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.

OUR VISION
To be a leading school for sustainable built environment.

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 Environmental Engineering with a Second Major in Society & Urban Systems
   - Bachelor of Science in Environmental Engineering with a Second Major in Business (International Trading)*

3. Maritime Studies
   - 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)*

4. 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

5. 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
   - 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

- **Year 1**
  - Mathematics
  - Computing
  - Physics
  - Engineering & Practices
  - Engineering Communication I
  - Mechanics of Materials

- **Year 2**
  - Structural Analysis
  - Engineering Geology and Soil Mechanics
  - Hydraulics
  - Probability and Statistics
  - Civil Engineering Laboratory

- **Year 3**
  - Reinforced Concrete Design
  - Foundation Engineering
  - Transportation Engineering
  - Environmental Engineering

- **Year 4**
  - Engineers and Society
  - Project Planning and Management
  - Seminars and Site Visits
  - Final Year Project
  - Integrated Design Project
  - Major Prescribed Elective

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<tr>
<th>Courses Offered</th>
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<tr>
<td><strong>Year 1</strong></td>
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<tr>
<td>Mathematics</td>
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<td>Engineering &amp; Practices</td>
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<td>Mechanics of Materials</td>
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<td>Civil Engineering Materials</td>
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<td>Civil Engineering Drawing and 3D Building Information Modelling</td>
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<td>Fluid Mechanics</td>
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<th><strong>Year 2</strong></th>
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<td>Mechanics of Materials</td>
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<td>Hydraulics</td>
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<td>Probability and Statistics</td>
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<td>Environmental Issues in a Changing World</td>
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<td>Environmental Biology and Microbiology</td>
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<td>Environmental Engineering Laboratory</td>
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<tr>
<td>Structural Analysis</td>
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<td>Hydrology</td>
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<td>Matrix Algebra and Computational Methods</td>
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<td>Water Supply Engineering</td>
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<th><strong>Year 3</strong></th>
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<td>Engineering Geology and Soil Mechanics</td>
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<td>Solid and Hazardous Waste Management</td>
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<td>Wastewater Engineering</td>
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<td>Environmental Transport Processes</td>
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<tr>
<td>Enterprise and Innovation</td>
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<tr>
<td>Engineering Communication II</td>
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<tr>
<td>Reinforced Concrete Design</td>
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<td>Professional Internship</td>
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<th><strong>Year 4</strong></th>
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<td>Integrated Design Project</td>
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<td>Major Prescribed Elective</td>
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<td>Air Pollution Control Engineering</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
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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**GRADUATE STUDIES OPPORTUNITIES**

For those who aim to pursue postgraduate degrees in Civil and Environmental Engineering, we offer graduate programmes which lead to the award of the Master’s degree as well as the Doctor of Philosophy (PhD) degree.

- The Master’s degree can be undertaken by research or coursework and dissertation
- The PhD degree is by research only

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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!”
ABOUT THE SCHOOL

The School of Civil and Environmental Engineering (CEE) was one of the three pioneering engineering schools when Nanyang Technological University, Singapore (NTU Singapore) first started, offering the Bachelor of Engineering programme in Civil Engineering. The Bachelor of Engineering programme in Environmental Engineering first began in 2003.

The School launched the Bachelor of Science (Hons) degree in Maritime Studies in July 2004. The Bachelor of Science (Hons) degree in Maritime Studies with Business Major was introduced in August 2008.

The Maritime Studies programmes offered by CEE include:

- 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

ABOUT THE PROGRAMME

The Maritime Studies programme focuses primarily on the management of the shipping business as well as maritime science and technology. Supported by the Maritime and Port Authority of Singapore (MPA), it was established to build up the next-generation talent pool to further advance Singapore as an international maritime centre. The programme provides high quality education for those who aspire to become future leaders in shipping and related businesses.

NTU Singapore has been at the forefront of teaching, research and consulting in the areas of business and technology. Students can look forward to developing themselves in a holistic and comprehensive learning environment. The College of Engineering, Nanyang Business School, and the College of Humanities, Arts, and Social Sciences offer a wide range of courses in various disciplines. Students can choose courses that best fit their interests and development.

