

THEORIES OF SURFACE SUBSIDENCE (MinE 711)

Class Room: ESB 201

Wednesdays 2:00 – 4:50 PM

Instructor

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Books and References

- Peng, S.S., 1992, *Surface Subsidence Engineering*, SME, Littleton, CO. 161 pp.
- Kratzsch, H, 1983, *Mining Subsidence Engineering*, Springer-Verlag, New York, 543 pp.
- Distributed technical papers and new book draft chapters. These supplementary materials are provided at a **Google Group – Theories of Surface Subsidence**. An invitation email from **noreply@googlegroups.com** will be sent to you. Please accept this invitation so that you can access this group website

Main Topics to be Covered

- Methods to predict final subsidence in hilly regions
- Methods to predict final subsidence for inclined coal seams
- Method to predict subsurface subsidence and its implication to surface streams and sub-surface aquifers
- Method to predict long-term subsidence and its applications
- Physical modeling in subsidence studies
- Review of numerical modeling methods in subsidence studies
- Methods to assess subsidence influences to special surface structures
- Special subsidence topics and subsidence investigation cases
- ...

Grading:

- 10% - Quizzes. Five unscheduled quizzes will be given
- 25% - Class presentation. Each student is assigned one subject. He/she is responsible to search for reference materials, perform necessary analysis, and present the topic in the class.
- 30% - Report. Each student should prepare a report about his/her assigned studies. The report is graded based on the student's understanding of the subject, the methodology and depth of analysis performed, organization and presentation clarity of the materials, and professional format and appearance of the report.
- 35% - Final exam
- Up to 5% bonus: Class attendance and discussion participation.

Expected Learning Outcomes:

This course is a continuation of MinE 612 - Surface Subsidence Engineering. In that course, the students are taught about the basics, popular subsidence prediction methods applicable to US coal mining condition, common subsidence influence assessment and mitigation methods, subsidence survey and data processing methods. In this course, the students will learn various theories, methodologies and subsidence prediction methods that may be useful but have not covered in the previous courses.