

ENEN90028 Monitoring Environmental Impacts

Credit Points:	12.5												
Level:	9 (Graduate/Postgraduate)												
Dates & Locations:	2015, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus. Compulsory five day field camp commencing on Wednesday morning in the week prior to second semester break. Students will be required to pay for their own accommodation and meals costs for duration of camp, estimated total cost no greater than \$350.												
Time Commitment:	Contact Hours: 45 hours (Lectures: 10 hours per semester, Tutorials: 10 hours per semester, Field camp: 5 days). Total Time Commitment: 200 hours												
Prerequisites:	None												
Corequisites:	None												
Recommended Background Knowledge:	Completion of the following subject or equivalent will assist with learning in this subject: <table border="1" data-bbox="389 824 1485 972"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ENEN20002 Earth Processes for Engineering</td> <td>Semester 2</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	ENEN20002 Earth Processes for Engineering	Semester 2	12.50						
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Non Allowed Subjects:	Credit points will not be given for either of the following subjects when taking this subject <table border="1" data-bbox="389 1055 1485 1202"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>421-325 Field Data Acquisition and Analysis</td> <td>Not offered 2010</td> <td></td> </tr> </tbody> </table> <p>OR</p> <table border="1" data-bbox="389 1256 1485 1404"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>421-525 Field Data Acquisition and Analysis</td> <td>Not offered 2010</td> <td></td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	421-325 Field Data Acquisition and Analysis	Not offered 2010		Subject	Study Period Commencement:	Credit Points:	421-525 Field Data Acquisition and Analysis	Not offered 2010	
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Core Participation Requirements:	<p><p>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.</p> <p>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: http://services.unimelb.edu.au/disability</p></p>												
Coordinator:	Assoc Prof Michael Stewardson												
Contact:	mjstew@unimelb.edu.au (mailto:mjstew@unimelb.edu.au)												
Subject Overview:	<p>AIMS</p> <p>The subject has a strong practical component with a five-day field camp during the mid-semester break involving student-led environmental monitoring. There is also a semester long project to design and implement an environmental monitoring program supported by weekly practice classes.</p>												

	<p>Component skills taught in this subject:</p> <ul style="list-style-type: none"> # Conceptualising environmental responses # Selecting and using environmental measurement techniques (considering scale issues) # Analysis of environmental monitoring data. <p>This subject is a critical foundation for a career for environmental engineering but is also relevant to civil and other engineering disciplines where environmental impacts of engineering projects must be addressed to ensure sustainable engineering solutions.</p> <p>INDICATIVE CONTENT Selection of measurement techniques and consideration of measurement scale, conceptualising environmental responses to human activities, environmental sampling and monitoring design, systematic review of causal evidence, statistical analysis of environmental effects, risk assessments for occupational health and safety during environmental field programs.</p>
<p>Learning Outcomes:</p>	<p>INTENDED LEARNING OUTCOMES (ILO) Having completed this subject the student is expected to:</p> <ol style="list-style-type: none"> 1 Identify the practical challenges of conducting environmental observations 2 Design an environmental monitoring program to meet the requirements of a client, including conceptualising the environmental system under investigation 3 Select environmental sensors, sampling theory and field techniques 4 Use and interpret environmental measurements 5 Use a range of environmental instrumentation 6 Demonstrate team and communication skills.
<p>Assessment:</p>	<p>One 2000 word individual report, due at the end of the semester (25%), requiring approximately 30-35 hours of work. Associated with Intended Learning Outcomes (ILOs) 1, 4 & 6. Field camp activities requiring approximately 60 hours of work in mid-semester break (25%). Associated with ILOs 1, 2, 3, 4, 5 & 6. One 500 word student/group report, due in week 6 (5%). Requiring approximately 5-7 hours of work. Associated with ILOs 1, 2, 3, 6. One 1500 word/student group report, due after field camp (15%), requiring approximately 15-20 hours of work. Associated with ILOs 1, 2, 3, 4, 5 & 6. Two x 15 minute tests distributed throughout the semester (15%). Associated with ILOs 2, 3, & 4 One 10 minute oral presentation during the semester (15%), requiring approximately 15-20 hours of work. Associated with ILO 6. Hurdle requirement: Participation in the field camp is a hurdle requirement to pass this subject.</p>
<p>Prescribed Texts:</p>	<p>None</p>
<p>Recommended Texts:</p>	<p>Downes, B.J., Barmuta, L.A., Fairweather, P.G., Faith, D.P., Keough, M.J., Lake, P.S., Mapstone, B.D. and Quinn, G.P., 2002. <i>Monitoring Ecological Impacts: Concepts and Practice in Flowing Waters</i>. Cambridge: Cambridge University Press.</p>
<p>Breadth Options:</p>	<p>This subject is not available as a breadth subject.</p>
<p>Fees Information:</p>	<p>Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees</p>
<p>Generic Skills:</p>	<ul style="list-style-type: none"> # Ability to undertake problem identification, formulation, and solution # Ability to utilise a systems approach to complex problems and to design and operational performance # Ability to communicate effectively, with the engineering team and with the community at large # Ability to manage information and documentation # Capacity for creativity and innovation # Ability to function effectively as an individual and in multidisciplinary and multicultural teams, as a team leader or manager as well as an effective team member.
<p>Notes:</p>	<p>LEARNING AND TEACHING METHODS This subject is centred on a team-based project. Each tutorial group of up to 35 students will design, implement, and train others to implement a number of monitoring programs to detect human impacts on the environment. Tutorial groups deal either with aquatic or terrestrial environments. Within tutorial groups, students form small teams of approximately four to examine a particular environmental impact. During the first eight weeks of semester they develop their monitoring program in stages with guidance from tutors and a one-hour weekly</p>

	<p>lecture. These teams must coordinate their plans with other teams in their tutorial group to share equipment, data and transport between field sites. There is a five-day field camp scheduled around the mid-semester break. During the field camp the teams carry out and refine their monitoring program, teach other teams their field procedures, and then apply procedures developed by other groups. Results must be compiled during field camp and presented both in oral and written form. Students work individually following the field camp to analyse results and make some conclusion concerning environmental impacts.</p> <p>INDICATIVE KEY LEARNING RESOURCES</p> <p>Lecture notes. Scientific literature specific to topics selected by each team, texts dealing with monitoring of environmental impacts and in particular: Downes, B.J., Barmuta, L.A., Fairweather, P.G., Faith, D.P., Keough, M.J., Lake, P.S., Mapstone, B.D. and Quinn, G.P., 2002. <i>Monitoring Ecological Impacts: Concepts and Practice in Flowing Waters</i>. Cambridge: Cambridge University Press.</p> <p>CAREERS / INDUSTRY LINKS</p> <p>An industry presentation on one evening of the field camp is given by a practitioner involved with monitoring environmental impacts of engineering projects and this is followed by a discussion and questions session.</p> <p>The Melbourne School of Engineering OHS officer provides a lecture on the importance of OHS procedures and risk assessment.</p> <p>The field trip will have associated food and accommodation costs.</p>
Related Course(s):	<p>Master of Engineering Management Master of Environmental Engineering Master of Information Technology Master of Philosophy - Engineering Ph.D.- Engineering</p>
Related Majors/Minors/ Specialisations:	<p>Environmental Science Environmental Science Integrated Water Catchment Management Integrated Water Catchment Management MIT Spatial Specialisation Master of Engineering (Environmental) Tailored Specialisation Tailored Specialisation Waste Management Waste Management</p>