DIGITAL TWINS
infrastructures & cities

Machine Intelligence and Human Knowledge – AI in Construction and Engineering

BME MAIN BUILDING, BUILDING K, 1ST FLOOR, CEREMONIAL HALL

19TH OF JUNE 2025

MŰEGYETEM 1782

European University

Co-funded by the European Union

Agenda

8:30 – 9:00 **Registration**

Coffee, Cookies

9:00 – 10:15 **Opening presentations**

Charaf Hassan – Rector's welcome
Szabolcs Rózsa– Dean's welcome
Tamás Lovas – The Faculty of Civil Engineering responds to new trends with new training programs
Noémi Friedman – HUN-REN SZTAKI, Artificial Intelligence in the HUN-REN research network: strategies and applications
Viktor Csuvik – MALI Labs, AI from the ground

10:15 – 10:30 **Coffee Break**

10:30 – 12:30 **Presentations**

Zsolt Petrohán – Microsoft, AI innovation with Microsoft technologies – Secure infrastructure and frameworks
András Ferenczy – Graphisoft, AI trends and challenges in the construction industry
Ádám Kovács – Iconsoft, AI in the construction industry
Bence Szinyéri – BME AUT, Bridge Weigh-in-Motion and digital twins of bridges
András Mahler – BME Faculty of Civil Engineering, Road pavement design with the help of AI

12:30 – 14:00 **Coffee + Networking**

14:00 – 16:00 **Group visit to the faculty's laboratories**

Based on registration
Building Materials Laboratory
Structural Testing Laboratory
Pavement Structure Laboratory
Water Quality and Water Analytics Laboratory
Geotechnical and Engineering Geology Laboratory
Geodesy and Geoinformatics Laboratory

Poster section

A poster section will be available during the conference. If registered participants wish to present their company or work in this format, please indicate your intention in time!

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Faculty Laboratories

Building Materials Laboratory Building MM

BME's Materials Testing Laboratory is an accredited facility that analyzes the mechanical, physical, and chemical properties of concrete and construction materials using modern equipment. Visitors will gain insight into testing methods related to industrial research and innovative material testing techniques.

Structural Testing Laboratory Building ÉL

BME's Structural Testing Laboratory analyzes the behavior of existing and planned load-bearing structures using advanced tools, either within the university or on external sites. It provides broad support for domestic and international R&D activities in the field. The lab can load specimens up to 600 tons, performs most measurements with in-house equipment, and frequently collaborates with other departments.

Pavement Structure Laboratory Building ÉL

The Pavement Structure Laboratory at BME conducts on-site and laboratory tests—primarily in the field of asphalt mechanics—within accredited frameworks for industrial projects and research. With student involvement, the lab also investigates innovative, sustainable materials and applies the latest testing methodologies.

Faculty Laboratories

Water Quality and Water Analytics Laboratory K.MF.31.

BME's Water Utility Laboratories conduct analyses of drinking water, wastewater, surface water, groundwater, and soil using classical and general chemical methods. For surface water, examinations are complemented by microscopic investigations to monitor annual changes in aquatic ecosystems. Customized methods are developed for research tasks.

Geotechnical and Engineering Geology Laboratory K.F.20. (Basement)

