ENEN90034 Hydrological Processes

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2012, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 48 hours (Lectures: 2 hours per week, Workshops: 24 hours per semester) Total Time Commitment: 120 hours
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	Learning and understanding in this subject will be enhanced by the knowledge gained in the following subjects:

Subject	Study Period Commencement:	Credit Points:
MAST20029 Engineering Mathematics	Summer Term, Semester 1, Semester 2	12.50
CVEN30010 Systems Modelling and Design	Semester 2	12.50

Non Allowed Subjects:	This subject is a replacement for the following:

Subject	Study Period Commencement:	Credit Points:
CVEN90012 Hydrological Processes 1	Not offered 2012	12.50

Core Participation Requirements:	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. 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
Coordinator:	Prof Andrew Western
Contact:	Professor Andrew Western **a.western@unimelb.edu.au (mailto:a.western@unimelb.edu.au)**
Subject Overview:	In this subject quantitative analyses of physical hydrology are introduced. Emphasis will be placed on the application of fundamental principles of mathematics and physics to the conceptualisation and analysis of the complex interactions that are the hallmark of earth systems. Students should also be able to build computer models of these interactions and interpret the output from such models. Topics covered include global water, energy and carbon cycles, precipitation, evapotranspiration, interaction between surface and subsurface water, runoff processes, the unsaturated zone and groundwater hydrology

Objectives:	On successful completion of this subject students should be able to: # Describe and quantitatively analyse the global energy balance and water and carbon cycles, and their interaction # Describe the process of evapotranspiration and perform quantitative analyses on meteorological and environmental data to compute evapotranspiration # Describe and perform quantitative analyses on precipitation processes and measurements # Describe and perform quantitative analyses on processes that control runoff and stream-flow at the hillslope and catchment scale # Describe and perform quantitative analyses on vadose zone processes # Describe and perform quantitative analyses on groundwater processes # Develop quantitative models of these hydrological processes
Assessment:	One 3-hour examination, end of semester (50%) Three x 1000 word assignments with associated computer modelling, due throughout the semester (40%) Two x 30 minute quizzes, in Week 5 and Week 10 (10%) Hurdle Requirement: The examination component must be passed in order to pass the subject
Prescribed Texts:	None
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	# Ability to apply knowledge of science and engineering fundamentals # Ability to undertake problem indentification, formulation and solution # Ability to utilise a systems approach to complex problems, design and operational performance # Capacity for lifelong learning and professional development
Related Course(s):	Master of Environmental Engineering Master of Environmental Engineering Postgraduate Certificate in Engineering
Related Majors/Minors/ Specialisations:	Master of Engineering (Environmental)