Underground Construction & Tunneling

General CSM Minor/ASI requirements can be found here (catalog.mines.edu/undergraduate/undergraduateinformation/minorasi).

Programs Offered

Minor in Underground Construction and Tunneling (18.0 credit hours) and an Area of Special Interest (ASI) (12.0 credit hours).

Program Educational Objectives

Underground Construction and Tunneling is a growing discipline involving knowledge in the disciplines of mining engineering, geological engineering and civil engineering, among others. The Departments of Mining Engineering, Geology & Geological Engineering and Civil and Environmental Engineering offer an interdisciplinary Minor or Area of Special Interest (ASI) course of study that allows students from these departments to take a suite of courses providing them with a basis for work and further study in this field.

The objectives of the minor and ASI are to supplement an engineering background with a formal approach to subsurface engineering that includes site characterization, design and construction of underground infrastructure, including water, storm water, highway or subway tunnels and subsurface facilities.

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Curriculum

The Underground Construction & Tunneling Engineering minor consists of a minimum of 18 credit hours of coursework from the list below. An Area of Special Interest (ASI) in Underground Construction & Tunneling requires 12 credit hours of coursework from the list below. A student’s advisor may authorize a student’s Minor or Area of Special Interest (ASI) application. For questions about the minor and to request consideration of additional courses including independent study, students should meet with a UC&T faculty member. The petition process requires one month to complete. See the following page (http://bulletin.mines.edu/undergraduate/undergraduateinformation/minorasi) for CSM’s Minor and ASI requirements.

Program Requirements:

Required Courses (Minor)

- CEEN350 CIVIL AND CONSTRUCTION ENGINEERING MATERIALS 3.0
- CEEN360 INTRODUCTION TO CONSTRUCTION ENGINEERING 3.0
- CEEN499 INDEPENDENT STUDY 1-6
- GEGN466 GROUNDWATER ENGINEERING or GEGN467 GROUNDWATER ENGINEERING 3.0
- GEGN468 ENGINEERING GEOLOGY AND GEOTECHNICS 4.0
- GEGN473 GEOLOGICAL ENGINEERING SITE INVESTIGATION 3.0
- GEGN499 INDEPENDENT STUDY IN ENGINEERING GEOLOGY OR ENGINEERING HYDROGEOLOGY 1-6
- MNGN314 UNDERGROUND MINE DESIGN 3.0
- MNGN410 EXCAVATION PROJECT MANAGEMENT 2.0
- MNGN424 MINE VENTILATION 3.0
- MNGN499 INDEPENDENT STUDY 1-6

Electives (Minor)

- CEEN314 STRUCTURAL THEORY 3.0

Required Courses (Area of Special Interest - ASI)

- CEEN312 SOIL MECHANICS 3.0
- MNGN321 INTRODUCTION TO ROCK MECHANICS 3.0
- MNGN404 TUNNELING 3.0

Electives (Area of Special Interest - ASI)

Students may choose one course from the required Minor courses or elective courses listed above.

Department of Civil & Environmental Engineering

Marte Gutierrez, Professor

Michael Mooney, Professor

Department of Geology & Geological Engineering

Jerry Higgins, Associate Professor

Wendy Zhou, Associate Professor

Department of Mining Engineering

Hugh Miller, Associate Professor

Ray Henn, Adjunct Professor

Priscilla Nelson, Professor & Department Head