel, food and advertising. He has a strong interest in architectural photography, collaborating with award-winning architects to capture the essence of their buildings and designs.

Julian's diverse professional experiences have enabled him to approach architecture from unique perspectives, incorporating his skills in visual communication and photography into his design practice. His passion for utilizing technology in architecture drives him to explore innovative design strategies and push the boundaries of traditional architectural approaches.

He joined interdisciplinary SFB „Advanced Computational Design“ in 2022 where he finished his master thesis in the beginning of 2024. Since then he's teaching the Institute of Design (i.sd) at the University of Innsbruck.

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