Faculty of Engineering

School of Minerals and Energy Resources Engineering

Course Outline

MINE 8680

Geotechnical Data Collection and Analysis

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CONTENTS

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MINE8680 Geotechnical Data Collection and Analysis

2   AIMS, LEARNING OUTCOMES AND GRADUATE ATTRIBUTES

2.1   Course Aims

This course aims to equip the student with the importance of instrumentation and monitoring, the importance of understanding empirical databases in geotechnical design and the benefits and limitations of statistics in geoengineering. Use of sound engineering judgement and critical thinking in geomechanics is emphasised.

2.2   Learning Outcomes

At the conclusion of this course, students should be able to:
1. Understand the importance of data in geo-engineering as input in numerical models and for their validation,
2. Understand the importance of data in the development of empirical design procedures and as a means of monitoring design performance.
3. Understand the difference between theoretical statistics and its pitfalls in geomechanics when used without sound engineering judgement.
4. Scientifically handle data taking into account recommendations by the International Society for Rock Mechanics, e.g. Is averages of numbers always representative of data?
5. Why it will sometimes not make engineering sense to quote values with so much precision in geomechanics
6. Understand the use and benefits of remote sensing and photogrammetry in geotechnical engineering.

2.3   Graduate Attributes

This course will contribute to the development of the following Graduate Attributes:
1. appropriate technical knowledge
2. having advanced problem solving, analysis and assessment skills with the ability to tolerate ambiguity
3. ability for engineering design and creativity
4. awareness of opportunities to add value through engineering and the need for continuous improvement
5. being able to work and communicate effectively across discipline boundaries
6. having HSEC consciousness
7. being active life-long learners.

3   REFERENCE RESOURCES

3.1   Reference Materials

1. MEA Report Writing Guide for Mining Engineers. P Hagan and P Mort (Mining Education Australia (MEA)). (Latest edition available for download from the School website or a hardcopy version is available from the UNSW Bookshop)
2. Guide to Authors. (Australasian Institute of Mining and Metallurgy: Melbourne) (Available for download from the AusIMM website)
3. Harr, M.E. 1987.   . New York: McGraw-Hill.
4. Pine. R.J. 1992. Risk analysis design applications in mining geomechanics.
        101, pp. 149-158.
5. Rosenbleuth, E. 1981. Two-point estimates in probabilities.   5, pp. 329-335.
6. Hadjigeorgiou, J. 2012. Where do the data come from?
        , Vol. 121(4), pp. 236 – 247.

MINE8680 Geotechnical Data Collection and Analysis

7. Suorineni, F.T., Kaiser, P.K. and Tannant, D.D. 2001. Likelihood statistic for interpretation of the stability graph for open stope design.   38, pp. 735–744.)

8. Suorineni, F.T. 2010. The stability graph after three decades in use: Experiences and the way forward.   , Vol. 24, No. 4, pp. 307–339.

9. Baecher, G. B. and Christian, J. T. 2005. Reliability and Statistics in Geotechnical Engineering. John Wiley & Sons, Ltd., 619 p.

1. Wiles, T. 2006. Reliability of numerical modelling predictions.

MINE8680 Geotechnical Data Collection and Analysis

5 COURSE ASSESSMENT

5.1 Assessment Summary

The range of assessment tasks have been designed to ensure a student can demonstrate they have satisfactorily attained the minimum requirements of the course as defined in the   of the course and   of the program. The student is also advised to review the relevant   before completing each of the assessment items.

Item No.	Assessment	Due Date	Weighting	Learning outcomes
A01	Individual report – instrumentation and data analysis			

5.1 Assessment Summary

- prepared in the form of a formal report that includes a list of reference sources cited in the report, prepared in accordance with the report writing standards of the School as contained in the *MEA Report Writing Guide for Mining Engineers*. A copy can be obtained from the UNSW Bookshop or downloaded from the School webpage.

