

NSW university courses that provide a pathway into the water industry

Many higher education pathways lead to a career in the water industry. This overview explores some options.

Since the water industry requires a diverse range of skills, there are numerous pathways to acquiring relevant qualifications and entry. For example, Sydney Water's Graduate Program website states:

“We recruit about 10-20 graduates each year from a range of disciplines, including:

- Digital and Analytics
- Engineering - Civil, Chemical, Mechanical, Environmental and Mechatronic
- Environmental Science
- Communications and Marketing
- Business, Finance, Human Resources.”

Engineering pathways

While not the only pathway, engineering studies provide a common entry into the industry.

Knowledge and skills in water and wastewater treatment operations are most directly attainable through a Bachelor of Engineering (Honours) degree. This is an undergraduate degree, suitable for entry by HSC graduates.

Bachelor of Engineering (Honours) programs are accredited by the peak engineering body Engineers Australia. The ‘honours’ designation indicates that the degree includes a requirement for students to engage in a research activity. There is also generally a requirement for students to gain industrial experience during their degree program. Bachelor of Engineering (Honours) degrees are normally 4 years full time (and longer if undertaken part time). A student admitted to a fully accredited program can expect their degree to be recognised by Engineers Australia and by the signatories to the international Washington Accord.

Several universities in NSW offer relevant Bachelor of Engineering (Honours) programs, which include significant water engineering-related courses. The most prominent examples are listed in this document. Examples of important individual water engineering-related courses are provided with their university-specific course codes. In most cases, assumed knowledge (from high school) includes Mathematics Extension 1 and Physics. Many universities will also offer bonus points (on top of a student's ATAR score) for high performance in these subjects. Students considering applying for these courses should be strongly encouraged to study these subjects (or higher levels) at high school.

University of New South Wales

Table 1. University of New South Wales engineering degrees and key water-focused subjects.

<p>Bachelor of Engineering (Honours) – Environmental</p>	<p>Key courses:</p> <ul style="list-style-type: none"> • CVEN2701: Water and Atmospheric Chemistry • CVEN3501: Water Resources Engineering • CVEN3502: Water and Wastewater Engineering • CVEN4502: Groundwater Resource Investigation • CVEN4507: Advanced Water Engineering • CVEN4703: Advanced Water Quality Principles
<p>UAC course code: 425470</p>	
<p>Lowest selection rank (ATAR + adjustments) 2023: 92.50</p>	
<p>Bachelor of Engineering (Honours) – Civil</p>	<p>Key courses:</p> <ul style="list-style-type: none"> • CVEN3501: Water Resources Engineering • CVEN3502: Water and Wastewater Engineering • CVEN4502: Groundwater Resource Investigation • CVEN4507: Advanced Water Engineering • CVEN4703: Advanced Water Quality Principles
<p>UAC course code: 425400</p>	
<p>Lowest selection rank (ATAR + adjustments) 2023: 90.70</p>	
<p>Bachelor of Engineering (Honours) – Chemical</p>	<p>Key courses:</p> <ul style="list-style-type: none"> • CEIC8341: Membrane processes
<p>UAC course code: 425550</p>	
<p>Lowest selection rank (ATAR + adjustments) 2023: 90.35</p>	

University of Sydney

Table 2. University of Sydney engineering degrees and key water-focused subjects.

<p>Bachelor of Engineering (Honours) – Civil</p>	<p>Key courses:</p> <ul style="list-style-type: none"> • CIVL3614: Hydrology • CIVL5670: Reservoir, Stream and Coastal Engineering • CIVL6665: Advanced Water Resources Engineering • CIVL6666: Open Channel Flow & Hydraulic Structures • New course on urban water supplies coming in 2025.
<p>UAC course code: 513540</p>	
<p>Lowest selection rank (ATAR + adjustments) 2023: 90.15</p>	
<p>Bachelor of Engineering (Honours) – Chemical</p>	<p>Key courses:</p> <ul style="list-style-type: none"> • CHNG5005: Wastewater Engineering • CHNG5006: Advanced Wastewater Engineering
<p>UAC course code: 513535</p>	
<p>Lowest selection rank (ATAR + adjustments) 2023: 90.05</p>	
<p>Bachelor of Engineering (Honours) – Environmental</p>	<p>A proposal to establish this new degree is currently being considered by the university. It is expected that this new degree will be offered from 2025 and will include drinking water and wastewater engineering.</p>

University of Technology Sydney

Table 3. University of Technology Sydney engineering degrees and key water industry-focused subjects.

<p>Bachelor of Engineering (Honours) – Civil Engineering</p>	<p>Key courses: 48362: Hydraulics and Hydrology 48350: Environmental and Sanitation Engineering</p>
<p>UAC course code: 603016</p>	
<p>Lowest selection rank (ATAR + adjustments) 2023: 80.05</p>	
<p>Bachelor of Engineering (Honours) – Civil and Environmental Engineering</p>	<p>Key courses:</p> <ul style="list-style-type: none"> • 48362: Hydraulics and Hydrology • 48821: Principles of Environmental Engineering • 48350: Environmental and Sanitation Engineering • 48860: Pollution Control and Waste Management • 48881: Water and Environmental Design • 42991: Advanced Water and Wastewater Treatment • 42012: Green Technologies: Water-Waste-Energy Nexus
<p>UAC course code: 603006</p>	
<p>Lowest selection rank (ATAR + adjustments) 2023: 81.95</p>	

Western Sydney University

Table 4. Western Sydney University engineering degrees and key water industry-focused subjects.

