Background and Aims

The unit aims to introduce students to the concepts involved in the hydraulic design of sewerage systems. The integrated design requires consideration of the sewage collection, transport, treatment, and disposal systems. The emphasis in this course is on hydraulic design – the biochemical treatment processes are not covered.

Detailed design of all hydraulic aspects of sewerage systems are covered, including reticulation systems, sewer appurtenances such as manholes and inverted siphons, flow measurement systems, pump and pump system design, and sewage treatment plants. Practical issues related to design and maintenance practices such as fail-safe operation are covered.

After completing this unit participants will understand:

- an overview of the sewage collection, transport, treatment, and disposal processes from a hydraulic perspective
- the hydraulic principles involved in the design of sewerage systems
- the practical aspects of sewerage system design; and ultimately
- the capability to plan, design, and analyse a sewerage system with respect to its hydraulics

Details of the structure of the unit are provided over the page

Enrolment Options

Enrol in the Master of Infrastructure Engineering and Management or as a single unit. Exit options are also available for the Graduate Certificate in Infrastructure Engineering and Management or the Graduate Diploma in Infrastructure Engineering and Management.

Off-Campus Study Mode

The program is taught by off-campus learning which means you can balance your work and study while attaining your qualification with Monash University. There are no classes to attend so you can study where and when you like. Students from all over the world study in the postgraduate program, thanks to its flexible off-campus learning mode. Students and graduates can be found throughout Australia, New Zealand, the Middle East, Europe, North America and Africa.

A combination of printed study material and electronic communications are used in the delivery of the program. Academic assistance can be obtained by email or telephone. Discussion groups and other forms of on-line communication are also available for communicating with staff and other students.

Unit Co-ordinator

Associate Professor
Bob Keller specialises in the areas of hydraulic structures and river engineering and is actively involved in many numerical and physical model studies. He works in the CRCCH’s River Restoration Program and leads projects on fishway design and scour issues in rivers.

Enrolment or General Course Enquiries:

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Offered through Department of Civil Engineering, Faculty of Engineering, Monash University

ABN 12 377 614 012
### Structure

*The unit is structured around 6 topics which are generally associated with one-two week(s) of study*

<table>
<thead>
<tr>
<th>Topic</th>
<th>After completing this topic, participants will:</th>
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<tbody>
<tr>
<td><strong>1 &amp; 2. Basic Hydraulics</strong></td>
<td>• develop an understanding of the more specific elements of sewerage hydraulics. These specific elements include, but are not limited to, reticulation systems, pump stations, flow measurement systems, and sewage treatment plants</td>
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<td><strong>3. Reticulation Design</strong></td>
<td>• understand the extension of the material on flow resistance</td>
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<td><strong>4. Sewer Appurtenances</strong></td>
<td>• understand the emphasis is on the hydraulic characteristics of some of the more common appurtenances</td>
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<td><strong>5 &amp; 6. Flow Measurement</strong></td>
<td>• understand the major issues of flow measurement in sewerage systems</td>
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<tr>
<td><strong>7 &amp; 8. Hydraulics of Single and Multiple Pump Systems</strong></td>
<td>• broadly understand the hydraulics of pumps and pump systems</td>
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<td><strong>9 &amp; 10 &amp; 11. Hydraulics of Sewage Treatment Plants</strong></td>
<td>• identify the hydraulic principles associated with various unit operations and processes</td>
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<td></td>
<td>• understand how knowledge of the hydraulics leads to improved system design</td>
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