



SUPER – Stuttgart University Program for Experiencing Research Project Information

Institute's Information

Name of Institute Integrative Technologies and Architectural Design Research M.Sc. Program

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Duration of Project/Number of Students

June/July

June/July/August x

Number of Students 2

Name of Project Integrative Technologies and Architectural Design Research Project
(ICD/ITKE Research Pavilion 2022/23)

Beneficial Skills
& Knowledge Rhinoceros, Grasshopper, Python, ...

Description of Work

Performative Morphology ICD/ITKE Research Demonstrator 2022/23

The studio will allow students to explore the design space of hybrid FRP-timber structures as a research project to be developed and built on the university campus. The project will investigate the potential of combining fiber-reinforced polymers (FRPs) and timber as a performative architectural hybrid system based on state-of-the-art research and projects. Throughout the academic year, students will have the opportunity to experience the studio from a research-oriented perspective, delving into design frameworks, digital workflows, and methods as part of an integrated design, fabrication, and construction process.



Students will focus on alternative materials, building typologies, and novel fabrication strategies within the planned scope. Natural fiber reinforced polymer (NFRP) is the primary material system to be explored, together with a fundamental understanding of timber structure. Students will also investigate structural typologies, their applications in various building systems, and design concepts for a novel material system. Simulation- and prototyping-based design methodologies, as well as the fundamentals of robotic coreless winding, will be introduced.

The outcomes of these investigations will lead to a design workflow that incorporates all developed methodologies for exploring and developing novel concepts for FRP-timber hybrid architectural structures. In addition, students will gain experience working in interdisciplinary teams and improving their research approaches in investigating possible materials and emerging technologies in the context of architectural building. The most promising proposal developed during the design studio will be the basis for the design and realization of the ITECH Research Demonstrator during the summer term.

