



Course Name:

Tunnel Engineering

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| Course Number: 20-447 | Credit: 3 |
| Program: Graduate | Course Type: Technical Selective |
| Prerequisite: - | Corequisite: - |

Course Description (Objectives):

The overall objective of this course is to familiarize students with the principles and methods of tunnel construction and design. Students will acquire the necessary skills to understand tunnel construction and design methods.

Course Content (outline):

- Chapter 1: Review of rock mechanics and geotechnical engineering
- Chapter 2: Impact of rock mass discontinuities on tunnel stability
- Chapter 3: Tunnel analysis methods
- Chapter 4: Tunnel support systems
- Chapter 5: Tunnel design methods
- Chapter 6: Interaction between the rock mass and support system
- Chapter 7: Tunnel construction methods
- Chapter 8: Monitoring and behavior assessment

References:

- Hoek, E. and Brown, E. T. (1980), Underground Excavation in Rock, The Institution of Mining and Metallurgy, London
- Kuessel, T.R. and King, E.H. (2011), Tunnel Engineering Handbook, Springer
- Maidl, B. (2014), Handbook of Tunnel Engineering, Ernst & Sohn