ANALYSIS OF ROCK MASS DISCONTINUITIES (459.729)
Fall semester, 2022

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Class: 15:30 ~ 16:45, Tue. & Thu. (Face-to-face lecture)

1. Description / objective
This course deals with the analysis technique of rock discontinuities and rock blocks. The discontinuities analysis focuses on probabilistic approach to describe 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
- Students will have face-to-face class for mid/final tests.
- Experience in computer programming will be helpful to some assignments.
- Each assignment should be submitted normally within a week.