Course Title: Geotechnical Engineering

Semesters Offered: Semester 1

Level: Undergraduate

Number of Units/Credits: 6 (UNSW)

Contact Hours per Week

4 contact hours to be utilised for lectures and tutorials.

Contact times are scheduled for
- Tuesday 9 AM – 11 AM: OMB230.
- Wednesday 10 AM – 12 PM: ChemSc M11.

For up to date information on lectures and workshops, see the Course Calendar in Moodle.

Learning & Teaching Management System (LTMS): The Learning & Teaching Management System (LTMS) used with this course is Moodle which can be accessed at http://elearning.mea.edu.au.

For up to date information on lectures see the Calendar section in LTMS.

Support material for this course including, copies of lecture notes, recommended readings, assignments and results for assignments etc whenever available can be found in LTMS.

All correspondence should be undertaken using the email facility within LTMS. Changes in the lecture schedule, seminars, workshops and assignment dates will be posted on the Calendar in LTMS.

It is important that students regularly check LTMS for changes in calendar events and for email messages. It is strongly recommended that students use the mail redirection facility to forward LTMS emails to their usual email address.

Assessment
Assessments will take the form of three assignments at 15% each plus a quiz at 5% (50%) and one 3-hour final exam for 50% of total score.

NOTE:
- Course completion requires all assessment items be completed otherwise a student can be awarded a grade of Unsatisfactory Fail.
- Students must attend at least 80% of course lectures in order for their mark in the formal exam to be counted towards their overall course mark.
Course Convenor

Fidelis T Suorineni: Rm 160K, Old Main Building, Phone: 9385 5169. Email: f.suorineni@unsw.edu.au

Course Description

This course provides an overview of the principles and application of the major underground and surface mining methods and equipment, and the conceptual design of the major materials handling and transport systems and support infrastructure.

Assumed Background

This course assumes that students have a good understanding of mining terms and descriptions, have been exposed to surface and underground mining methods and are familiar with mining development, operations and production.
COURSE CONTENT

Mining methods selection – geotechnical criteria and core geotechnical risks
- Geotech criteria for methods (Brady/Brown chart)
- Core geotech risks
- Northparkes case study Mine development

Geotechnical exploration, data collection and analysis
Method selection
- Prefeasibility studies
- Geophysical (regional and down hole) methods
- Spatial distribution of discontinuities
- Ground water studies - geotechnical implications
- Integration of lab and field data
- Regional stress distribution
- Geotechnical domains
- Basic statistics with limited data/uncertainty

Geotechnical mapping
- Stereonet application
- Discontinuity mapping
- Data analysis and applications

Rock mass classification systems – practical applications
- Open cut
- Underground coal
- Underground hard rock (Development/stopes/caveability)

Excavation stability and spans – applications to soft and hard rock
- Shape and size
- Empirical methods (e.g. Matthews)
- Elastic and elasto-plastic yielding
- Stand-up time

Rock support
- Mechanics of reinforcement and support systems
- Support elements and structures
- Rock mass - support interactions
- Support design systems
- Ground control strategies (e.g. stiff versus soft; dynamic response; etc)

Mine fill design and applications
- Required soil mechanics knowledge and terminology
- Fill types (paste, rockfill, classified fill, sand and slurry/hydraulic) and composition
- Fill functions and properties
- Applicable mining methods and designs
- Fill transport, distribution and placement
- Fill barricades

Pillar mechanics and design
- Pillar mechanics
- Panel layout and regional stability
- Different pillar types and functions
• Design methodologies (empirical and numerical)
• Pillar extraction
• Hard rock room and pillar applications

**Longwall geomechanics**
• Longwall face design/stability
• Support performance
• Longwall caving
• Periodic weighting

**Caving geomechanics – hard rocks**
• Laubscher rules
• Caveability and cave propagation
• Arching and key block theory
• Fragmentation
• Pre-conditioning
• Undercutting and extraction level design
• Flow
• Monitoring
• Emerging technologies

**Subsidence**
• Mechanics of subsidence behaviour
• Prediction methodologies
• Mitigation and control strategies
• Environmental impact

