Bachelor of Engineering (Civil Engineering)

Bachelor of Engineering (Environmental Engineering)

CEE

School of Civil and Environmental Engineering
OUR MISSION
To nurture students to be responsible leaders capable of realising their maximum potential in their profession and community; to provide a collegiate environment for faculty to excel in education and research for sustainable development; and to advance knowledge for the practice of civil and environmental engineering and maritime professions.

ABOUT THE SCHOOL
The School of Civil and Environmental Engineering (CEE) was one of the three pioneering engineering schools when the university first started as Nanyang Technological Institute in 1982, offering the Bachelor of Engineering programme in Civil Engineering. The Bachelor of Engineering programme in Environmental Engineering first began in 2003. In 2004, Maritime Studies programme was inaugurated.

The undergraduate programmes offered by CEE include:

1. Civil Engineering
   • Bachelor of Engineering in Civil Engineering
   • Bachelor of Engineering in Civil Engineering with a Second Major in Business
   • Bachelor of Engineering in Civil Engineering with a Second Major in Business (International Trading)*
   • Bachelor of Engineering in Civil Engineering with a Second Major in Society & Urban Systems
   • Double Degree in Bachelor of Engineering (Civil Engineering) and Bachelor of Arts (Economics)

2. Environmental Engineering
   • Bachelor of Engineering in Environmental Engineering
   • Bachelor of Engineering in Environmental Engineering with a Second Major in Business
   • Bachelor of Engineering in Environmental Engineering with a Second Major in Business (International Trading)*
   • Bachelor of Science in Maritime Studies
   • Bachelor of Science in Maritime Studies with Specialisation in International Trading*
   • Bachelor of Science in Maritime Studies with a Second Major in Business
   • Bachelor of Science in Maritime Studies with a Second Major in Business (International Trading)*

   * Opt in "International Trading" at the end of Year 1

We provide a number of practice-oriented courses to prepare you for a challenging career ahead. Our courses are designed to provide the requisite breadth and depth so that you are able to pursue a career in planning, design and construction of civil, environmental, maritime projects and systems, as well as in research and development. Lectures and tutorials, supplemented by laboratory sessions, design projects, Professional Internship, industrial visits and seminars, will equip you with the principles and practical aspects of your areas of study. Soft skills courses are incorporated to provide you with a holistic education that steers you to a successful career. You can also look forward to collaborations with prestigious overseas universities, government agencies and private organisations.

The School’s research focus and strength are as follows:

1. Environmental and Water Resources Engineering
   • Integrated Urban Storm-water Management
   • Sediment Transport and Coastal Management
   • Waste Minimisation, Recycling & Resources Recovery
   • Membrane Technology
   • Biotechnology in Wastewater Treatment
   • Environmental Chemistry and Chemical Technology
   • Air Quality Management

2. Infrastructure Systems and Maritime Studies
   • Transport Modelling and Traffic Management
   • Risk and Project Finance for Infrastructure Projects
   • Information Technology for Construction Management
   • Land Reclamation
   • Underground Space Development
   • Tropical Soils Engineering
   • Maritime Logistics and Port Economics

3. Structures and Mechanics
   • Computational Mechanics
   • Dynamics and Seismic Engineering
   • Protective Technology
   • Fire and Building Engineering
   • Offshore Engineering
   • Structural Health Monitoring and Damage Prognosis
   • Structural Steel and Concrete
   • Sustainable Construction Materials

We have well-equipped laboratories with highly developed facilities to support teaching and intensive research; namely Information Technology Support and Computing; Environment; Hydraulics; Protective Engineering and Construction Technology; Geotechnics, Transport and Geospatial.

WHAT DO CIVIL ENGINEERS AND ENVIRONMENTAL ENGINEERS DO TODAY?
Upon graduation, you will be involved in various engineering fields and environments. As a civil/environmental engineer, you build the world’s infrastructure. You erect structures, both modest and magnificent; bring fresh water to the masses, dispose or recycle the waste they generate; and move people and goods safely and efficiently from one location to another. In the new millennium, civil/environmental engineers will be challenged to find the best solutions to the most pressing problems of society and there will be many opportunities to apply sophisticated technologies to meet society’s needs in an environmentally sustainable manner. You can look forward to a wide range of career prospects in fields such as infrastructure planning and development, construction technology, seismic and protective engineering, structural project procurement and management, environmental technologies development, wastewater reclamation and reuse, membrane technologies, water treatment, desalination and resource recovery.
CIVIL ENGINEERING PROGRAMME

The Civil Engineering programme is structured on a flexible and diverse system that allows you to choose from a broad range of courses to receive a well-rounded education while maintaining high academic standards. Students take common engineering courses which deal with basic concepts in mathematics, science and fundamental engineering principles, followed by a balanced mix of core courses in the civil engineering discipline and general education electives (core and unrestricted).

During the course of study, students can register for Professional Internship with private companies or government agencies, where they can practise civil engineering under the guidance of experienced engineers and managers. In the final year, the programme concentrates on preparing students for professional civil engineering practice as well as equipping them with managerial and entrepreneurial skills. Students are also required to complete a two-semester long final year project in any of the specialisations within civil engineering.

