INTERDISCIPLINARY PROJECT-BASED DESIGN 2024/2025/1 SPRING SEMESTER

Adaptive Campus

Department of Explorative Architecture

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and

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COURSE DESCRIPTION

Interdisciplinary Project Based Design is a design course carried out in tandem by a design and a specialized department, with the aim of widening the range of design tools for participating students and to integrate more aspects of design in the process.

The course is held in a workshop style. Students are helped by consultants from both responsible departments throughout the semester (design & structures). Students develop their projects in international groups of 4-6 members. By the end of the semester, groups are expected to present a developed conceptual design proposal in drawings, a virtual and a physical model, based on the detailed brief that is handed out in the beginning of the semester.

In the beginning of the semester we introduce the site and the detailed task description, after which the site and program analysis will be presented by student groups. Consultants give lectures to inspire the design process and to equip students with a basic knowledge of parametric design tools (Rhino). The core of the semester consists of consultations for the groups with regular presentations about the progress (see details in the schedule).

THE ISSUE IN FOCUS

Building construction is one of the main sources of green-house emissions on the planet, therefore implementing sustainable, adaptive reuse design methods is essential to tackle the climate crisis. Since Europe is a continent that is very poor in raw materials to begin with, a more mindful approach to the already existing materials also makes economic sense as it reduces the continent's dependency on foreign imports. Aligning to the EU's Green Deal and the Butterfly Diagram of the Technological Cycle, reusing materials and existing structures in their original form is the best tool for reducing CO2 emissions; the recycling and upcycling are the next in line.

In Europe, despite 35% of buildings being over 50 years old and 75% falling short of energy efficiency standards, only 1% are renovated annually. The continent's large, mostly historic building stock thus faces engineers and designers with a great challenge as well as an unparalleled opportunity for innovation and reuse. The pioneer work of the Lendager Group (one of many experiments in the area) has proven that greenhouse gas emissions of a construction project can be reduced by up to 70% by reusing locally available materials.[1]

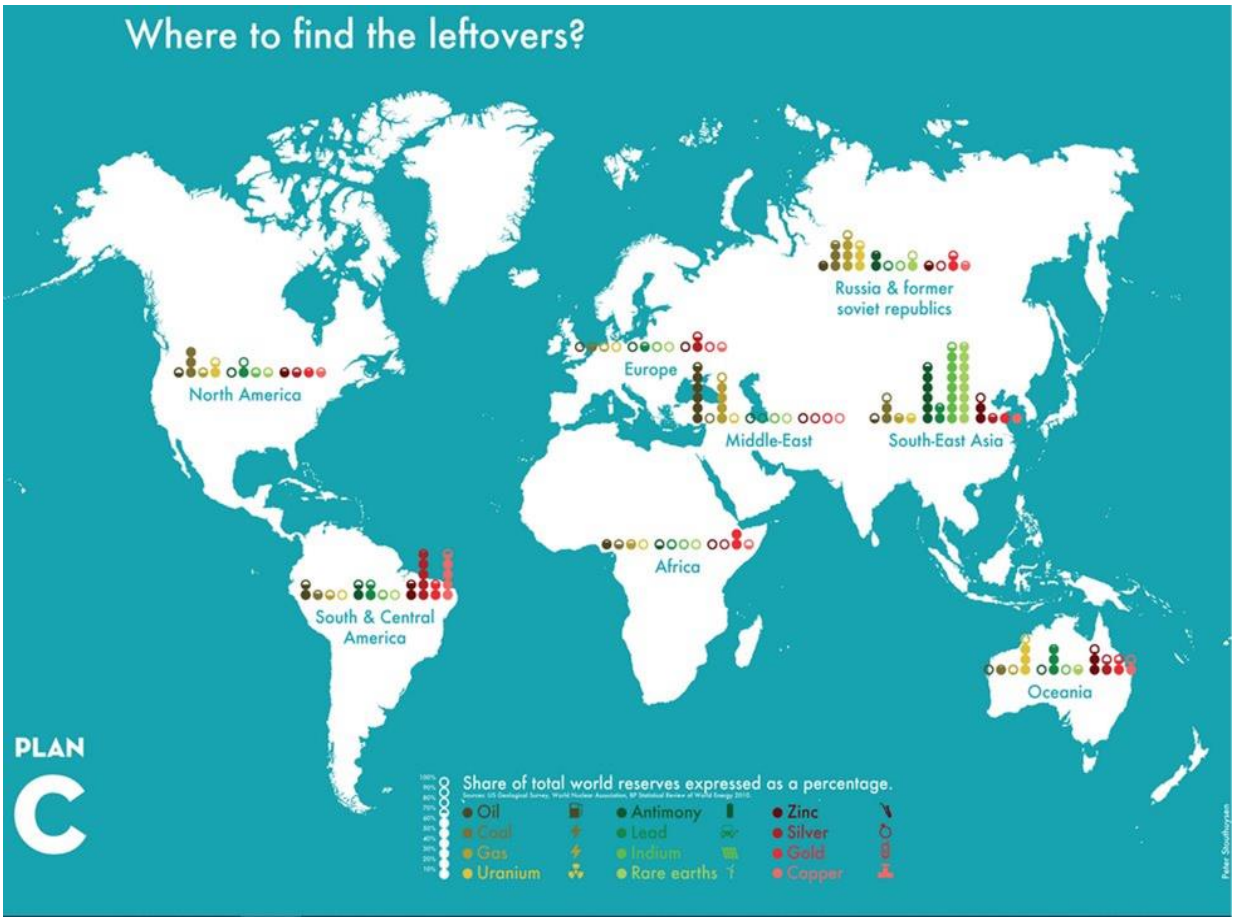
Can sustainable design, buildings made of re-used materials reach the aesthetic and functional standards of our traditional design methods, can they meet monuments