How

The submitted document must be consistent with the following file naming convention:

< FamilyNameInitials_CourseCode_AssignmentNumber.pdf >.

A typical complaint filename would take the following form <   > which elements correspond to:

- Family name of student: Smith
- Initial(s) of student: PD
- Course Code: MINE8680
- Assignment number: A01…as defined in the Course Outline for the assessment task
- File format: PDF document

6   ASSESSMENT CRITERIA

The assessment criteria provides a framework for you to assess your own work before formally submitting major assignments to your course convenor. Your course convenor will be using this framework to assess your work and as a way to assess whether you have met the listed learning outcomes and the graduate attributes for your program. We ask that you don't use the assessment criteria guidelines as a checklist, but as a tool to assess the quality of your work. Your course convenor will also be looking at the quality, creativity and the presentation of your written assignment as they review the framework. Rubrics, wherever applicable, will be provided at the time of the assignment release.

The following assessment criteria provide a framework for students when preparing assignments in the course as well as a F3 120 GgP a F3 120 GgP a F3 120 GgP a F3 120 GgP a F3 120 GgP a F3 120 GgP a fbithPD_

6.1   Assignment Reports

Criteria	Excellent	Good	Satisfactory	Unsatisfactory	Poor	nil
Quality of study and innovation in study process	approach highlights creativity and innovation, while working to an organised plan actual execution of the work					

Criteria	Excellent	Good	Satisfactory	Unsatisfactory	Poor	nil
structure of						

*Standard of
assignment
presentation*

7 STUDYING A UG COURSE IN UNSW MINERALS AND ENERGY RESOURCES ENGINEERING

7.1 How We Contact You

At times, the School or your course convenors may need to contact you about your course or your enrolment. Your course convenors will use the email function within Moodle or we will contact you on your @student.unsw.edu.au email address.

We understand that you may have an existing email account and would prefer for your UNSW emails to be redirected to your preferred account. Please see these instructions on how to redirect your UNSW emails: https://www.it.unsw.edu.au/students/email/index.html

7.2 How You Can Contact Us

We are always ready to assist you with your inquiries. To ensure your question is directed to the correct person, please use the email address below for:

Enrolment or other admin questions regarding your program: https://unswinsight.microsoftcrmportals.com/web-forms/

Course inquiries: these should be directed to the Course Convenor.

7.3 Computing Resources and Internet Access Requireme( )]TETQq0.000008874 0 595.5 841.98 reW*nB/F4 12

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cheating to accidentally copying from a source without acknowledgement. The University has adopted an educative approach to plagiarism and has developed a range of resources to support students. All the details on plagiarism, including some useful resources, can be found at www.student.unsw.edu.au/plagiarism.

All Mining Engineering students are required to complete a student declaration for academic integrity which is outlined in the assignment cover sheets. By signing this declaration, you agree that your work is your own original work.

If you need some additional support with your writing skills, please contact the Learning Centre or view some of the resources on their website: www.lc.unsw.edu.au/. The Learning Centre is designed to help you improve your academic writing and communication skills. Some students use the Centre services because they are finding their assignments a challenge, others because they want to improve an already successful academic performance.

7.11   Continual Course Improvement

At the end of each course, all students will have the opportunity to complete a course evaluation form. These anonymous surveys help us understand your views of the course, your lecturers and the course materials. We are continuously improving our courses based on student feedback, and your perspective is valuable.

Feedback is given via https://student.unsw.edu.au/myexperience and you will be notified when this is available for you to complete.

We also encourage all students to share any feedback they have any time during the course – if you have a concern, please contact us immediately.

Course Convenor: _____

Course Code: _____   Course Title: _____

Assignment: _____

Due Date: _____

Student Name: _____   Student ID: _____

ACADEMIC REQUIREMENTS

Before submitting this assignment, the student is advised to review:

the assessment requirements contained in the briefing document for the assignment;

the various matters related to assessment in the relevant Course Outline; and

the