COURSE DETAILS

<table>
<thead>
<tr>
<th>Units of Credit</th>
<th>6UOC</th>
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<tbody>
<tr>
<td>Contact hours</td>
<td>Five day short course Wednesday 8th - Tuesday 14th March plus external work</td>
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<tr>
<td>Class</td>
<td>8:30 – 5:00 (not Friday) CivEng 109</td>
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<tr>
<td>Long Reef Fieldtrip</td>
<td>Friday 7:30 – 6:00 Departs Gate 9, High Street</td>
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</table>
| Course Coordinator and Lecturer | Dr Kurt Douglas  
email: k.douglas@unsw.edu.au 
office: CE 506 |
| Lecturers       | Mark Eggers, Felicia Weir, Tim Nash  
Pells Sullivan Meynink |

INFORMATION ABOUT THE COURSE

The course will consist of a five day internal short course followed by external assignments and study. There will be a full day fieldtrip to Long Reef on the Friday of the course.

The fieldtrip will be discussed in class. Students are required to be at Gate 9 High St at 7:15am Friday for a 7:30am departure. The early start is due to unfavourable tides at the site. The coach is expected to return at about 6pm.

In previous surveys of geotechnical employers, engineering geology was seen as a critical element of a MEngSc education. Thus, the focus of the course is to enable students to develop appropriate geological models for engineering design. Site investigation concepts considering these models are also covered. The first four days focus solely on the models component with the final day introducing site investigation concepts and some site investigation methods.

Although students can do the course at any stage of their degree, it is recommended that it be done early as it is essentially assumed knowledge for the other Masters courses (i.e. effective design requires the development of an effective geotechnical model).

As the course is substantially about engineering geology and its application in developing geotechnical models, you are expected to come with some understanding of geology. Engineers in particular can find the course challenging and demanding. It is recommended that you refresh your geological knowledge by reading some of the suggested texts prior to attending the course. You can also expect to have to do significant reading and open ended assignments after the course and should timetable this into your schedule.

As we appreciate the value of engineering geology to the geotechnical profession, UNSW also credits up to 6UOC for students who successfully complete either the AGS Geology for Engineers Course in Adelaide or the AGS Engineering Geology Course in Wollongong. Note we will not credit both.
OBJECTIVES

To introduce students to engineering geology, the development of geotechnical engineering models, geotechnical mapping skills and basic site investigation techniques in Geotechnical Engineering. The course is specialised, and designed for those who will work in Geotechnical Engineering and Engineering Geology. It will also be useful for those who are majoring in other areas and will be expected to brief and communicate with geotechnical specialists as part of their role.

Some of the program outcome attributes are listed in the table below together with how you may expect to achieve them.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
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<tr>
<td>An in-depth engagement with the relevant disciplinary knowledge in its inter-disciplinary context</td>
<td>This course develops the process for bringing together an understanding of site geology and engineering requirements to create effective and useful geological/geotechnical models.</td>
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<tr>
<td>Capacity for analytical and critical thinking and for creative problem solving</td>
<td>Most of the assignments require you to consider a quantity of information and supplement it with your own investigations and research to solve open ended questions.</td>
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<tr>
<td>Ability to engage independent and reflective learning</td>
<td>You are expected to do pre and post course reading and study. Much of the notes provide references for further independent study to increase the depth and breadth of your knowledge.</td>
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<tr>
<td>The skills to locate, evaluate and use relevant information (Information literacy)</td>
<td>In practice, you are expected to use publications (journals/conferences/reports/books) to keep abreast of recent advances and understand site geology and history. This course will often use these types of references in addition to lecture notes to improve your information literacy.</td>
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<tr>
<td>Skills for collaborative and multi-disciplinary work</td>
<td>Parts of the Long Reef assignment will be performed in groups (although individual independent assignments are required). This is particularly the case for the collection of data on site at Long Reef. From previous experience, groups that receive high marks generally have good collaboration between members and seek assistance from demonstrators/lecturers when required.</td>
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<tr>
<td>Skills for effective communication</td>
<td>Assignments are expected to be presented in a professional ‘report style’ manner (unless stated otherwise).</td>
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TEACHING STRATEGIES

The contents of this subject will be presented to you in a number of formats. Each of these formats are explained below together with our expectations of you.

Lectures: Formal lectures will be presented to discuss the basic principles of geology and its use in forming effective geotechnical models. An introduction to site investigation concepts will also be presented. Lectures will vary from standard PowerPoint and overhead projector lectures to more hands on demonstrations of various engineering techniques. You are expected to attend all the lectures as they will greatly assist in understanding what is presented in the lecture notes. The lectures will also be a primary point of communication between the class and the lecturers. Further communication will be via your student email and Moodle. It is very important that you frequently check your messages.