[1] See:

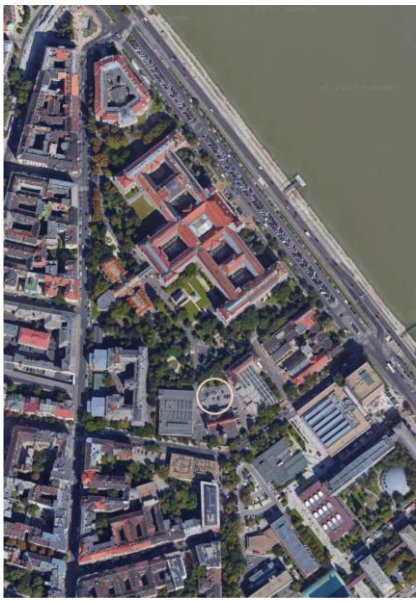
protection requirements and goals? We believe that the answer is yes. Exciting, flexible, environmentally conscious structures should take the lead in the future, while respecting the existing environment's cultural dimension.

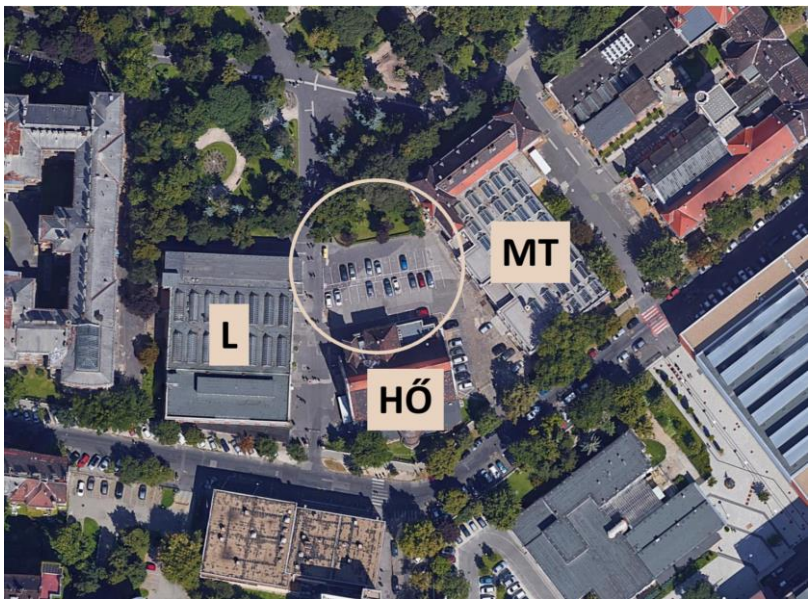
In this spirit, the course challenges students to design **a workshop space and uni living room** for the campus of BME, re-using one of the buildings in the historic campus.

Sustainable design practices are at very different stages of development and application among countries, thus the course is an excellent platform for all participants to learn from one another.



Location – the Northern Campus of BUTE, with focus on the parking lot (with empty coal storage cellar underneath) in the southern part of campus. For refurbishment, L and HŐ buildings can be chosen.





Az IFC model will be provided to students with the area and the model of the buildings to facilitate the design process.

THE RESEARCH & DESIGN TASK

The task is to identify the users of the campus and to define missing functions that don't have a good enough space in the campus area. The design program should enhance the development of university communities, co-working activities as these are very difficult to fit in the traditional cellular structures of main education buildings of the campus.

Teams will be asked to develop the proposed functions into a comprehensive intervention, including but not limited to the adaptive reuse of buildings "L" and "Hő".

A suggested function is a design a workshop and project space for the campus which may be used by all students. This workshop is equipped with basic carpentry machines, 3D printers, laser cutters and other tools. The project space allows for teams of varying size (3-10) to work together. The project space should be equipped with screens for presentation, variable/modular furniture and a flexible partition system.

Reference: the "Why Factory Tribune" of TU Delft and the open air workshop space of the Leonardo Campus of Politecnico di Milano