

**Department:** Mining Engineering

**Division:** Mining Exploitation

**Level and Major:** MSc, Mining Exploitation

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**Course Title:** Advanced Rock Mechanics

**Number of Credits:** 3

**Lecturer:** Dr. Hamed Molladavoodi

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### **Course Goals and Objectives**

Introduction to advanced rock mechanics

### **Course Topics**

- Stress and strain tensor, principal stress and plane
- Intact rock characters
- Laboratory tests
- Discontinuity characters
- Strength of anisotropic rock and rock mass
- Strength and deformability of rock mass
- Failure criteria and nonlinear behavior
- Discontinuity and rock mass failure criteria
- Rock dynamic characters
- Rock time-dependent behavior
- Hydraulic rock behavior
- Hydraulic conductivity
- In situ stress measurement
- Stress distribution around the opening
- Stress distribution around some openings