



**NANYANG
TECHNOLOGICAL
UNIVERSITY**
SINGAPORE



Civil Engineering
Environmental Engineering
Maritime Studies

CEE

School of Civil and Environmental Engineering



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. The Bachelor of Engineering programme in Civil Engineering was first introduced that year, followed by the Environmental Engineering programme in 2003, then the Maritime Studies programme in 2004.



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 Engineering in Environmental Engineering with a Second Major in Society & Urban Systems
- Double Degree in Bachelor of Engineering (Environmental Engineering) and Bachelor of Arts (Economics)

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 Work Study Track[#]
- 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
Opt in WSDP in Year 2 Semester 1



Our research focus and strengths are:

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

Our practice-oriented courses are designed to provide the requisite breadth and depth, so that you have the expertise to pursue a career in the planning, design and construction of civil, environmental, maritime systems, as well as in research and development.

Lectures and tutorials, supplemented by laboratory sessions, design projects, professional internship, industrial visits, seminars, and soft skills courses provide you with a holistic education. You can also look forward to collaborations with prestigious overseas universities, government agencies and private organisations.

Our laboratories support teaching and intensive research in Information Technology Support and Computing; Environment; Hydraulics; Protective Engineering and Construction Technology; Geotechnics, Transport and Geospatial.

CIVIL ENGINEERING PROGRAMME



As students embark on the Civil Engineering programme, they begin with courses that deal with basic concepts in mathematics, science and fundamental engineering principles. These are followed by a balanced mix of core courses in the civil engineering discipline and general education electives (core and unrestricted).

During the programme, students can register for professional internship and practise civil engineering under the guidance of experienced engineers and managers.

In the final year, the programme prepares students for professional civil engineering practice, and equips them with managerial and entrepreneurial skills. Students are required to complete a two-semester long final year project in any of the specialisations within civil engineering.

Courses Offered

- Please refer to the school's website for the updated curriculum structure.
- www.cee.ntu.edu.sg/Students/Undergraduate/Curriculum/Pages/Home.aspx

Year 1	• Mathematics • Computing • Physics • An Introduction to Engineering & Practices • Engineering Communication I • Mechanics of Materials	• Fluid Mechanics • Civil Engineering Materials • Civil Engineering Drawing and 3D Building Information Modelling • Civil Engineering and Sustainable Built Environment • Introduction to Computational Thinking
Year 2	• Structural Analysis • Engineering Geology and Soil Mechanics • Hydraulics • Probability and Statistics • Civil Engineering Laboratory • Geotechnical Engineering	• Hydrology • Matrix Algebra and Computational Methods • Steel Design • Kickstart Your Career Success • Introduction to Data Science and Artificial Intelligence
Year 3	• Reinforced Concrete Design • Foundation Engineering • Transportation Engineering • Environmental Engineering	• Enterprise and Innovation • Engineering Communication II • Professional Internship
Year 4	• Engineers and Society • Project Planning and Management • Seminars and Site Visits • Final Year Project	• Integrated Design Project • Construction Technology and Processes • Major Prescribed Elective

Major Prescribed Elective

- Structural Analysis III
- Advanced Steel Design
- Offshore Engineering
- Bridge Engineering
- Prestressed Concrete
- Construction Law & Dispute Resolution
- Engineering Economics and Finance
- IT in Engineering Construction
- Advanced Foundation Engineering
- Excavation & Retaining Walls
- Ground Engineering
- Traffic Engineering
- Highway Engineering
- Airport Engineering
- Applied Hydrology
- Coastal Engineering
- Urban Stormwater Management
- Engineering Geology and Rock Mechanics
- Advanced Prefabrication and Precast Construction
- Advanced Reinforced Concrete Design
- Water Supply Engineering
- Solid & Hazardous Waste Management
- Wastewater Engineering
- Air Pollution Control Engineering
- Surface Water Quality
- Environmental Hydraulics

Career Prospects

Upon graduation, graduates 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 and more.

Our graduates are employed in leading organisations, such as:

- Land Transport Authority
- Housing and Development Board
- Defence Science and Technology Agency
- Building and Construction Authority
- JTC Corporation
- Urban Redevelopment Authority
- PUB, The National Water Agency
- Changi Airport Group (Singapore) Pte Ltd
- National Parks Board (NParks)
- Parsons Brinckerhoff Consultants Pte Ltd
- Jurong Engineering Limited
- Guan Ho Construction Co Pte Ltd
- Surbana Jurong Private Limited
- Koh Brothers Group Ltd



LOOKING BACK AT THE CIVIL ENGINEERING PROGRAMME

“NTU Civil Engineering gave me a firm foundation in engineering knowledge.

