ENGINEERING

- AEROSPACE ELECTRONICS
- AEROSPACE ENGINEERING
- AUDIO-VISUAL TECHNOLOGY
- AUTOMATION & MECHATRONIC SYSTEMS
- BIOMEDICAL ENGINEERING
- CLEAN ENERGY MANAGEMENT
- COMMON ENGINEERING PROGRAMME
- ELECTRICAL ENGINEERING
- ELECTRONIC & COMPUTER ENGINEERING
- ENGINEERING SCIENCE
- MARINE & OFFSHORE TECHNOLOGY
- MECHANICAL ENGINEERING
- NETWORK SYSTEMS & SECURITY

SCHOOL OF

NGEE ANN POLY
School of ENGINEERING

10  Common Engineering Programme (N71)  NEW!
13  Engineering Science (N93)
17  Aerospace Electronics (N75)
20  Aerospace Engineering (N65)  RENAMED
25  Audio-Visual Technology (N76)
29  Automation & Mechatronic Systems (N50)
33  Biomedical Engineering (N60)
36  Clean Energy Management (N84)
40  Electrical Engineering (N43)
45  Electronic & Computer Engineering (N44)
49  Marine & Offshore Technology (N42)
53  Mechanical Engineering (N41)
57  Network Systems & Security (N64)
From multiple learning pathways to overseas exposure, real-world projects to enhanced internships, industry induction to mentorship, you’ll find engineering with that something xtra at Ngee Ann Polytechnic’s School of Engineering (SoE)!
MULTIPLE LEARNING PATHWAYS
At SoE, there are as many as 12 engineering diplomas for you to pick from.

But if you are still not sure which engineering discipline best suits you, fret not. The special Common Engineering Programme (CEP) will help you gain a better understanding of the different disciplines before you make your choice. You’ll be able to choose your preferred engineering diploma from either the Mechanical Track or Electrical & Electronic Track at the end of your first semester. Find out more about CEP on Page 10.

**Specific Engineering Diploma**
Choose this if you have decided on a particular engineering course.

- Common foundational modules in your first semester
- Choose from 12 engineering diplomas:
  - Engineering Science
  - Aerospace Electronics
  - Aerospace Engineering
  - Audio-Visual Technology
  - Automation & Mechatronic Systems
  - Biomedical Engineering
  - Clean Energy Management
  - Electrical Engineering
  - Electronic & Computer Engineering
  - Marine & Offshore Technology
  - Mechanical Engineering
  - Network Systems & Security
- Some diplomas offer specialisation options in Year 2 or 3

**Common Engineering Programme**
Choose this if you haven’t decided on a particular engineering course.

- Common foundational modules expose you to different engineering disciplines
- Choose from 9 engineering diplomas towards the end of your first year
  - Aerospace Electronics
  - Aerospace Engineering
  - Automation & Mechatronic Systems
  - Biomedical Engineering
  - Clean Energy Management
  - Electrical Engineering
  - Electronic & Computer Engineering
  - Marine & Offshore Technology
  - Mechanical Engineering
- Some diplomas offer specialisation options in Year 2 or 3
BEYOND THE CLASSROOM

At SoE, there are many exciting opportunities to inspire your passion for learning and innovating. Our strong industry links also ensure that you pick up relevant industry skills and are exposed to emerging technologies.

But don’t take our word for it – check out what our students have done and where they’ve been! With the broad-based curriculum that SoE offers, you can expect limitless possibilities and a journey with that something xtra.

Service-Learning

Design and develop engineering solutions that benefit society and make classroom learning more purposeful. For example, students worked with Lions Befrienders to create the NP RoboCoach, which assists elderly in keeping fit.
Overseas Exposure
Go on overseas trips that deepen your skillsets.

University Research
Work with professors from NUS, NTU and SUTO on real-world projects in areas like artificial intelligence and photonics.

Induction Programmes
Participate in induction programmes which include industry visits and talks that give you a sneak peek at the wide spectrum of careers in the field of engineering.

Internship
Gain valuable real-world experience through internships.

Integrated Real-World Project
Work on an integrated project, where you will develop solutions for real-world problems using design-thinking methods.
SKILLSFUTURE INITIATIVES

Enhanced Internship
You can look forward to longer and more structured internships, as NP continues to collaborate with industry partners to provide more effective on-the-job training. Enhanced internships have been rolled out for most courses. Part of the national SkillsFuture Initiative, this programme allows you to better apply the skills you have learnt in the classroom to the workplace.

Earn and Learn Programme
You can join the Earn and Learn Programme to get a head start in your career. A work-study programme, you will be matched with a company and undergo structured on-the-job training, and obtain an industry-recognised certification, such as the Specialist Diploma in Electrical Design and Operation, as well as the Specialist Diploma in Marine Production from NP. There is also the Start-up Talent Factory programme for fresh poly graduates who are keen to do a 9 to 12-month stint at a start-up.

