



Technical University
of Leoben



NATM and TBM Tunnel Engineering

Advanced Continuing Education in
Tunnelling and Underground Engineering

> Joint Master of Science



LIFE LONG
LEARNING

Developed and implemented jointly by
Graz University of Technology and the
Technical University of Leoben



Engineering the Underground of Tomorrow

This globally unique master's programme for working professionals offers the opportunity to develop advanced expertise in tunnelling, with a strong focus on the New Austrian Tunnelling Method (NATM) and Tunnel Boring Machines (TBMs).

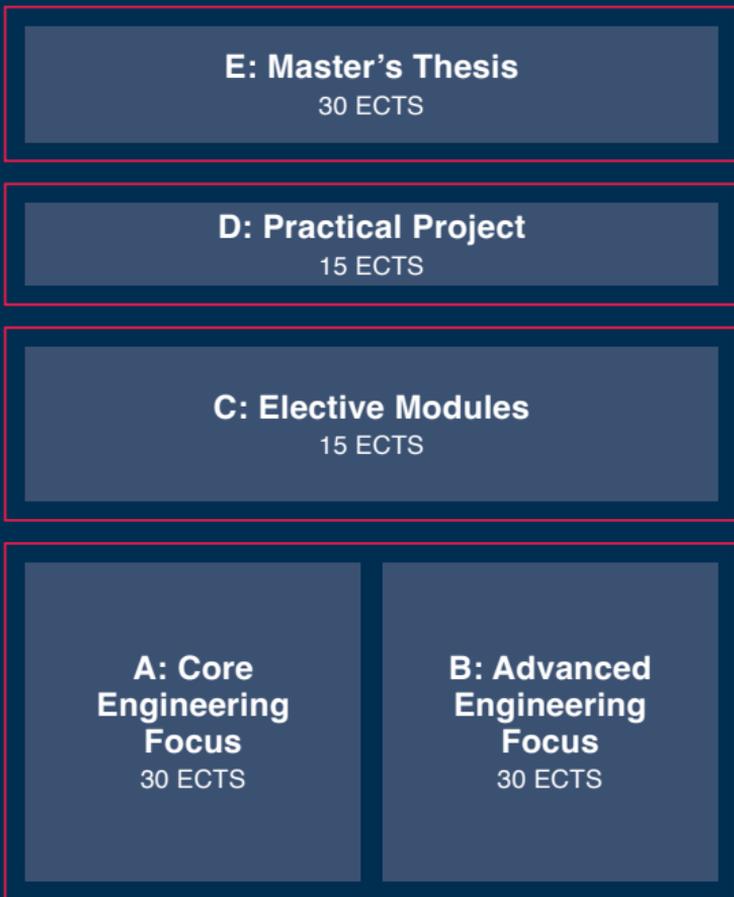
Benefit from the combined excellence and long-standing know-how of TU Graz and TU Leoben – two leading technical universities at the forefront of modern tunnelling research and practice worldwide.

What you get:

- Solid core competencies in NATM-based and TBM-based tunnelling engineering
- Exposure to advanced topics shaping the future of underground infrastructure
- A learning path covering the full lifecycle of tunnelling projects – from subsurface investigation to design, construction, operation and refurbishment
- A progressive learning structure from academic fundamentals to real-world application

**Master of Science
(Continuing Education)
MSc (CE) 120 ECTS**

> Your Learning Path



The programme follows a blended-learning format with three weeks of on-site teaching per semester at TU Graz and TU Leoben, complemented by online instruction.



**A Core Engineering Focus:
Geotechnics, Design and Construction**

Provides the technical foundation of NATM engineering.

6 Modules include:

- Investigation / Exploration Concepts and Parameter Evaluation
- Geological, Geotechnical and Numerical Models
- NATM- and TBM-Technologies
- Tunnel Design Methods
- Ground Modelling
- Excavation and Support Techniques (incl. Practical Work)



Advanced Engineering Focus: Digitalisation, Risk and Lifecycle

Expands tunnelling expertise with digital tools and interdisciplinary skills.

6 Modules include:

- Data Science and Machine Learning in Geotechnical Applications
- BIM in Tunnelling
- Special Construction Methods Related to Underground Infrastructure
- Health and Safety in Construction and Operation incl. Risk Assessment
- Cost Determination, Contracts and Site Management
- Maintenance and Refurbishment of Underground Infrastructure incl. M&E



Elective Modules (Select 3)

- Exploration
- Design and Construction of Underground Structures
- Numerical Methods in Geotechnics
- Sustainability in Subsurface Engineering
- Tunnel Design Aspects including Numerical Methods
- Advanced Rock Mechanics and Tunnelling (1 and 2)
- Rock Mechanics Laboratory Testing



Accompanying Practical Project

Industry or research experience completed during the programme, documented in a practical report.



Master's Thesis

Addresses a current topic assigned to a module and must be presented and defended in the final master's examination.

Our Expertise – Your Benefits

- Strong focus on geotechnics, NATM and TBM
- Integration of design, construction and operation
- Emphasis on digitalisation and data-driven methods
- International orientation and industry relevance
- Close link between theory, practice and applied projects
- A master's degree from universities which are recognised and valued by employers worldwide

Career Perspectives

Graduates are qualified for positions in:

- Tunnel and underground structure design
- Construction and site management
- Geotechnical and consulting engineering
- Digital engineering and BIM coordination
- Infrastructure operation, maintenance and asset management

Admission Requirements

To be admitted to the master's programme, a bachelor's degree or completion of another programme comprising 180 ECTS is required. In addition, 2 years of relevant professional experience must be demonstrated.

Please contact us

- if you do not fulfil the requirements for the master's programme
- if you prefer only A and B, leading to the certificate Academic Expert (AE)
- if you prefer specific modules



Start: October 2026

Degree:

Master of Science (Continuing Education), MSc (CE)

Language of instruction:
English

Facts

Participation fee: EUR 23,900

Registration and further information:

www.natm.at



Contact

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