Demonstrations/workshops: The demonstrations/workshops in this subject are used to teach you ‘hands on’ methods for assessing the engineering geology of a site. They will also contain opportunities for you to work on example problems, to do pre-work on the fieldtrip and to complete components of the assignment. You will be expected to be present and participate at all demonstrations/workshops, as they will contain material not covered in lectures. It is strongly recommended that you take advantage of the face-to-face opportunity to ask your lecturers questions.
Fieldtrip: The field trip is compulsory as it gives you a practical understanding of the content of the course and a chance to practice field mapping techniques. The major assignment will be based on the fieldwork location and the information you collect there. We understand that some of you will have limited field mapping skills and we will try and deliberately mix students of different abilities into groups to assist with this. If you are struggling it is very important that you seek out a demonstrator or lecturer for assistance early. We are there to help you. Do not just wander behind the class as you will then struggle in the later assignment tasks.

Assignment: The Long Reef assignment will be divided into 3 parts. The first part will be done prior to the fieldtrip and will require development of a preliminary model that you will use on site. The second, major component will require you to incorporate the information collected on site and in the literature into your geotechnical model. The third component will be to suggest a site investigation program that could address uncertainties in the geology or engineering properties of the materials related to the engineering project. The Paddy’s Market assignment will require you to develop a geotechnical model of a site from provided data and the literature. These assignments will provide a practical application of the material learnt through the course.

Private study: The lectures and workshops are presented in a very condensed form. Therefore your private study post the course is very important and you should commence the assignment and review and reflection of lecture material immediately after the on-campus component. Your private study should also include: workshop and assignment problems; accessing provided links and supplementary material on Moodle and performing your own literature research. For each hour of contact it is expected that you will put in at least 1.5 hours of private study.

**ASSESSMENT**

The final grade for this course will normally be based on the sum of the scores from each of the assessment tasks. The Final Examination is worth 40% of the Final Mark if class work is included and 100% if class work is not included. The class work is worth 60% of the Final Mark if included. A mark of at least 40% in the final examination is required before the class work is included in the final mark. The formal exam scripts will not be returned. Students who perform poorly in the assessment tasks and workshops are recommended to discuss progress with the lecturer during the semester. Note: The lecturer reserves the right to adjust the final scores by scaling if agreed by the Head of School.

Details of each assessment component, the marks assigned to it, and the dates of submission are provided below.

Please ensure that you use an assignment cover sheet for all submissions (attached) and keep a complete copy of your assignment.
<table>
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<tr>
<th>Assignment</th>
<th>Assignment Details</th>
<th>Value</th>
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<tr>
<td>Long Reef Assignment</td>
<td>This assignment requires you to develop a geotechnical model for Long Reef for a specific engineering project. Activities will be carried out on campus during workshops and on site at Long Reef. You will then be required to complete the assignments at home. It is strongly recommended that you complete this as early as possible whilst the information is still fresh in your mind. The first part of the assignment will assess how well you synthesise preliminary information from papers, maps, aerial photographs etc. into a preliminary geological model that can be used for the basis of your information collecting on the fieldtrip. The second, more substantial part of the assignment will assess your ability to collect and interpret appropriate site information and incorporate this with your preliminary model and further research findings into a geological model. From previous feedback, some have found this very challenging due to the self-guided and open ended nature of the process. This year, we have agreed to review draft submissions submitted by Tuesday 4th April. General comments will be provided as to whether you are on the right track and what you can do to improve your work. No marks will be awarded and this is not compulsory. The site investigation component of the assignment will assess your ability to identify uncertainties in the geological model and parameters required for design. Once complete, you will then be required to develop a site investigation to address questions raised from the model and the engineering project.</td>
<td>Geotechnical Model – includes all submission components. First component due during short course Draft submission for review (not compulsory, no marks) Due: Tuesday 4th April. Final submission due Tuesday 2nd May. Site Investigation component due: Tuesday 9th May</td>
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<tr>
<td>Paddy's Market Assignment</td>
<td>This assignment will assess your ability to develop a geotechnical model based on limited site geology and borehole data provided together with personal further independent research to address issues for an engineering project.</td>
<td>Due: Thursday 20th April 10%</td>
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<tr>
<td>Exam</td>
<td>The exam will assess all the elements of the course. Process is important when building models and you will need to show that process at work in your exam answers. The course covers global tectonic settings, geomorphology and geotechnical characteristics in different geological terrains. These broad overviews then lead into taking site-specific information, following a process of sifting and collation to arrive at a model. Your ability to follow this process will be assessed.</td>
<td>UNSW Exam period 40%</td>
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Note: Late work will be penalised at the rate of 10% per day after the due time and date have expired.
COURSE PROGRAM

SEMESTER 1, 2017 (Indicative only, subject to change)

<table>
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<tr>
<th>Day</th>
<th>Topics covered</th>
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<tr>
<td>Wednesday 8/3</td>
<td>Engineering Geology and Geotechnical Models; Geotechnical Mapping. Details in class and on Moodle.</td>
</tr>
<tr>
<td>Thursday 9/3</td>
<td>Engineering Geology and Geotechnical Models; Geotechnical Mapping Details in class and on Moodle.</td>
</tr>
<tr>
<td>Friday 10/3</td>
<td>Fieldwork – IMPORTANT: You will need to bring appropriate clothing suitable for field work. You should also bring any field mapping equipment that you have. NOTE: COACH LEAVES UNSW AT 7:30am SHARP AND RETURNS AT 6:00pm</td>
</tr>
<tr>
<td>Monday 13/3</td>
<td>Fieldwork review; Engineering Geology and Geotechnical Models; Geotechnical Mapping Details in class and on Moodle.</td>
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<tr>
<td>Tuesday 14/3</td>
<td>Site Investigation Concepts, Lab Visit</td>
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RELEVANT RESOURCES

* Basic geology texts should be reviewed prior to the course if you are concerned about your knowledge. There are many available as E-books through the UNSW library (you will need to log in with your ZID to access).

