

## 411-453 Bioenvironmental Engineering

<b>Credit Points:</b>	12.500
<b>Level:</b>	Undergraduate
<b>Dates &amp; Locations:</b>	2008, This subject commences in the following study period/s: Semester 2, - Taught on campus. Lectures, tutorials and practical work.
<b>Time Commitment:</b>	Contact Hours: Forty-two hours of lectures and 6 hours of practical work. Total Time Commitment: Estimated non-contact time commitment of 96 hours.
<b>Prerequisites:</b>	411-392 Fermentation Process Engineering (or 411-393 Bioprocess Engineering) and 411-303 Reactor Engineering.
<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;         &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>
<b>Coordinator:</b>	Assoc Prof David Shallcross
<b>Subject Overview:</b>	<p>Role of chemical engineers in environmental protection. Biological and other methods for the treatment of liquid and solid wastes. characteristics of wastes. Waste assay procedures. Primary, secondary and tertiary wastewater treatment processes; physical and chemical treatment of processes; anaerobic facultative, aerobic and aerated lagoons and factors affecting their design; activated sludge and related processes; adherent growth processes and associated design considerations; biological and physico-chemical removal of nitrogen and phosphorus; anaerobic process. Sustainability. Recycling and reuse of wastes; life cycle analysis, sustainability and cleaner production. Treatment and disposal of biosolids. Remediation of contaminated sites. Practical work (Biological waste treatment).</p> <p>The objectives of this subject are to acquaint students with the role played by chemical engineers in the environmental protection, to convey the principles of sustainability, life cycle analysis, recycling and cleaner production, and to provide a detailed understanding of physical, chemical and biological methods for the treatment and disposal of liquid and solid wastes.</p>
<b>Assessment:</b>	One 3-hour examination at the end of semester (70%), a one-hour mid-term test (20%) and one practical report of no more than 2000 words.
<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>	<p>The subject will enhance the following generic skills:</p> <ul style="list-style-type: none"> <li># The capacity for independent thought.</li> <li># The ability to comprehend complex concepts and communicate lucidly this understanding</li> </ul>

	# Awareness of advanced technologies in the discipline # The ability to work in a team (practical work component)
<b>Related Course(s):</b>	Bachelor of Engineering (Chemical and Biomolecular Engineering)