### Courses Offered

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
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<tbody>
<tr>
<td>Mathematics</td>
<td>Mechanics of Materials</td>
<td>Civil and Environmental Laboratory</td>
<td>Professional Internship</td>
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<tr>
<td>Computing</td>
<td>Geotechnical Engineering</td>
<td>Environmental Engineering Laboratory</td>
<td>Engineering Communication II</td>
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<tr>
<td>Physics</td>
<td>Hydrology</td>
<td>Structural Analysis</td>
<td>Reinforced Concrete Design</td>
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<tr>
<td>Engineering &amp; Practices</td>
<td>Matrix Algebra and Computational Methods</td>
<td>Hydraulics</td>
<td>Professional Internship</td>
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<tr>
<td>Engineering Communication I</td>
<td>Steel Design</td>
<td>Probability and Statistics</td>
<td>Enterprise and Innovation</td>
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<tr>
<td>Civil Engineering Materials</td>
<td>Environmental Engineering</td>
<td>Environmental Engineering</td>
<td>Enterprise and Innovation</td>
</tr>
<tr>
<td>Civil Engineering Drawing and 3D Building Information Modelling</td>
<td>Laboratory</td>
<td>Hydraulics</td>
<td>Engineering Communication II</td>
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<tr>
<td>Fluid Mechanics</td>
<td>Environmental Issues in a Changing World</td>
<td>Matrix Algebra and Computational Methods</td>
<td>Reinforced Concrete Design</td>
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<tr>
<td>Geotechnical Engineering</td>
<td>Environmental Biology and Microbiology</td>
<td>Water Supply Engineering</td>
<td>Professional Internship</td>
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<td>Hydrology</td>
<td>Environmental Transport Processes</td>
<td>Environmental Transport Processes</td>
<td>Construction Technology and Processes</td>
</tr>
<tr>
<td>Matrix Algebra and Computational Methods</td>
<td>Solid and Hazardous Waste Management</td>
<td>Major Prescribed Elective</td>
<td>Construction Technology and Processes</td>
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<td>Steel Design</td>
<td>Wastewater Engineering</td>
<td>Air Pollution Control Engineering</td>
<td>Construction Technology and Processes</td>
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Please refer to the school’s website for the updated curriculum structure. www.cee.ntu.edu.sg/Students/Undergraduate/Curriculum/Pages/Home.aspx

ENVIRONMENTAL ENGINEERING PROGRAMME

The Environmental Engineering programme is centred on a comprehensive curriculum with the aim of giving students a well-rounded education. Students take common engineering courses which include basic concepts in mathematics, science and fundamental engineering principles, as well as core courses in the environmental engineering discipline and civil engineering discipline.

During the course of study, students can register for Professional Internship with private companies or government agencies, where they can practise environmental engineering under the guidance of experienced engineers and managers. In the final year, the programme concentrates on preparing students for professional environmental engineering practice as well as equipping them with managerial and entrepreneurial skills. Students are also required to complete a two-semester long final year project in any of the specialisations within environmental engineering.
ADMISSION CRITERIA

In addition to the general admission requirements set by NTU, applicants need to fulfil the following minimum subject requirements:

**GCE ‘A’ LEVEL:** H2 Level pass in Mathematics and H2 Level pass in Physics / Chemistry / Biology / Computing and H1 Level / ‘O’ Level pass in Physics for applicants who have not read Physics at H2 Level.

**POLYTECHNIC DIPLOMA:** An engineering diploma from local polytechnics. Relevant diplomas will be considered for direct entry into the second year (by merit), and may be exempted from selected courses. For the list of acceptable local diplomas, please refer to: admissions.ntu.edu.sg/UndergraduateAdmissions/Pages/PolyDiploma.aspx

**INTERNATIONAL BACCALAUREATE DIPLOMA:** Mathematics at Higher Level and Physics / Chemistry / Biology / Computer Science at Higher Level and Physics at Standard Level for applicants who have not read Physics at Higher Level.

**NUS HIGH SCHOOL DIPLOMA:** Major CAP of 2.0 in Mathematics and Major CAP of 2.0 in Physics / Chemistry / Biology and Overall CAP of 2.0 in Physics for applicants who have not majored in Physics.

**INTERNATIONAL STUDENTS:** Mathematics at Senior High School Level and Physics / Chemistry / Biology at Senior High School Level and Physics at Junior High School Level for applicants who have not read Physics at Senior High School Level.

For updated information on admission, please refer to admissions.ntu.edu.sg

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**Thoughts from OUR STUDENT**

**GOH Pei Fen, Janelle**

“Civil Engineering at NTU has shaped me into a creative and analytical problem-solver. In this programme, we are exposed to a wide variety of skills for civil engineering; ranging from structural analysis, water management and transportation planning. My second major in Society and Urban System has provided me with interdisciplinary knowledge that complements the technical skills that I gained. The curriculum offered in my major has exposed me to the importance of recognising the comprehensive planning required to develop a First World city.

My most memorable experience during my studies at NTU was having the opportunity to head to not just one, but two overseas exchange programmes. The exchange offered me a different perspective of education systems in other countries. I stepped out of my comfort zone and embraced the vastly different culture of my host country.

Civil Engineering NTU will ensure nothing less than a holistic built environment education!”