

Department: Mining Engineering

Division: Tunneling and Underground Spaces

Level and Major: MSc, Tunneling and Underground Spaces

Course Title: Microtunneling

Number of Credits: 2

Lecturer: Dr. Kourosch Shahriar

Course Goals and Objectives

Gain ability to research, design and supervise the implementation of specialized projects in the field of tunneling and microtunneling.

Course Topics

- Physical and Mechanical Properties of Rocks, Soils and Coals
- Rock-Cutting Tools and Theories
- Laboratory Rock-Cutting Tests
- Wear of Cutting Tools
- Roadheaders
- Impact Hammers
- Hard Rock TBMs
- Soft Ground Tunnel Boring Machines
- Microtunnel Boring Machines and Jacking Forces
- Shaft and Raise Boring Machines
- Large-Diameter Drill Rigs
- Mechanical Excavation in Coal Mines
- Chain Saw Machines
- Emerging Mechanical Excavation Technologies

Reading Resources

- Up-to-date articles