CURRICULA

The Maritime Studies curricula aim to provide students with both depth and breadth. The programme structure is flexible and broad-based. Students will complete one semester in the third year of their studies at our overseas partner university. The curriculum also includes Professional Internship where students will be attached to organisations in shipping and related industries.
BSc degree in Maritime Studies

YEAR 1
• Accounting
• Fundamentals of Management
• Mathematics I for Maritime Studies
• Introduction to Maritime Industry
• Trade Practice and Incoterms
• Fundamentals of Business Law

YEAR 2
• Probability and Statistics
• Shipping Economics
• Maritime Technology
• Port Economics
• Mathematics II for Maritime Studies
• Introduction to Meteorology and Oceanography
• Introduction to Computational Thinking

YEAR 3
• Maritime Law
• Introduction to Marine Insurance
• Organisation of a Ship Owning Entity
• Shipping Management
• Major Prescribed Elective
• Professional Internship

YEAR 4
• Shipping Logistics
• Maritime Strategy
• Major Prescribed Elective
• Final Year Project
• GER - Elective

Students who are taking the Specialisation in International Trading are required to read these courses:
• Commodities Trading
• Commodity Markets
• Trade, Structured and Supply Chain Finance
• Enterprise Risk Management
• International Tax and Trading Law
• Industry Seminar

Please refer to the school’s website for the updated curriculum structure.

www.cee.ntu.edu.sg

CAREER OPPORTUNITIES

The maritime industry offers good career prospects with attractive remuneration, job stability and job flexibility. Graduates can choose from a broad and diverse range of shore-based careers including Marine Operations Executive, Chartering Executive, Logistics Executive, Freight Forwarding Executive, Warehouse Planner, Post-Fixture Executive, Customer Relationship (Cargo/Crailer), Trade/Pricing Executive, Manager (Voyage Planning), Accounts Manager (Sea Freight), Supply Chain Coordinator, Shipping Executive (Documentations), Cargo Claims Manager, Export/Import Executive, Brokerage Executive, Analyst (Market Intelligence), Business Development Manager, Ship Charterer, Ship Planner and Shipbroker.
ADMISSION CRITERIA

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

**GCE ‘A’ LEVEL:** H1 Level pass in Mathematics or ‘O’ Level / equivalent pass in Additional Mathematics and H1 Level / ‘O’ Level pass in a Science subject.

**POLYTECHNIC DIPLOMA:** A diploma from local polytechnics. Applicants may be granted course exemptions.

**INTERNATIONAL BACCALAUREATE DIPLOMA:** Mathematics at Standard Level and Physics / Chemistry / Biology at Standard Level.

**NUS HIGH SCHOOL DIPLOMA:** Major CAP of 2.0 in Mathematics and Overall CAP of 2.0 in Physics / Chemistry / Biology.

**INTERNATIONAL STUDENTS:** Additional Mathematics at Junior High School Level and Physics / Chemistry / Biology / Science at Junior High School Level. Mathematics at Senior High Level is only applicable to applicants who have not read Additional Mathematics at Junior High School Level.

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

GRADUATE STUDIES OPPORTUNITIES

For those who aim to pursue graduate degrees after their BSc (Maritime Studies) degrees, the College of Engineering is offering graduate programmes which lead to the award of the Master of Science in Maritime Studies, and Master of Science in Logistics. In addition, Nanyang Business School also offers business graduate programmes.

Thoughts from OUR STUDENT

KOH Shi Ling
Maritime Studies
Year 4 (2018)

“Maritime Singapore is a thriving eco-system, comprising our global hub port, international maritime centre and strategic maritime interests. With Singapore playing a key role as a leading maritime nation, CEE’s Maritime Studies is your gateway to embark on this exciting journey.

The Maritime Studies programme has also widened my interest in global issues and increased my awareness of alternative and multifaceted approaches to learning. Did you know that all students in Maritime Studies get to go together on an international exchange in the third year of studies? This exchange has certainly made a significant difference in my learning experience. The international exposure and knowledge that I gained has enabled me to better understand an array of different cultural and community perspectives. Besides that, there are many opportunities to get a taste of this dynamic industry through either local or international internships.

Come join our close-knit community! As a Maritime Studies graduate, you can look forward to the many exciting and diverse job opportunities offered by the industry!”