**Dynamic events; Seismicity and rockbursts, Airblasts and gas outbursts**
• Mechanisms
• Prevailing ground conditions
• Prediction techniques
• Mitigation and control strategies

**Slope stability**
• Factors affecting slope stability
• Failure mechanisms and factor of safety
• Slope analysis and design (deterministic and probabilistic)
• Mitigation and control strategies
• Time to failure prediction

**Instrumentation and monitoring**
• Purposes of monitoring
• Instrumentation systems and equipment
• Design of monitoring systems
• Interpretation of monitoring data

**Application of numerical methods to mine design**
• Numerical methods
• Problem definition
• Selection of appropriate methods relative to mining problems
• Input data requirements
• Interpretation of modelling results
• Validation and limitations of modelling results
- Case studies

*Hazard assessment / ground control management, risk control*
- Identification of geotechnical hazards
- Geotechnical risk assessment and mitigation/control strategies
- Ground control management plans (incl. legislative requirements)

*Haul road design*
- Design principles
Aims, Learning Outcomes & Graduate Attributes

Course Aims

This course provides students with a practical understanding of the application of geotechnical engineering principles in mining from the perspective of planning, design, and operations.

Learning Outcomes

It is intended that students will be able to:
- recognise the major geotechnical applications and their significance within the mainstream mining systems and conditions;
- have a sound working knowledge of fundamental mechanisms and geotechnical principles within the context of practical mining applications;
- recognise the role and importance of these principles in a comprehensive range of mining applications, both from a technical perspective, and from the risk and operational management perspective.

Graduate Attributes

This course will contribute to the development of the following Graduate Attributes:
- Appropriate technical knowledge
- Having advanced problem solving, analysis and synthesis skills with the ability to tolerate ambiguity
- Ability for engineering design and creativity
- Being able to think and work individually and in teams
- Having HSEC consciousness
RECOMMENDED TEXTS AND RESOURCES

Recommended Texts

There are no prescribed texts for this course. However, the following references may be of assistance, as they are a range of industry and professional journals.

- Deep and high stress mining, 1st Int’l Seminar, ACG, Perth, 2002
- ISRM 2003 Proceedings - Technology roadmap for rock mechanics, South Africa (SAIMM)

Online and Other Resources

Selected readings as well as other supporting material (e.g. course outline and lecture notes will be made available on Moodle, the Learning & Teaching Management System (LTMS) accessed on-line at http://elearning.mea.edu.au/

List of case studies (currently available to MEA):

- Northparkes air blast (BH)
- Crusader mine – cemented rock fill (BH)
- Cooranbong – soft floor coal pillar mechanics (BH)
- Newstan – wind blast and periodic weighting (BH)
- Coalbrook – regional pillar collapse (BH) SA
- Crandall Canyon – regional pillar burst (BH) USA
- Muswellbrook – regional pillar instability (BH)
• Cadia mine – monitored slope failure (BH)
• Douglas park bridge – far field subsidence (BH)
• Potash mining – yield pillar design (BH) UK and Canada
• Cartagena – slope failure (BH) Colombia
• Lake Peigneur – salt mine inrush (BH) USA

Possible future case studies:
• Bingham Canyon – slope failure USA (YK)
• Bronzewing – fill barricade failure (NM)
• Mufilira – fill liquefaction Zambia (NM)
• Vajont – dam failure/ landslide Italy (MS)
• Malpaset – dam failure/ landslide France (MS)
• Lassing – crown pillar failure/ Mud rush Austria (ZW)
• Angooran lead and zinc– slope failure Iran (MS)
• Grasberg – underground rock fall Indonesia (ZW)
• Newvale – subsidence house (BH)
• Shirato – toppling failure (YK) Japan
• Kleinkopje – road design (RT) SA
• Aberfan – waste dump failure (BH) Wales
• Block caving design and performance (BH and FS)
• Kargar subway station- slope failure (MS) Iran
• Chuquicamata – slope failure (MS) Chile
• Rock burst case studies – to contact Ernesto at WASM (RT)
# Learning Activities and Methods

