CIVIL ENGINEERING
Nurturing Holistic Engineers, Impacting Lives
What is Civil Engineering?

Civil engineering is a broad field of engineering that deals with the planning, construction, operation and maintenance of fixed structures or public infrastructure - our roads, subways, bridges, airports, ports, dams, drainage systems, reclaimed land, underground caverns, offshore platforms, oil refinery, power stations, stadiums, amusement parks, desalination plants and flood defences etc. It is about creating, improving and protecting our environment by keeping infrastructure running effectively to meet ongoing challenges on population growth, climate change and natural disasters etc.

NUS Civil Engineering is ranked 1st amongst Civil Engineering schools in Asia, based on the 2017 QS Ranking Survey, and is highly regarded by employers in Singapore.
Domain Areas

**CIVIL ENGINEERING MATERIALS**

This covers the broad scope of structural and non-structural materials with regard to their properties such as strength, specific heat, thermal conductivity and electrical resistivity, and how they can be used to enhance the performance of construction materials.

**CONSTRUCTION MANAGEMENT**

Construction management is about controlling a project’s time, cost and quality using specialised project management techniques to oversee the planning, design and construction of a project, from beginning to end. There is currently a focus on digital construction such as Building Information Modelling and other digital technologies following the recent trends in industrial 4.0.

**GEOTECHNICAL ENGINEERING**

Geotechnical engineering includes the disciplines of rock and soil mechanics, subsurface investigation and ground improvement. It is vital in the design and construction of any civil and structural facilities, above- and under-ground. This includes foundation for roads, highway bridges, buildings, skyscrapers, tunnels and underground facilities.

**HYDRAULIC & WATER RESOURCES**

Hydrologic and hydraulic engineers are responsible for the planning, design, operation and management of surface and ground water systems; preservation and enhancement of the natural river and watershed environment, coastal and oceanographic systems; as well as design and construction of water control facilities, and conservation of water resources. This discipline is highly relevant to both civil and environmental engineering.

**INFRASTRUCTURE SYSTEMS**

Involves the planning, design, operations and management of civil infrastructure systems supporting human activities, including electric power, oil and gas, water and wastewater, communications, transportation and building facilities that make up urban and rural communities.

**OFFSHORE & MARINE ENGINEERING**

This branch of civil engineering is concerned with the analysis and design of fixed and floating offshore structures, such as oil platforms and offshore wind farms that are exposed to the offshore environmental loads: wind, waves, currents.

**STRUCTURAL ENGINEERING**

Focuses on the analysis and design of buildings and non-building structures (e.g. bridges, offshore platforms, railway systems, water treatment and power plants) to have adequate strength, stiffness and stability for safe and satisfactory functional use of these structures.

**TRANSPORTATION ENGINEERING**

Involves the planning, design, operation and management of facilities and systems for any mode of transportation (land, sea and air) in order to provide for safe, efficient, rapid, comfortable, convenient, economical and environmentally compatible movement of people and goods.
Career Prospects

NUS Civil Engineering graduates can opt for careers in multidisciplinary fields to become policymakers, entrepreneurs in engineering, as well as leaders of established multinational companies and various governing authorities.

- **Public Sector Engineers**: Involved in developing policy and standards for the profession and general public.

- **Engineering Educators**: Involved in research work and work with graduate students to conduct research aimed at developing advancements in the field of engineering.

- **Consultancy Engineers**: Work on numerous varied projects, design challenges, and management-related activities.

- **Industry Engineers**: Work in diverse settings including manufacturing, technology, pharmaceuticals, public facilities and utilities, and many others providing goods and services to the public.

- **Construction Engineers**: Work for a contractor to create the built environment, transforming engineering and architectural design drawings from paper to reality.

High Employment Rate of > 95% for the past 4 years.

NUS Civil Engineering graduates are well-grounded in engineering principles, and that is the fundamental building block for an engineer who wishes to be a consultant. With positive attitude and intelligent application of engineering principles, the engineer will be able to progress far in his consultancy career. I have enjoyed working with NUS Civil Engineering graduates and they form a critical part of my consultancy team.

Er Lim Peng Hong
Managing Director,
PH Consulting Pte Ltd

NUS Engineering graduates are able to see the issues holistically and come up with practical solutions to all engineering challenges. They are very adaptable and are fast learners. They are built on strong engineering foundations with good grasp of engineering concepts.

Er Yap Tiem Yew
Group Director, Building & Infrastructure Group,
Housing & Development Board

NUS Engineering, especially its Civil and Structural Engineering programme, has done Singapore very proud by being highly regarded worldwide as the top university in Asia and also within top 3 in world rankings. For many years, Surbana Jurong (SJ) has looked to NUS Civil & Environmental Engineering as a precious resource base for fresh graduates and post-graduates to boost and refresh our engineering talent pool. As SJ scales up its size and operations significantly, we will continue to warmly welcome NUS Engineering graduates and post-graduates to join our company and be a part of our mission of building cities and shaping lives. Over the years, we have found the NUS Civil & Environmental Engineering graduates who have joined our SJ family to be fundamentally well-grounded, industry-ready, motivated, adaptable, always keen to learn and able to contribute.

Er Loh Yan Hui
Deputy Chief Executive Officer (Infrastructure),
Surbana Jurong Consultants Pte Ltd
Words from our Graduates

I find my job very meaningful as my work impacts the everyday life and well-being of people in Singapore by providing engineering solutions in building cities and shaping lives. NUS Civil Engineering gave me a firm foundation in engineering knowledge. More importantly, I have developed the skill of solving complex and real-life engineering problems through my education at NUS Engineering. Those skills have enabled me to deliver safe, innovative and sustainable building designs at work to build a better Singapore.

Kang Mi, Class of 2014
Executive Engineer, C&S Engineering, Surbana Jurong Consultants

My time at NUS Engineering has contributed positively to my career today. It has provided me with the technical qualification to grant me entry into the construction industry. The education I got in NUS Engineering equipped me with the fundamental technical understanding of how things are done on site, and that was extremely useful when I first started as a Project Manager.

Neo Lay Kiat, Class of 2007
Project Manager, Faithful+Gould

In my time at NUS Engineering, I was fortunate to have come under the wings of esteemed and nurturing lecturers. I was also given the chance to broaden life perspectives by pursuing an internship overseas. NUS Engineering provided an environment that nurtured my love for engineering and truly widened my horizons, moulding me into who I am today.

Er Tan Yoong Heng, Class of 1997
Principal, Singapore Office Leader, Arup

As a Senior Engineer in the Foundation Engineering Department in the Building and Construction Authority, I ensure that building works comply with high standards of safety. My engineering journey began in NUS Engineering under the guidance of passionate and dedicated professors. NUS Engineering also provided me with a conducive learning environment with many opportunities and much flexibility to grow my passion in engineering and learn engineering through experiential learning. These knowledge and lessons gained continue to serve as guidance in my work as I strive to make a positive impact to the built environment.

Kwa Chin Soon, Class of 2010
Senior Engineer, Foundation Engineering Department, Building and Construction Authority