

Department: Mining Engineering

Division: Rock Mechanics

Level and Major: MSc, Rock Mechanics

Course Title: Seminar

Number of Credits: 2

Lecturer: Dr. Kourosh Shahriar

Course Goals and Objectives

Designing special topics in underground mines concerning specific issues in extraction.

Course Topics

- Principles of Gravity Flow of Materials Factors that control the gravity flow - Laboratory research and field tests
- Loss of mineral in mining- Classification and incorporation of Losses- Coefficients of completeness of mineral extraction- Estimation of dilution of ore in mining
- Determination mining enterprise capacity and parameters of mining system- Theoretical methods- Experimental methods
- Rapid excavation system performance- Cost estimating- Disk cutting- Button cutting
- Hydraulic mining development- water-jet cutting of rock- Limitations of water jets alone
- Methane drainage- Calculation of gas content- Geologic influences- Impact of mine design- Regional impacts
- In situ gasification and combustion of coal- Underground coal gasification - In situ combination of coal
- Marine mining- Marine mining environment- Technology for marine mining
- Geotechnical design for sublevel open stopping- Rock mass characterization - Span and pillar design
- Block caving Geomechanics- Determine the degradability of the Block caving method- different ways

Reading Resources

- Block caving Geomechanics, E.T. Brown, 2002, University of Queensland
- Geotechnical design for sublevel open stopping, Ernesto Villaescusa, Western Australian School of mines, 2014.
- Technical in underground mining, Richard E. Gertsch and Richard L. Bullock, Published by the Society for Mining, Metallurgy, and Exploration, Inc, 1999.

- SME mining engineering handbook, Howard L. Hartman, Senior Editor, 1992.
- Mining of Ores and Non-Metallic Minerals, Agoshkov, S. Borisov and V. Boyarsky, Mir publishers, 1988.