## Learning Activities Summary

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Activity</th>
<th>Hours</th>
<th>Area</th>
<th>Content</th>
<th>Presenter</th>
</tr>
</thead>
</table>
| 1    | 04/03 | Lecture 2 | 2     | Mining methods selection – geotechnical criteria and core geotechnical risks | • Geotech criteria for methods (Brady/Brown chart)  
• Core geotechnical risks  
• Northparkes case study | BH |
| 05/03 | Lecture 2 | 2 | Geotechnical exploration, data collection and analysis | • Prefeasibility studies  
• Geophysical (regional and down hole) methods  
• Spatial distribution of discontinuities  
• Ground water studies – geotechnical implications  
• Integration of lab and field data  
• Regional stress distribution  
• Geotechnical domains  
• Basic statistics with limited data/uncertainty | FS |
| 11/03 | Lecture 2 | 2 | Continue above |  | FS |
| 12/03 | Lecture 2 | 2 | Geotechnical mapping | • Stereonet application  
• Discontinuity mapping  
• Data analysis and applications (Must do both manual using stereographic projections and Dips analyses) | MZ |
| 3    | 18/03 | Lecture 2 | 2 | Rock mass classification systems – practical applications | • Underground hard rock (Development/stoper/caveability) | FS |
| 19/03 | Lecture 2 | 2 |  | • Open cut  
• Underground coal | HM |
| 25/03 | Lecture 2 | 2 | Excavation stability and spans – applications to soft and hard rock | • Shape and size  
• Empirical methods (e.g Matthews)  
• Stand-up time | FS |
| 4    | 26/03 | Lecture 2 | 2 | Rock reinforcement and support – soft rock | • Mechanics of reinforcement and support systems  
• Support elements and structures  
• Rock mass - support interactions  
• Support design systems  
• Ground control strategies (e.g. stiff versus soft; dynamic response; etc)  
• Support for burst-prone ground  
• Emerging technologies | BH |
| 5    | 01/04 | Lecture 1 | 1 | *Elastic and Elasto-plastic yielding | • Elastic failure  
• Elasto-plastic yielding  
• Elastic-brittle-plastic yielding | FS |
| 02/04 | Lecture 1 | 1 | Rock reinforcement and support - hard rock | • See 26/03 lecture | FS |
| 6    | 08/04 | Lecture 2 | 2 | Mine fill design and applications Surface Mining | • Required soil mechanics knowledge and terminology  
• Fill types (paste, rockfill, classified fill, sand and slurry/hydraulic) and composition  
• Fill functions and properties  
• Applicable mining methods and designs  
• Fill transport, distribution and placement  
• Fill barricades | Tony Grice |
| 7    | 09/04 | Lecture 2 | 2 | Pillar mechanics and design | • Pillar mechanics  
• Panel layout and regional stability  
• Different pillar types and functions  
• Design methodologies (empirical and numerical)  
• Pillar extraction | BH |

