ANALYSIS OF ROCK MASS DISCONTINUITIES (459.729)
Fall semester, 2019

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Class: 11:00 AM ~ 12:15 PM, Tue. & Thu. at 38-323

1. Description / objective

This course deals with the analysis technique of rock discontinuities and rock blocks. The discontinuities analysis focuses on probabilistic approach to describing the geometry of discontinuities such as orientation, frequency, spacing and size. The block analysis introduces the block theory suggested by Goodman & Shi and its application to the analysis of rock slopes and underground openings.

2. Text and reference

Text: Stephen D. Priest, Discontinuity Analysis For Rock Engineering, CHAPMAN & HALL, 1993

Goodman, R.E. & Shi, G., Block theory and its application to rock engineering, Prentice-Hall, 1985

Reference: Stephen .D. Priest, Hemispherical Projection Methods in Rock Mechanics, London GEORGE ALLEN & UNWIN, 1985

International Journal of Rock Mechanics and Mining Sciences,
Rock Mechanics and Rock Engineering etc.

3. Schedule

 1) Introduction & Joint modeling (1)
 2) Stereographic projection (2)
 3) Distribution function of orientation (3)
 4) Frequency & Spacing (4)
 5) Size (5~6)
 6) Midterm exam (7)
 7) Introduction to Block Theory and fundamental concepts (8)
 8) Mathematical expression of blocks (9~10)
 9) Joint bock (11)
10) Rock slope (12)
11) Underground cavern (13)
12) Tunnel and shaft (14)
13) Final exam (15)

4. Grading plan

- Midterm exam 35%, Final exam 35%, Assignments 20%, Attendance 10%
- Students' presentation will be evaluated.

5. General

- Experience in computer programming will be helpful to some assignments.
- Each assignment should be submitted normally by the next class.