

# MNG 432 - ROCK MECHANICS II

## Fall 2010 Syllabus

### 1. Textbook information

#### Required textbook:

Wyllie, D. C. and C. W. Mah, 2004. *Rock slope engineering*. Spon Press, New York.

#### Reference texts:

Hoek, E. and J. Bray, 1977. *Rock slope engineering*.

Bieniawski, Z. T., 1987. *Strata control in mineral engineering*. John Wiley & Sons, Inc., New York

Bieniawski, Z. T., 1984. *Rock mechanics design in mining and tunneling*. A. A. Balkema, Boston.

Brady, B. H. G. and E. T. Brown, 2004. *Rock Mechanics for underground mining*. Kluwer Academic Publishers, Boston.

Peng, S. S., 1986. *Coal mine ground control*. John Wiley & Sons, Inc., New York

Dowding, C. H., 1985. *Blast vibration monitoring and control*. Prentice-hall, Inc., Englewood Cliffs.

Hardy, H. R., 2003. *Acoustic emission/microseismic activity*. A. A. Balkema, Boston.

### 2. Topical outline

- Rock slope engineering (basic mechanics of slope failure, graphical presentation of geological data, Shear strength of rock, groundwater flow, plane failure, wedge failure, circular failure)
- Rockmass classification and empirical methods of design (Terzaphi's rock load classification, Geomechanics classification, Q-system)
- Rock support principles and methods (Mechanics of rock-support interaction, mechanics of rock bolts, design guidelines for rock bolt systems)
- Rock dynamics (waves and vibration, blasting monitoring, rockburst and seismicity, geophysical methods for ground control)
- Course design/research project

### 3. Grading

Course design/research project

*Project proposal (Mid-term presentation)* 15%

*Final report (Final presentation)* 25%

Homework 30%

Final exam 30%

A: 100 – 90 B: 89 – 80 C: 79 – 60 D: 59 – 50 F: < 50

### 4. Ethical homework preparation

All work is done on the honor system. It will be considered unethical (in this course) to confer on answers or look at other people's work. You may discuss the work with other in a general way, but can not use another person to help you with the problems.

### 5. Instructor

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