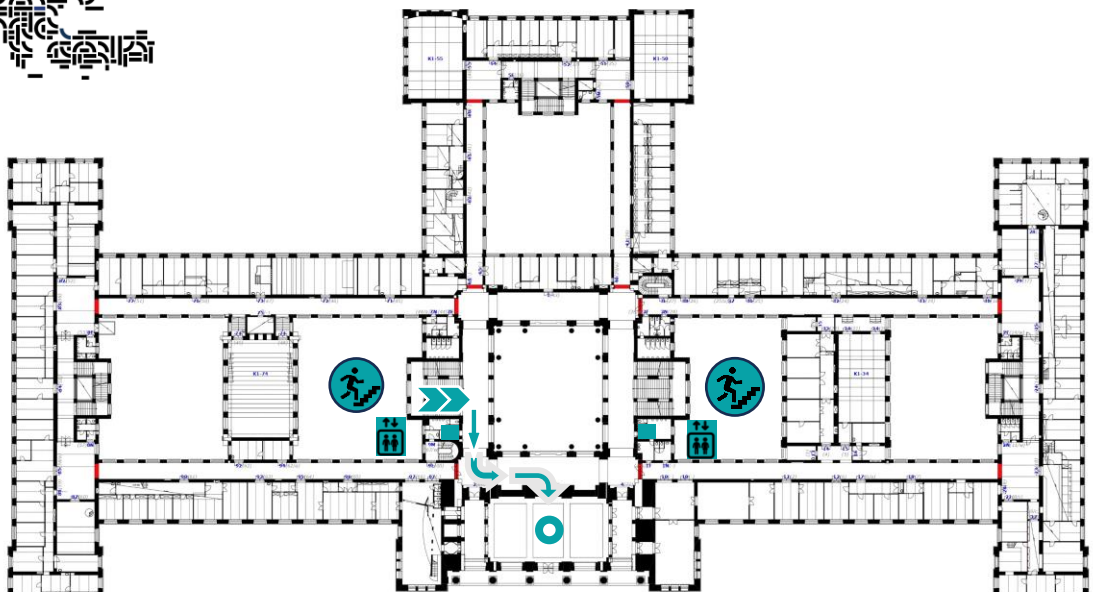
This accredited laboratory at BME uses modern tools to examine the mechanical, physical, and chemical properties of soils and rocks. Visitors can explore testing procedures linked to industrial research and cutting-edge material analysis techniques.

Geodesy and Geoinformatics Laboratory K.MF.26.

Jointly hosted by the Department of Geodesy and the Department of Photogrammetry and Geoinformatics at BME, this instrument demonstration showcases state-of-the-art spatial data collection technologies essential for digital twin creation. Visitors can learn about digital laser scanners, drone surveying methods, positioning sensors, and VR–MR–XR-based geoinformatics visualization tools. The demo illustrates the application of geodetic and geoinformatic equipment through practical examples relevant to education, research, and industrial projects.