<p>Bachelor of Engineering (Honours) – Civil</p>	<p>Key courses:</p> <ul style="list-style-type: none"> • CIVL 2002: Environmental Engineering • CIVL 3011: Hydraulics • CIVL 4017: Surface Water Hydrology • CIVL 4012: Water Resource Engineering • CIVL 2018: Water Supply Systems Design
<p>UAC course code: 722503</p>	
<p>Lowest selection rank (ATAR + adjustments) 2023: 78.20</p>	

Macquarie University

Table 5. Macquarie University engineering degrees and key water industry-focused subjects.

<p>Bachelor of Engineering (Honours) – Civil Engineering</p>	<p>Key courses:</p> <ul style="list-style-type: none"> • CIVL2101: Water and Wastewater Engineering • CIVL3101: Hydraulics and Hydrology
<p>UAC course code: 300585</p>	
<p>Lowest selection rank (ATAR + adjustments) 2023: 80.15</p>	

University of Newcastle

Table 6. University of Newcastle engineering degrees and key water industry-focused subjects.

<p>Bachelor of Engineering (Honours) – Environmental Engineering</p> <p>UAC course code: 482650</p> <p>Lowest selection rank (ATAR + adjustments) 2023: 89.05</p>	<p>Key courses:</p> <ul style="list-style-type: none"> • CIVL330: Hydrology • CIVL4450: Water Engineering • CHEE3690: Environmental Process Technology
<p>Bachelor of Engineering (Honours) – Civil Engineering</p> <p>UAC course code: 482610</p> <p>Lowest selection rank (ATAR + adjustments) 2023: 76.10</p>	<p>Key courses:</p> <ul style="list-style-type: none"> • CIVL330: Hydrology • CIVL4450: Water Engineering

Southern Cross University

Table 7. Southern Cross University engineering degrees and key water industry-focused subjects.

<p>Bachelor of Engineering (Honours) – Civil Engineering</p> <p>UAC course code: 334127 / 334167</p> <p>Lowest selection rank (ATAR + adjustments) 2023: 73.85</p>	<p>Key courses:</p> <ul style="list-style-type: none"> • CIVL2018: Water Cycle Systems • CIVL3009: Integrated Water Cycle Management Systems • ENGN4005: Engineering for Resilient Catchments and Floodplains
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University of Wollongong

Table 8. University of Wollongong engineering degrees and key water industry-focused subjects.

<p>Bachelor of Engineering (Honours) – Civil Engineering</p> <p>UAC course code: 755611</p> <p>Lowest selection rank (ATAR + adjustments) 2023: 80.00</p>	<p>Key courses:</p> <ul style="list-style-type: none"> • CIVL322: Hydraulics and Hydrology • ENVE220: Water Quality and Ecological Engineering • ENVE377: Membrane Science and Technology • ENVE420: Water Resources Engineering
<p>Bachelor of Engineering (Honours) – Environmental Engineering</p> <p>UAC course code: 755612</p> <p>Lowest selection rank (ATAR + adjustments) 2023: 80.00</p>	<p>Key courses:</p> <ul style="list-style-type: none"> • CIVL322: Hydraulics and Hydrology • ENVE220: Water Quality and Ecological Engineering • ENVE377: Membrane Science and Technology • ENVE420: Water Resources Engineering

Charles Sturt University

Table 9. Charles Sturt University engineering degrees and key water industry-focused subjects.

<p>Bachelor of Engineering (Honours) – Civil</p> <p>UAC course code: 212257</p> <p>Lowest selection rank (ATAR + adjustments) 2023: 78.80</p>	<p>Key courses:</p> <ul style="list-style-type: none"> The core of the engineering curriculum is the Civil Engineering Topic Tree. The overall Topic Tree contains around 1,000 topics, covering the range of different specialties within civil engineering. Students must complete at least 60 topics in the Topic Tree. Topic Tree branches include water and wastewater.
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University of New England

Table 10. University of New England science degree and key water industry-focused subjects.

<p>Bachelor of Science</p> <p>UAC course code: 392603</p> <p>Lowest selection rank (ATAR + adjustments) 2023: 76.25</p>	<p>Key course:</p> <ul style="list-style-type: none"> Includes a course in introduction to environmental engineering infrastructure.
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This information was prepared by Stuart Khan in August 2023. Professor Khan is a Professor of Civil & Environmental Engineering at the University of New South Wales. In November 2023, he will move to the University of Sydney as Head of School of Civil Engineering. The information provided in this document is for guidance purposes and should not be relied upon without consulting directly with appropriate sources. It is not a complete list of relevant courses. Feedback can be provided to Stuart at stuartkhan2@gmail.com.