**Discontinuity Survey – Fieldwork April 15th, 2014**

**NON-TEACHING WEEK**
<table>
<thead>
<tr>
<th>Lecture Date</th>
<th>Lecture</th>
<th>Topic</th>
<th>Slides/Assignments</th>
<th>Tutors</th>
</tr>
</thead>
<tbody>
<tr>
<td>29/04</td>
<td>Lecture 1</td>
<td>Pillar mechanics and Design – Supplementary material</td>
<td>FS</td>
<td></td>
</tr>
<tr>
<td>30/04</td>
<td>Lecture 1</td>
<td>Longwall geomechanics</td>
<td>BH</td>
<td></td>
</tr>
<tr>
<td>06/05</td>
<td>Lecture 2</td>
<td>Caving mechanics – hard rock</td>
<td>FS</td>
<td></td>
</tr>
<tr>
<td>07/05</td>
<td>Lecture 2</td>
<td>Instrumentation and monitoring</td>
<td>ZM</td>
<td></td>
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<tr>
<td>13/05</td>
<td>Lecture 1</td>
<td>Haul Roads</td>
<td>FS</td>
<td></td>
</tr>
<tr>
<td>13/05</td>
<td>Lecture 1</td>
<td>Design principles</td>
<td>FS</td>
<td></td>
</tr>
<tr>
<td>14/05</td>
<td>Lecture 2</td>
<td>Dynamic events: seismicity, rock bursts, airblasts &amp; outbursts</td>
<td>For each dynamic event:</td>
<td>FS</td>
</tr>
<tr>
<td>20/05</td>
<td>Lecture 2</td>
<td>Slope stability</td>
<td></td>
<td>FS</td>
</tr>
<tr>
<td>21/05</td>
<td>Lecture 2</td>
<td>Subsidence</td>
<td></td>
<td>BH</td>
</tr>
<tr>
<td>27/05</td>
<td>Lecture 2</td>
<td>Slope stability</td>
<td>Continued from previous</td>
<td>FS</td>
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<tr>
<td>28/05</td>
<td>Lecture 2</td>
<td>Application of numerical methods to mine design</td>
<td></td>
<td>DB</td>
</tr>
<tr>
<td>02/06</td>
<td>Lecture 2</td>
<td>Hazard assessment / ground control management &amp; risk mitigation</td>
<td></td>
<td>BH</td>
</tr>
<tr>
<td>03/06</td>
<td>Lecture 1</td>
<td>Airblast and gas outburst</td>
<td></td>
<td>BH</td>
</tr>
<tr>
<td>Quiz</td>
<td>1</td>
<td>All topics</td>
<td></td>
<td>FS</td>
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## Assessment of Learning Outcomes

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>Assessment Methods</th>
</tr>
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<tbody>
<tr>
<td>1. Recognise the major geotechnical applications and their significance within the mainstream mining systems and conditions;</td>
<td>Quiz, Assignment, Exam</td>
</tr>
<tr>
<td>2. Have a sound working knowledge of fundamental mechanisms and geotechnical principles within the context of practical mining applications</td>
<td>Quiz, Assignment, Exam</td>
</tr>
<tr>
<td>3. Recognise the role and importance of these principles in a comprehensive range of mining applications, both from a technical perspective, and from the risk and operational management perspective</td>
<td>Quiz, Assignment, Exam</td>
</tr>
</tbody>
</table>
Teaching & Learning Methods

1. Lectures and assignments: This course will have weekly traditional lectures. Each assignment will be given too weeks. Assignments will be collected by 9 am on the second Monday. They will be collected and marks will be provided at the end of the semester.
## Assessment Summary

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Start</th>
<th>Due</th>
<th>Weighting</th>
<th>Method of Assessment</th>
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</thead>
<tbody>
<tr>
<td>Assignment A</td>
<td>Week 3 19(^{th}) March</td>
<td>Wk 6 (April 7)</td>
<td>15%</td>
<td>Geotechnical mapping rockmass classification</td>
</tr>
<tr>
<td>Assignment B</td>
<td>Week 8 30(^{th}) April</td>
<td>Wk 10 (12 May)</td>
<td>15%</td>
<td>Pillar mechanics and design and Longwall geomechanics</td>
</tr>
<tr>
<td>Assignment C</td>
<td>Week 12 28(^{th}) May</td>
<td>Week 13 9(^{th}) June</td>
<td>15%</td>
<td>Application of numerical methods to mine design (Stopes)</td>
</tr>
<tr>
<td>Quiz</td>
<td>TBA</td>
<td>Week 12</td>
<td>5%</td>
<td>All topics</td>
</tr>
<tr>
<td>Final Exam</td>
<td></td>
<td>June 21, 2014 (2 PM)</td>
<td>50%</td>
<td>End of the semester exam covering the whole course</td>
</tr>
</tbody>
</table>
Assignment Submissions

All assignments submitted for assessment in this course must be made in accordance with the School Policy on Assignment Submissions, hereafter in this subsection termed the Policy. Details of the Policy can be found in the School Policies section of the School webpage at http://www.engineering.unsw.edu.au/mining-engineering/assignment-submission-policy.

