

## 421-289 Earth Processes for Engineering

<b>Credit Points:</b>	12.50
<b>Level:</b>	2 (Undergraduate)
<b>Dates &amp; Locations:</b>	2009, This subject commences in the following study period/s: Semester 2, - Taught on campus. On campus
<b>Time Commitment:</b>	Contact Hours: 36 hours of lectures, 10 hours of tutorials and 2 one-hour laboratory sessions Total Time Commitment: 120 hours
<b>Prerequisites:</b>	800-002 Engineering Systems Design 2 or 880-101 Natural Environments
<b>Corequisites:</b>	None
<b>Recommended Background Knowledge:</b>	None
<b>Non Allowed Subjects:</b>	None
<b>Core Participation Requirements:</b>	<p>&lt;p&gt;For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry.&lt;/p&gt; <p>&lt;p&gt;It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: &lt;a href="http://services.unimelb.edu.au/disability"&gt;http://services.unimelb.edu.au/disability&lt;/a&gt;&lt;/p&gt;</p> </p>
<b>Coordinator:</b>	Dr Sam Yuen
<b>Contact:</b>	Dr Samuel Yuen Department of Civil & Environmental Engineering Phone: +61 3 8344 6716 Email: s.yuen@civenv.unimelb.edu.au
<b>Subject Overview:</b>	Earth Processes introduces physical earth processes and their engineering applications and implications. In particular, it concentrates on engineering relevant aspects of climate, water and soils and their interactions. Simplified modelling and relevant analytical techniques are introduced throughout the subject.
<b>Objectives:</b>	<p>At the conclusion of this subject students should be able to:</p> <ul style="list-style-type: none"> <li># identify key aspects of the climate, soil and water environment that their course is directed towards</li> <li># describe and quantify aspects of the climate system, climate variability and climate change</li> <li># describe and analyse hydrological systems and the cycling and transformation of water and energy in those systems, including aspects of their variability, dependence on climate and land use and implications for soil water and runoff behaviour</li> <li># describe the key soil and landscape forming processes and their geomechanical implications</li> <li># describe the concept of sustainability and, given a project description, identify and justify analyses required to assess aspects of environmental sustainability in the context of climate, water and soils</li> <li># quantify various constituents of soil and rock and classify them with hydrological and engineering implication</li> <li># understand how water and soil interact in natural hydrological systems and in engineering designs and quantify soil behaviour and stability caused by interaction of soil and water</li> </ul>

	# assess soil stability in both natural and engineering systems with the ability to predict stresses and strengths within a soil mass
<b>Assessment:</b>	A 2-hour written end-of-semester examination (50%), 4 assignments no more than 4000 words in total scheduled throughout the semester (40%), and 1 laboratory report of up to 1000 words (10%) . Students must pass both assignment and examination components to pass the subject.
<b>Prescribed Texts:</b>	None
<b>Breadth Options:</b>	This subject is not available as a breadth subject.
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Generic Skills:</b>	<ul style="list-style-type: none"> <li># ability to apply knowledge of basic science and engineering fundamentals</li> <li># ability to undertake problem identification, formulation and solution</li> <li># critical thinking and judgement</li> <li># ability to communicate effectively</li> <li># understanding environmental responsibilities and the need for sustainable development</li> <li># ability to function effectively as an individual with the capacity to be an effective team members</li> </ul>
<b>Notes:</b>	<p>This subject has replaced: 421-209 Geomechanics 1</p> <p>This subject is available for science credit to students enrolled in the BSc (new degree only).</p>
<b>Related Course(s):</b>	Bachelor of Engineering Bachelor of Engineering (Civil) and Bachelor of Arts Bachelor of Engineering (Civil) and Bachelor of Commerce Bachelor of Engineering (Civil) and Bachelor of Laws Bachelor of Engineering (Civil) and Bachelor of Science Bachelor of Engineering (Environmental) and Bachelor of Arts Bachelor of Engineering (Environmental) and Bachelor of Commerce Bachelor of Engineering (Environmental) and Bachelor of Laws
<b>Related Majors/Minors/ Specialisations:</b>	Civil (Engineering) Systems Physical (Environmental Engineering) Systems