# ENEN90034 Environmental Applied Hydrology

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| **Credit Points:** | 12.50 |
| **Level:** | 9 (Graduate/Postgraduate) |
| **Dates & Locations:** | This subject is not offered in 2013. |
| **Time Commitment:** | Contact Hours: 48 hours (Lectures: 2 hours per week, Workshops: 22 hours per semester, Laboratory 2 hours) 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: |
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| MAST20029 Engineering Mathematics | Not offered 2013 | 12.50 |
| CVEN30010 Systems Modelling and Design | Not offered 2013 | 12.50 |

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

| Subject | Study Period Commencement: | Credit Points: |
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| CVEN90012 Hydrological Processes 1 | Not offered 2013 | 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: <a href="http://services.unimelb.edu.au/disability">http://services.unimelb.edu.au/disability</a>

**Contact:**

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**Subject Overview:**

Students will learn to analyse hydrologic data, to build computer models of catchments, and apply these to hydrologic analysis and design problems. Quantitative analyses of physical hydrology are introduced and 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.

Topics covered include a range of engineering hydrology techniques, precipitation, evapotranspiration, runoff processes, unsaturated zone, interaction between surface and subsurface water and hydrological modelling.

**Objectives:**

On successful completion of this subject students should be able to:

# Apply hydrologic analyses to engineering designs
# Describe the process of evapotranspiration and perform quantitative analyses on meteorological and environmental data to compute evapotranspiration

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| | # Describe precipitation measurements and perform quantitative analyses on precipitation to be used in engineering designs<br># Describe and perform quantitative analyses on processes that control runoff and stream-flow at the hillslope and catchment scale<br># Describe and perform quantitative analyses on unsaturated zone processes<br># Develop quantitative models of these hydrological processes |
| **Assessment:** | One 3-hour examination, held end of semester (50%) Three 1000 word assignments with associated computer modelling, due throughout the semester (40%) One laboratory report (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<br># Ability to undertake problem indentification, formulation and solution<br># Ability to utilise a systems approach to complex problems, design and operational performance<br># Capacity for lifelong learning and professional development |
| **Related Course(s):** | Master of Environmental Engineering<br>Master of Environmental Engineering<br>Master of Philosophy - Engineering<br>Ph.D.- Engineering<br>Postgraduate Certificate in Engineering |
| **Related Majors/Minors/ Specialisations:** | Master of Engineering (Civil)<br>Master of Engineering (Environmental) |