Through participation in research programmes, I developed the skill of solving complex and real-life engineering problems.

The mentorship programme allowed me to connect with our professors, and the exchange experience was an invaluable opportunity to explore the world and learn about myself.”



**BAY
Pei Lin**

Class of 2019
Bachelor of Engineering
(Civil Engineering)

ENVIRONMENTAL ENGINEERING PROGRAMME



The Environmental Engineering programme gives students a well-rounded education in fundamental engineering principles, while developing their expertise in the environmental engineering discipline and civil engineering discipline.

Students have opportunities to take on professional internships with private companies or government agencies, where they can practise environmental engineering as they are mentored by industry seasoned engineers and managers.

The programme also equips students with managerial and entrepreneurial skills, giving them an edge as modern environmental engineers. Students are required to complete a two-semester long final year project in any of the specialisations within environmental engineering.

Courses Offered

- Please refer to the school's website for the updated curriculum structure.
- www.cee.ntu.edu.sg/Students/Undergraduate/Curriculum/Pages/Home.aspx

Year 1	• Mathematics • Computing • Physics • Environmental Issues in a Changing World • An Introduction to Engineering & Practices • Engineering Communication I • Fluid Mechanics	• Civil Engineering Drawing and 3D Building Information Modelling • Environmental Chemistry • Sustainability Practices for Urban and Marine Environment • Introduction to Computational Thinking
Year 2	• Mechanics of Materials • Engineering Geology and Soil Mechanics • Hydraulics • Probability and Statistics • Environmental Biology and Microbiology • Environmental Engineering Laboratory • Structural Analysis I	• Hydrology • Matrix Algebra and Computational Methods • Water Supply Engineering • Kickstart Your Career Success • Introduction to Data Science and Artificial Intelligence
Year 3	• Solid and Hazardous Waste Management • Wastewater Engineering • Environmental Transport Processes	• Enterprise and Innovation • Engineering Communication II • Professional Internship
Year 4	• Engineers and Society • Project Planning and Management • Air Pollution Control Engineering • Construction Technology & Processes	• Seminars and Site Visits • Final Year Project • Integrated Design Project • Major Prescribed Elective

Major Prescribed Elective

- Engineering Economics and Finance
- Applied Hydrology
- Coastal Engineering
- Urban Stormwater Management
- Surface Water Quality
- Membrane Water Reclamation Technology
- Biotechnology in Environmental Engineering
- Environmental Hydraulics
- Integrated Environmental Management
- Geo-Environmental Engineering

SPECIALISATION IN CIVIL INFRASTRUCTURE

Students can opt to specialise in Civil Infrastructure in Year 3 and Year 4. Upon completion of the following five courses, students will receive a certificate and will be eligible to sit for the Professional Engineer Examination with the Professional Engineering Board, Singapore.

- Structural Analysis I (Core Course)
- Construction Technology & Processes (Core Course)
- Geotechnical Engineering (Major Prescribed Elective)
- Reinforced Concrete Design (Major Prescribed Elective)
- Steel Design (Major Prescribed Elective)

Career Prospects

Upon graduation, graduates can look forward to a wide range of career prospects in fields such as construction technology and processes, engineering economics and finance, coastal engineering, membrane water reclamation technology, environmental hydraulics, integrated environmental management and more.

Our graduates are employed in reputed organisations, such as:

- Ministry of the Environment and Water Resources
- National Environment Agency
- Public Utilities Board
- Sembcorp Industries Ltd
- Parsons Brinckerhoff Consultants Pte Ltd
- Sato Kogyo Company Ltd
- Surbana Jurong Consultants Pte Ltd
- Pan Asian Water Solutions Limited
- Asia Pacific Air Quality Group Pte Ltd
- Walton International Group (S) Pte Ltd
- Greendot F&B Private Ltd
- Eco-Wiz Pte Ltd



MY EXPERIENCE IN ENVIRONMENTAL ENGINEERING

“NTU Environmental Engineering offered me a deeper understanding of the fragility of planet earth.”

The modules opened my eyes to how engineering solutions can remedy the human-caused problems that are plaguing our environment. Now, I am confident of contributing to the green movement in more ways, using my engineering expertise.

And this programme covers much more than environmental protection, as students also tackle topics like water treatment and waste management, which are essential in our daily lives.”



NG Jun Eng
Class of 2019

Bachelor of Engineering
(Environmental Engineering)

MARITIME STUDIES



The Maritime Studies programme focuses on the management of the shipping business, as well as maritime science and technology. It is ideal for those who aspire to become future leaders in shipping and related businesses.