SkillsFuture Series
NP also offers several courses under the SkillsFuture Series in these emerging skills areas: Entrepreneurship, Advanced Manufacturing, Tech-enabled Services and Data Analytics.
The Math and Science Whiz

Vhora Shrayans Suresh
Mechanical Engineering graduate, Class of 2016

A strong interest in physics and math, coupled with inspiration he got from the movie The Aviator and the keenness to study how machines were made, propelled Shrayans to take up the Mechanical Engineering course in NP. While in NP, he served as the President of Rangers, a selected group of student ambassadors from SoE. He also credits his great memories in NP to his encouraging supervisors. Shrayans has been offered to read Mechanical Engineering at NTU and NUS and aims to work in the field before coming back to NP as a lecturer.

The Young Researcher

Zenas Lim
Engineering Science graduate, Class of 2015

Zenas’ passion for research deepened when he worked with experts at A*STAR’s Data Storage Institute on his final-year project. His team’s project eventually won the top prize in NP under the Polytechnic Student Research Programme in 2015. As the most outstanding NP graduate of his cohort, Zenas was awarded the Ngee Ann Kongsi Gold Medal. He also clinched the Lee Kuan Yew Award. He is currently pursuing a direct Masters in Electronic and Information Engineering at Imperial College London.
The Renaissance Engineer

Pavatharani Senthil Kumar
Aerospace Technology graduate, Class of 2016

From young, Pavatharani has always wanted to be a pilot and was curious how aircraft worked. In fact, tinkering with toys by taking them apart and fixing them afterward was something that came naturally to her. Undeterred by gender norms, she aspires to be one of the rare female leaders in the aerospace industry and intends to make the industry more eco-friendly. She is currently in the prestigious Renaissance Engineering Programme at Nanyang Technological University, under the Renaissance Engineering Programme Scholarship.

The Tech Entrepreneur

Jasper Yap
Aerospace Technology graduate, Class of 2017

Jasper picked up programming skills on his own while working part-time in a maid agency, where he created a system that enabled customers to complete the paperwork process in five minutes instead of the usual hour. Word got out and his skills became so sought after that at least five other companies contacted him to create similar systems for them. In 2016, he co-founded Yosei Labs, a web design agency which has since been acquired by EeZee, a Business-to-Business procurement company with over 150 suppliers on its platform.
The IT Security Specialist

Wong Kee Hui
Network Systems & Security graduate, Class of 2016

Kee Hui’s passion for computer games spurred him to enrol in the Nitec course in Info-Communications Technology, where he realised his potential in the network systems field. His good results in ITE eventually earned him a spot in NP. He continued to shine in NP and was awarded the Tay Eng Soon Gold Medal upon graduation. Even though he has secured a place in Nanyang Technological University to read Computer Science, Kee Hui is also considering working in the field first and taking up certification courses to become an IT security specialist. He is, after all, a true believer in the unconventional route!

The Engineer & Doctor

Anne Foo
Engineering Science graduate, Class of 2018

At NP, Anne had the opportunity to work on several research projects, including an award-winning one where she developed an algorithm for the detection of coronary artery disease. This project made her realise how she could use her skills to make people’s lives better and the possibility of pursuing a career as a doctor in the future.

Anne has had her dream realised as she has been accepted in the new SUTD-Duke-NUS Special Track, a degree programme jointly offered by the Singapore University of Technology and Design and Duke-NUS Medical School. The interdisciplinary programme aims to prepare students with a background in engineering for leadership roles in healthcare as clinicians who can treat patients and develop medical innovations.
N42

DIPLOMA IN
MARINE & OFFSHORE TECHNOLOGY

› The only diploma that covers both naval architecture and offshore engineering
› Enhanced internships and SkillsFuture Earn and Learn programmes to deepen your skills
› Subsidised degree offered by Newcastle University right here at Ngee Ann Poly
› Prestigious ASMI-MOT Scholarship that cover tuition fees and allowances
WHAT THE COURSE IS ABOUT

You’re one step closer to fulfilling your dreams of building your own ship when you join our Diploma in Marine & Offshore Technology (MOT). We will train you in naval architecture and offshore technology, which are among the most sought-after specialist skills in Singapore’s maritime industry.

With MOT, you will learn to design and build your own ship models, and test them in Singapore’s only towing tank located in our campus. Our strong emphasis on Design Thinking and Practice will give you an edge in creating innovative solutions for using clean energy, developing new materials and processes, as well as designing and building marine vessels and offshore structures.

Thanks to MOT’s strong ties with key industry players, such as the Association of Singapore Marine Industries (ASMI), Keppel Offshore & Marine and SembCorp Marine, you get to go on frequent study trips to gain industry exposure and receive in-depth training that will stand you in good stead in your career!

In the first two years, you will be grounded with strong fundamentals of engineering, together with naval architecture, marine engineering and offshore design technology. Enhanced internships have also been rolled out for MOT students. In your final year, you will intern at a host company in the marine and offshore industry for six months and apply the skills learnt at the workplace. You can also choose to major in one of the two specialisations in your final year – Design Option or Oil & Gas Option.