Students are required to read the latest version of the Policy and be aware of the various requirements including submission requirements and academic integrity. Failure to adhere to the requirement and/or submit an assignment that is fully compliant with the Policy may result in forfeiture by the student of all marks for that assignment.

An Assignment Coversheet must be attached to each assignment submitted for assessment whether the assignment is submitted in electronic or hardcopy form. The coversheet identifies the student, assignment, course and contains a declaration of academic integrity – see later section on Academic Honesty and Plagiarism. Assignments not containing a fully completed copy of the official coversheet for the assignment will be deemed non-compliant and not marked resulting in the student will be awarded zero marks for the assignment.

By default all assignments for courses in the School must be submitted as an electronic document. The submission requirements for electronic submissions are detailed in the Policy.

In the case where a hardcopy submission of an assignment has been permitted in the assignment briefing document then the submission requirements for hardcopy submissions as detailed in the Policy must be followed. The student must attach to the front of the assignment a completed and signed copy of the Assignment Coversheet.

Students are advised to retain a copy of every assignment submitted for assessment for their own record either in hardcopy or electronic form. From time to time assignments may be mislaid and a student can be asked to re-submit.

Group Work – Peer Assessment

Group work is a key Graduate Attribute in the Mining Engineering program. As such it is integrated into the assessment activities of many courses to determine whether a student has satisfactorily attained one or more of the Learning Outcomes.

An important indicator of a student’s performance and of their contribution to the group’s overall performance is reflected in the results of a formalised system of peer review. The Course Convenor uses these results and other factors in their determination of an individual student’s result for the assignment.

For further details see Peer Assessment in the School Policies section at
Students should be aware that participation in the peer review process is compulsory and that failure to do so can result in withholding of marks and/or zero marks being allotted to the student for that assignment.

**Late Submission of an Assignment**

In the normal course of events late submission of an assignment will automatically result in a zero mark being awarded to the student/project team for the assignment.

The onus is on the student to ensure each course assignment is submitted on-time during normal business hours and no later than the required time on the due date as stated in the relevant assignment briefing document.

For further details see Late Submissions in the School Policies section on the School webpage at [http://www.engineering.unsw.edu.au/mining-engineering/late-submissions](http://www.engineering.unsw.edu.au/mining-engineering/late-submissions). See also the later section on Adverse Performance – Special Consideration.

**Course Results**


In some instances a student’s final course result may be withheld and not released on the usual date. This is indicated by a course grade result of either:

- **WD** – which usually indicates that the student has not completed one or more items of assessment or there is an issue with one or more assignment; or
- **WC** – which indicates the student has applied for Special Consideration due to illness or misadventure and the course results have not been finalised.

In either event the onus in on the student to contact the Course Convenor as soon as practicable but **no later than five (5) days** after release of the course result. Failure to take this action will normally result in forfeiture of any additional assessment granted to the student. In which case the student may be required to re-submit an assignment or re-sit the final exam. Failure to contact the Course Convenor within the stated period may result in the student failing the course.

If contact has not been made and/or course assessment has not been finalised by commencement of the following academic semester then the grade will be automatically altered to a course grade of **NC** (course not completed) in Week 2. This will require the student to re-enrol in the course at some later time.

For details on assessment policy, assessment process and an explanation of course results, see the Assessment Policy at [https://my.unsw.edu.au/student/academiclife/assessment/AssessmentatUNSW.html](https://my.unsw.edu.au/student/academiclife/assessment/AssessmentatUNSW.html).
Adverse Performance – Special Consideration

In cases of illness or other extenuating circumstances that may have adversely impacted on a student’s performance in a course, it is recommended the student apply to Student Central for Special Consideration.

It is incumbent on the student to contact the Course Convenor immediately following lodgement and acceptance of the Special Consideration preferably in person and no later than one week from lodgement. Failure to make contact can result in forfeiture for any consideration and subsequent finalisation of the mark for the assignment and/or course.

Only following acceptance and official notification from the University, will any decision be made by the Course Convenor as to an appropriate response based the circumstances outlined by the student.

For further information, see Special Consideration policy at https://my.unsw.edu.au/student/atoz/SpecialConsideration.html.