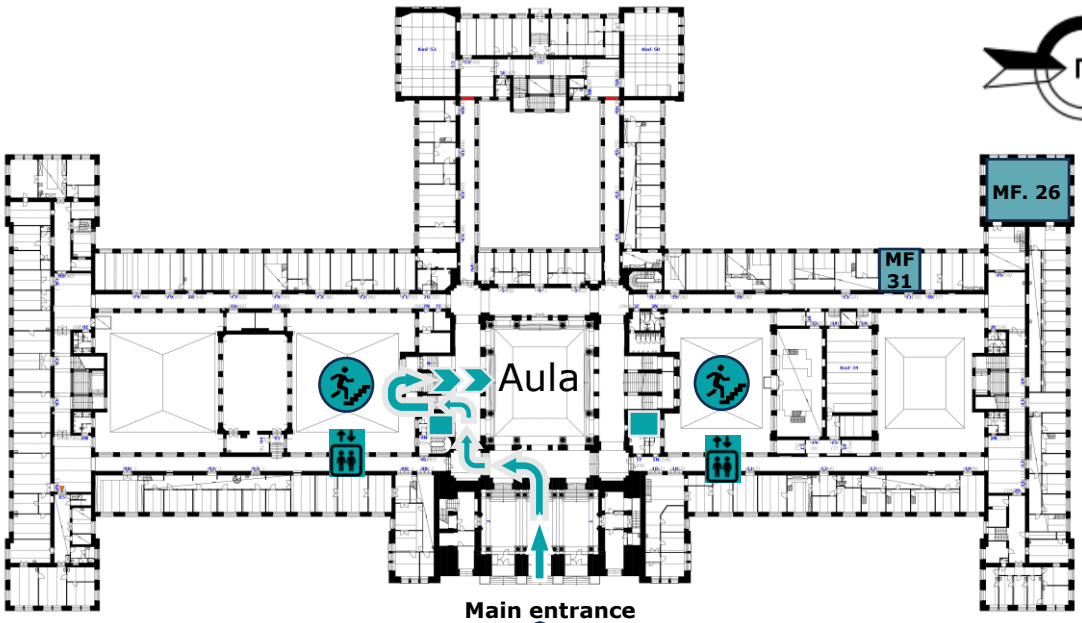
Map to the conference room

BME, Building K
1st Floor



Ceremonial Hall

BME, Building K
Mezzanine
Library



Main entrance

Petőfi-híd **Danube** **Szabadság-híd**

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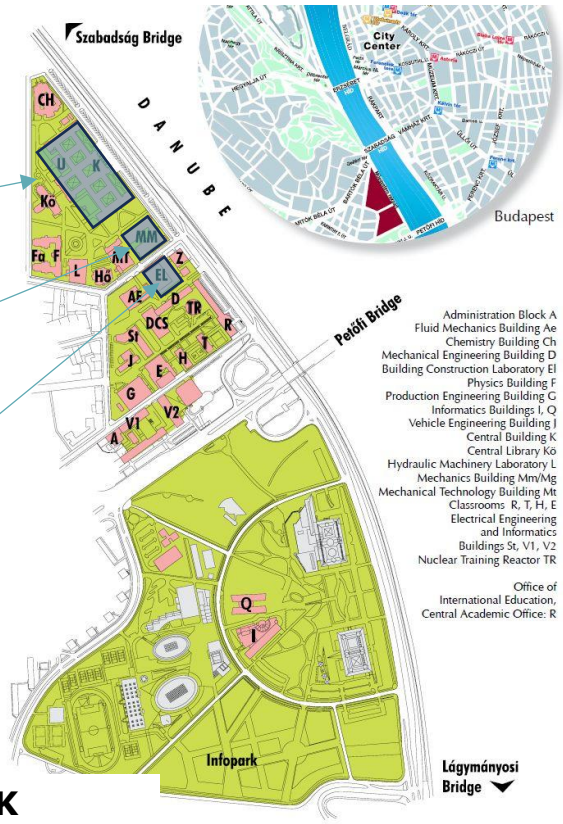
Map to the laboratories

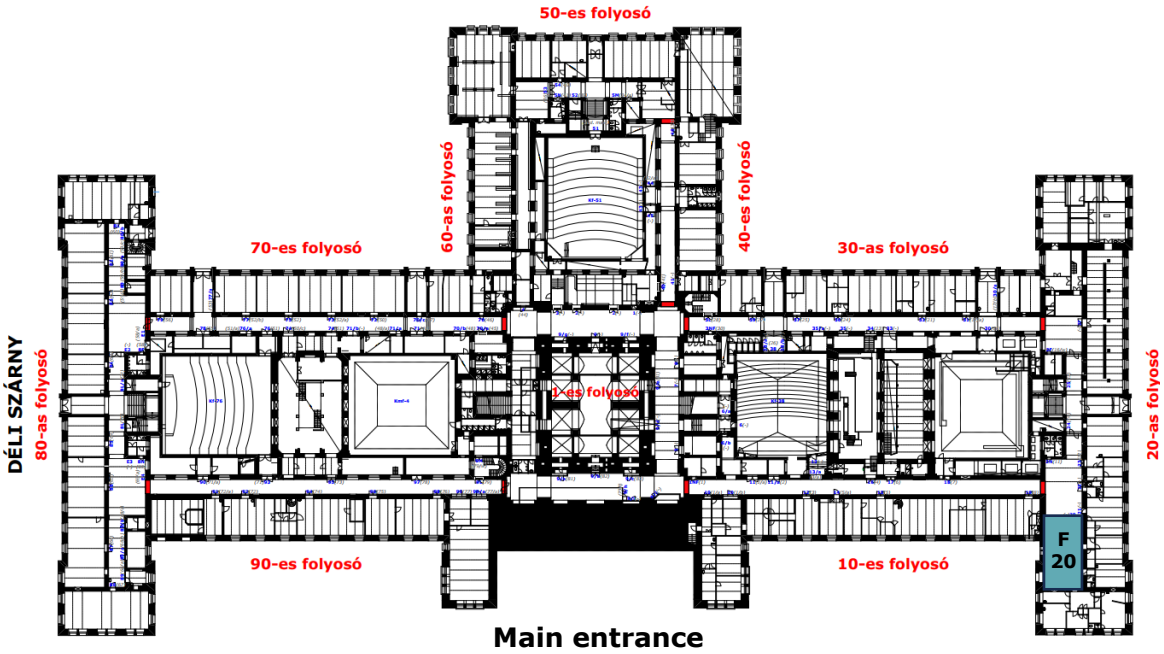
Water Quality and Water Analytics Laboratory - K.MF.31.
Geotechnical and Engineering Geology Laboratory - K.F.20.
Geodesy and Geoinformatics Laboratory - K.MF. 26.

Building Materials Laboratory
Building MM

Structural Testing Laboratory
Pavement Structure Laboratory
Building ÉL



BME, Building K
Ground floor
Library



Petőfi bridge **Freedom bridge**

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