Supported by the Maritime and Port Authority of Singapore (MPA), the programme's purpose is to develop the next-generation talent to advance Singapore as an international maritime centre.

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.

In this programme, third-year students will complete one semester at our overseas partner university. The curriculum also includes a professional internship, where students will be attached to organisations in shipping and related industries, and a 2-semester long Final Year Project.

Courses Offered

- Please refer to the school's website for the updated curriculum structure.
- www.cee.ntu.edu.sg/Students/Undergraduate/Curriculum/Pages/Home.aspx

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	• Principles of Economics • Shipping and the Environment • Introduction to Meteorology and Oceanography • Introduction to Computational Thinking
YEAR 2	• Probability and Statistics • Shipping Economics • Maritime Technology • Port Economics • Mathematics II for Maritime Studies	• Ship Chartering • Enterprise and Innovation • Essential of Project Management • Professionals in Society
YEAR 3	• Maritime Law • Introduction to Marine Insurance • Organisation of a Ship Owning Entity • Shipping Management	• Quality Management in Shipping • Professional Internship • Overseas Exchange
YEAR 4	• Shipping Logistics • Maritime Strategy • Major Prescribed Elective	• Final Year Project • GER - Elective

BSc degree in Maritime Studies with Business Major

YEAR 1

- Marketing
- Financial Management
- Business Operations and Processes
- Financial Accounting
- Mathematics I for Maritime Studies
- Trade Practice and Incoterms
- Introduction to Meteorology and Oceanography
- Introduction to Computational Thinking
- Shipping and the Environment

YEAR 2

- Probability and Statistics
- Shipping Economics
- Maritime Technology
- Port Economics
- Mathematics II for Maritime Studies
- Ship Chartering
- Enterprise and Innovation
- Essential of Project Management
- Professionals in Society

YEAR 3

- Maritime Law
- Introduction to Marine Insurance
- Organisation of a Ship Owning Entity
- Shipping Management
- Major Prescribed Elective
- Professional Internship
- Overseas Exchange

YEAR 4

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

SPECIALISATION IN INTERNATIONAL TRADING

Students specialising 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

Career Prospects

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, Customer Relationship (Cargo/Carrier), 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) and more.

Our graduates are employed in reputed organisations, such as:

- Arrow Asia Shipbrokers
- Bunge Agribusiness Pte Ltd
- Cargill International Trading Pte Ltd
- Chembulk Maritime Singapore, Pte Ltd
- Clarkson Asia Pte Ltd
- Giesecke+Devrient Mobile Security Asia Pte Ltd
- GSK Global Pte Ltd
- Hong Lam Marine Pte Ltd
- IMC Pan Asia Alliance Pte Ltd
- Krishnapatnam Port Pte Ltd
- Maritime and Port Authority of Singapore (MPA)
- Norden Shipping (Singapore) Pte Ltd
- Pacific Carriers Limited
- Pacific World Shipping Pte Ltd
- PCL (Shipping) Pte Ltd
- PSA Corporation Ltd
- Sh Cogent Logistics Pte Ltd
- Singapore Maritime Institute
- The Baltic Exchange (Asia) Pte Ltd
- Tokio Marine Asia Pte Ltd



RECOLLECTIONS FROM THE MARITIME STUDIES PROGRAMME

"There are numerous opportunities in the Maritime Studies programme that will add value to your undergraduate journey."



TAM
Qing Yu,
Benjamin

Class of 2019

Bachelor of Science
(Maritime Studies)

Awards and scholarships are offered in all 4 years of the programme, and students can also do an extra major in Business or have a specialisation in the International Trading programme to value add your academic experience.

Throughout my journey, I applied everything I learnt in class to my internships across the globe, engaged with industry leaders through collaborations and learning trips with the Maritime Business Society, participated in symposiums and community projects, and so much more."

ADMISSION CRITERIA



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



admissions.ntu.edu.sg

Civil / Environmental Engineering

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.

Maritime Studies

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.



GRADUATE STUDIES OPPORTUNITIES

Interested in pursuing postgraduate degrees in Civil Engineering, Environmental Engineering and Maritime Studies? The following graduate programmes are your path to a Master's degree or Doctor of Philosophy (PhD) degree.

BY COURSEWORK

- Master of Science (Civil Engineering)
- Master of Science (Maritime Studies)
- Master of Science (International Construction Management)

BY RESEARCH

- Master of Engineering
- Doctor of Philosophy





For updates, please
refer to the school
website.



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Information is correct at time of printing (Jan 2020).