* Examples of texts introducing engineering geology (good for civil engineers with limited training):
  - Note that a geological dictionary will also assist those with limited geological knowledge.

* A very good text that covers geological issues for engineering projects (not just dams) and site investigations:
  - Fell et al. (2014) Geotechnical Engineering of Dams, Taylor and Francis. 2nd ed.

* Further papers/book references can be found in the notes and on Moodle.

DATES TO NOTE

Refer to MyUNSW for Important Dates available at:

https://my.unsw.edu.au/student/resources/KeyDates.html

PLAGIARISM

Beware! An assignment that includes plagiarised material will receive a 0% Fail, and students who plagiarise may fail the course. Students who plagiarise are also liable to disciplinary action, including exclusion from enrolment.

Plagiarism is the use of another person’s work or ideas as if they were your own. When it is necessary or desirable to use other people’s material you should adequately acknowledge whose words or ideas they are and where you found them (giving the complete reference details, including page number(s)). The Learning Centre provides further information on what constitutes Plagiarism at:

https://student.unsw.edu.au/plagiarism
ACADEMIC ADVICE

For information about:

- Notes on assessments and plagiarism,
- School policy on Supplementary exams,
- Special Considerations,
- Solutions to Problems,
- Year Managers and Grievance Officer of Teaching and Learning Committee, and
- CEVSOC.

Refer to Academic Advice on the School website available at:

https://www.engineering.unsw.edu.au/civil-engineering/student-resources/policies-procedures-and-forms/academic-advice

SPECIFIC MENGSC ADVICE

For advice on course selection and other academic matters, email: k.douglas@unsw.edu.au

For enrolment advice, requests for credit transfer or pre-approval of external courses or any other administrative request, email: cven.enquiries@unsw.edu.au

COURSE EVALUATION AND DEVELOPMENT

The School of Civil and Environmental Engineering evaluates each course each time it is run through (i) the UNSW Course and Teaching Evaluation and Improvement (CATEI) process, and (ii) Focus Group Meetings. As part of the CATEI process, your student evaluations on various aspects of the course are graded; the Course Coordinator prepares a summary report for the Head of School. Any problem areas are identified for remedial action, and ideas for making improvements to the course are noted for action the next time that the course is run.

We request that you please complete the CATEI form. To make the process more valuable could you also provide both positive AND negative (constructive) comments. This enables the course to be improved each year.

ASSIGNMENT SUBMISSION

Assignments should be placed in the submission box at the Eastern end of the Level 5 Civil Engineering corridor or mailed to:

Dr Kurt Douglas
School of Civil & Environmental Engineering
The University of New South Wales
UNSW SYDNEY NSW 2052

You should also email/upload a pdf of the assignment in addition to mailing the hard copy. Note it is much easier to mark original hard copies of these assignments due to the amount of figures etc involved.

Note: including a self-addressed envelope for each assignment component, although not compulsory, will facilitate quicker return of the assignments.

All assignments should be submitted with a signed Assessment Cover Sheet (attached).

PLEASE KEEP A COPY OF ALL ASSIGNMENTS
CVEN9511 Geotechnical Models & SI

Assignment Cover Sheet 2017

Assignment (please circle): Paddy’s Market / Long Reef Model / Site Investigations

Name: ................................................................. SID: ....................................................

Address: ................................................................................................................................
................................................................................................................................
................................................................................................................................
................................................................................................................................
................................................................................................................................

I/We declare that this assessment item is my/our own work, except where acknowledged, and has not been submitted for academic credit elsewhere, and acknowledge that the assessor of this item may, for the purpose of assessing this item:

Reproduce this assessment item and provide a copy to another member of the University; and/or,

Communicate a copy of this assessment item to a plagiarism checking service (which may then retain a copy of the assessment item on its database for the purpose of future plagiarism checking).

I certify that I have read and understood the University Rules in respect of Student Academic Misconduct.

Signed: .................................................................date: ☐☐☐☐☐

Please place this assignment in the submission box for Dr Kurt Douglas located at the eastern end, Level 5, School of Civil & Environmental Engineering; or mail to:

Dr Kurt Douglas
School of Civil & Environmental Engineering
The University of New South Wales
UNSW SYDNEY NSW 2052

PLEASE ENSURE THAT YOU KEEP A COPY OF YOUR ASSIGNMENT