SPECIALISATION OPTIONS

Design
Analyse the hydrodynamics and structural performance of ships and oil rigs. Perform Marine & Offshore Design according to design thinking process using the latest Computer Aided Design (CAD) and simulation software.

Oil & Gas
Analyse and design offshore oil & gas and also subsea systems that are integral to the design and construction of offshore oil rigs.
/ WHAT YOU WILL LEARN /

YEAR 1
- Electrical Engineering Fundamentals
- Electrical & Electronic Technology
- Engineering Mathematics 1 & 2
- Engineering & Society
- Integrated Real-world Project 1 & 2
- Materials & Manufacturing Technology
- Mechanical Engineering Fundamentals
- Programming
- Thermofluids
- Career & Professional Preparation I
- Communication Essentials*
- Innovation Made Possible*
- Sports & Wellness*
- English Language Express**

YEAR 2
- Fundamentals of Naval Architecture 1 & 2
- Marine CAD
- Marine Design Practice
- Marine Design Drafting
- Marine Auxiliary Systems
- Marine Propulsion Systems
- Marine Industry Safety
- Marine Production Technology
- Offshore Drilling & Production
- Engineering Mathematics 3B
- Strength of Materials
- Career & Professional Preparation II
- World Issues: A Singapore Perspective*
- Any one IS elective*

YEAR 3
Common Modules
- Marine Design Project
- Fundamentals of Naval Architecture 3
- Six-month Internship
- Project ID: Connecting the Dots*

Specialisation Option Modules
Design
- Marine & Offshore Design
- Marine Design Applications
- Offshore Dynamics

Oil & Gas
- Offshore Topsides Systems
- Drilling Engineering
- Subsea Technology

* Interdisciplinary Studies (IS) modules account for up to 14 credit units of the diploma curriculum. They include modules in communication, innovation and world issues, as well as an interdisciplinary project. By bringing students from diverse diplomas together, the interdisciplinary project fosters collaboration to explore and propose solutions for real-world problems. IS aims to develop students to be agile and self-directed learners, ready for the future workplace.

** For selected students only.

To keep our curriculum current and robust, diploma modules are subject to change over the three years. Please visit our website for latest updates.
/ ENTRY REQUIREMENTS /
AGGREGATE TYPE ELR2B2-C
To be eligible for consideration, candidates must have the following GCE 'O' Level examination (or equivalent) results.

<table>
<thead>
<tr>
<th>SUBJECT</th>
<th>'O' LEVEL GRADE</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Language*</td>
<td>1-7</td>
</tr>
<tr>
<td>Mathematics (Elementary/Additional)</td>
<td>1-6</td>
</tr>
<tr>
<td>Science</td>
<td>1-6</td>
</tr>
<tr>
<td>(with Physics, Chemistry or Biology component)</td>
<td></td>
</tr>
<tr>
<td>or Biotechnology</td>
<td></td>
</tr>
<tr>
<td>or Computing/Computer Studies</td>
<td></td>
</tr>
<tr>
<td>or Design &amp; Technology</td>
<td></td>
</tr>
<tr>
<td>or Electronics/Fundamentals of Electronics</td>
<td></td>
</tr>
</tbody>
</table>

* Candidates with English as a second language must have attained a minimum grade of 6.

You must also fulfil the aggregate computation requirements.

Candidates with hearing deficiency or severe vision deficiency should not apply for the course.

Related Courses
- Aerospace Engineering
- Automation & Mechatronic Systems
- Common Engineering Programme
- Engineering Science
- Marine & Offshore Technology

/ FURTHER STUDIES /
Accredited by the Institute of Marine Engineering Science & Technology (UK), this diploma gives you the opportunity to improve your prospects by pursuing a related degree programme at a local or an overseas university.

Together with Newcastle University, the Singapore Institute of Technology offers you the chance to pursue a prestigious degree in Marine Engineering, Naval Architecture or Offshore Engineering – right in our NP campus! This subsidised degree programme can be completed in two years. You can pursue a Bachelor of Engineering with Honours in Marine Engineering, Naval Architecture or Offshore Engineering.

You may also enjoy advanced standing at local universities such as Nanyang Technological University and National University of Singapore, or overseas universities such as Newcastle University, University of Glasgow, University of Strathclyde, University of Sydney and University of Tasmania.

/ CAREER /
Pursue a career in the design, marketing, commerce, survey, production, safety, human resource, and research and development areas of the marine and offshore industries.

As part of the SkillsFuture initiative, you can join the Earn and Learn Programme (ELP) and enrol in courses such as the Specialist Diploma in Marine Production and Specialist Diploma in Marine Design to get a head start in your career. These two specialist diplomas are work-study industry certification programmes where you will be matched with a company and undergo structured on-the-job training.

Sim Qi Bin was encouraged by his company, Keppel Singmarine, to join the SkillsFuture Earn and Learn Programme. With the real-world exposure to shipyards and a supportive employer, the MOT graduate was able to better chart his future career in the industry.

CONTACT US
For the most up-to-date information on NP’s Diploma in Marine & Offshore Technology and its modules, log on to www.np.edu.sg/mot