

Department: Mining Engineering

Division: Mining Exploration and Mineral Processing

Level and Major: BSc, Mining Exploration and Mineral Processing

Course Title: Structural Geology

Number of Credits: 2

Prerequisite (Corequisite): General geology+ Special Topics+ (Petrology)

Lecturer: Dr. Hossein Hassani

Course Goals and Objectives

Understanding the basics of structural geological phenomena and theoretical topics in the field of mining and geology.

Course Topics

- purpose, literature review, teaching methods and evaluation during term, references and textbooks, application of structural geology in mining, petroleum and technical buildings
- Determination of stress and strain ellipsoid in faults and folds
- Graphical methods in mining exploration and mining excavation
- Calculation methods in rock deformation, rock rupture mechanism, Mohr's circles
- Effective parameters on deformation, types of deformation, distinguishing structural deformation consist of: folds, faults, fractures, foliation, lineation, and mountain belts
- Stereographic projection methods, application of stereonet and types of stereonet
- Plate tectonics and mineralization
- Stress and Strain, stress and strain components, calculation of components, principal axes of stress and strain, stress and strain ellipsoid
- Recognition of faults and folds in field and map
- Practice on various problem of structural geology using stereographical and graphical methods

Reading Resources

- Structural geology and interpretation of map
- Structural geology and tectonics
- Plate tectonic and geological processes
- Basic methods of structural geology