Academic Honesty and Plagiarism

The University has certain expectations in terms of academic behaviour related to study and research. This is expressed in the University Policy on Academic Misconduct. Students should be aware of and understand this Policy. For further information, see Plagiarism and Academic Integrity policy at https://student.unsw.edu.au/plagiarism.

Plagiarism is one form of Academic Misconduct. It is the presentation of the thoughts or work of another as one’s own. Examples include:

- direct duplication of the thoughts or work of another, including by copying work, or knowingly permitting it to be copied. This includes copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person’s assignment without appropriate acknowledgement;
- paraphrasing another person’s work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and,
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.

1 Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle.

2 Adapted with kind permission from the University of Melbourne.
Submitting an assessment item that has already been submitted for academic credit elsewhere may also be considered plagiarism.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does not amount to plagiarism.

Students are reminded of their Rights and Responsibilities in respect of plagiarism, as set out in the University Undergraduate and Postgraduate Handbooks, and are encouraged to seek advice from academic staff whenever necessary to ensure they avoid plagiarism in all its forms.

The Learning Centre at the University provides academic support services to students. Details about The Learning Centre is available at www.lc.unsw.edu.au.

It provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

In line with this university expectation, a student must attach to each assignment a fully completed official coversheet which contains a declaration of academic integrity. The following is an extract from an assignment coversheet.

Extract from an Assignment Coversheet

**ACADEMIC REQUIREMENTS**

Before submitting this assignment, students are 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 Plagiarism and Academic Integrity website at <http://www.lc.unsw.edu.au/plagiarism/pintro.html> to ensure they are familiar with the requirements to provide appropriate acknowledgement of source materials.

If after reviewing this material there is any doubt about assessment requirements then in the first instance the student should consult with the Course Convenor and then if necessary with the Director – Undergraduate Studies.

While students are generally encouraged to work with other students to enhance learning, all assignments submitted for assessment by a student must be their entire own work and they may be required to explain any or all parts of the assignment to the Course Convenor or other authorised persons. **Collusion** is where another person(s) assists in the preparation of an assignment without the consent or knowledge of the Course Convenor.

Plagiarism and Collusion are considered as Academic Misconduct and will be dealt with according to University Policy.
STUDENT DECLARATION OF ACADEMIC INTEGRITY

I declare that:

• This assessment item is entirely my own original work, except where I have acknowledged use of source material [such as books, journal articles, other published material, the Internet, and the work of other student/s or any other person/s].
• This assessment item has not been submitted for assessment for academic credit in this, or any other course, at UNSW or elsewhere.

I understand that:

• The assessor of this assessment item may, for the purpose of assessing this item, reproduce this assessment item and provide a copy to another member of the University.
• The assessor may 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).

Continual Course Improvement

Periodically the process of course evaluation is undertaken. One aspect of this evaluation is feedback from students gathered by various means including:

• UNSW's Course and Teaching Evaluation and Improvement (CATEI) which is an anonymous, on-line survey system.

Student feedback is taken seriously, and continual improvements are made to the course based in part on such feedback.

Significant changes that are made to a course as a result of such student feedback will be communicated to students by the Course Convenor at commencement of semester when the course is next run.

Correspondence and Email Messages

University policy states that official correspondence with a student will be made using the university provided email address and that it expects students will regularly check their official university email account. The School assists in this by providing free access to computing facilities and the internet.

In line with this policy, messages will be sent to students through their LTMS account. Students can retrieve messages from the mailbox in each LTMS course account.

Administrative Matters

Students should ensure they are familiar with the various policies related to expectations of students. Links to the Policies can be found on the School web page at www.mining.unsw.edu.au/information-about/our-school/policies-procedures-guidelines.

Equity and diversity: those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equity and Diversity Unit (www.equity.unsw.edu.au/disabil.htm).
Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made. Information on designing courses and course outlines that take into account the needs of students with disabilities can be found at [www.secretariat.unsw.edu.au/acboardcom/minutes/coe/disabilityguidelines.pdf](http://www.secretariat.unsw.edu.au/acboardcom/minutes/coe/disabilityguidelines.pdf).