

Department: Mining Engineering

Division: Mining Exploitation

Level and Major: Ph.D., Mining Exploitation

Course Title: Risk Analysis

Number of Credits: 2

Lecturer: Dr. Akbar Esfahani Pour

Course Goals and Objectives

Introducing risk analysis process and analytical methods for operational and financial risks.

Course Topics

- Introduction to Risk Analysis
- Risk analysis process
- Risk analysis methods such as FMEA, HAZOP, SWIFT, Fault tree analysis and Bayesian networks
- Introduction to Financial models, Corporate Finance and Portfolio models
- Risk and Return - CAPM Model - Security Market Line (SML)
- Value at Risk (VaR)
- Introduction to Options
- Properties of Stock Options
- Binomial Option-Pricing Model
- Wiener Stochastic processes and Itos Lemma
- Black-Scholes-Merton Model for Option Pricing
- Numerical procedures for Option Pricing
- Real Options
- Operational Risk - Extreme Value Theory

Reading Resources

- Up-to-date articles