

## 421-522 Environmental Engineering Design

<b>Credit Points:</b>	12.50
<b>Level:</b>	9 (Graduate/Postgraduate)
<b>Dates &amp; Locations:</b>	2009, This subject commences in the following study period/s: Semester 2, - Taught on campus.
<b>Time Commitment:</b>	Contact Hours: 8 lectures, 36 tutorial/practice classes; One one-day site visit; Non-contact time commitment: 84 hours Total Time Commitment: Not available
<b>Prerequisites:</b>	431-202 Engineering Analysis B or equivalent
<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>	Dr Graham A. Moore
<b>Contact:</b>	Dr Graham Moore Department of Civil and Environmental Engineering Phone: +61 3 8344 6808 Email: grahamam@unimelb.edu.au
<b>Subject Overview:</b>	General issues relating to environmental engineering design including engineering design methodology; systems and optimisation; application of economic analysis; environmental and social considerations; sustainable development; environmental impact statements and assessments; public participation; and design projects, analysis and presentation of large data sets.
<b>Objectives:</b>	<p>On completion, candidates should be able to:</p> <ul style="list-style-type: none"> <li># use a spreadsheet to calculate and present descriptive statistics on time series of hydrologic data;</li> <li># develop equations between one dependent and several independent variables of a time series and present an analysis of the errors between the data and the equations;</li> <li># apply the data analysis techniques to a design problem;</li> <li># take a general statement of an engineering problem and articulate it in terms of objectives, criteria and constraints amendable to application of engineering analysis and design;</li> <li># identify the key variables relevant to the design problem and scope the order of magnitude constraints on the solution;</li> <li># implement at least one method of idea generation;</li> <li># list the features of at least several methods of public participation in developing solutions to engineering design;</li> <li># apply at least two methodologies for assessing competing solutions to a problem that have economic, technical, environmental and social aspects;</li> <li># demonstrate an ability and willingness to participate in resource sharing, group problem solving and document production;</li> <li># conduct and present a sensitivity analysis on a multi-parameter mathematical model of some aspect of the problem;</li> </ul>

	# produce a professionally presented report outlining their achievements in proposing a solution to a moderate size problem.
<b>Assessment:</b>	One end-of-semester written report not exceeding 50 pages (60%). Up to six minor reports, assignments or multimedia presentations not exceeding 20 pages equivalent spread throughout the first 8 weeks of semester (35%). Four contributions to a reflective journal (5%)
<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>Notes:</b>	This subject replaces: 421-322 Environmental Engineering Design 1 421-522 Environmental Engineering Design  This subject is co-taught to undergraduate and postgraduate students in 2009.
<b>Related Course(s):</b>	Bachelor of Engineering (EngineeringManagement) Environmental Bachelor of Engineering (Environmental Engineering) Bachelor of Engineering (Environmental) and Bachelor of Arts Bachelor of Engineering (Environmental) and Bachelor of Commerce Bachelor of Engineering (Environmental) and Bachelor of Laws Bachelor of Engineering (Environmental) and Bachelor of Science Master of Development Technologies Master of Energy Studies Master of Engineering Project Management Master of Engineering Structures Master of Environmental Engineering Master of Water Resource Management