ENGINEERING

- AEROSPACE ENGINEERING
- AUTOMATION & MECHATRONIC SYSTEMS
- BIOMEDICAL ENGINEERING
- COMMON ENGINEERING PROGRAMME
- ELECTRICAL ENGINEERING
- ELECTRONIC & COMPUTER ENGINEERING
- ENGINEERING SCIENCE
- MARINE & OFFSHORE TECHNOLOGY
- MECHANICAL ENGINEERING
School of ENGINEERING

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20 Automation & Mechatronic Systems [N50]
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27 Electrical Engineering [N43] REVAMPED
31 Electronic & Computer Engineering (N44)
34 Marine & Offshore Technology [N42]
37 Mechanical Engineering [N41]
From industry induction to mentorship, future city programme to overseas exposure, you’ll find engineering with that something xtra at Ngee Ann Polytechnic’s School of Engineering (SoE)!
At SoE, there are as many as 8 engineering diplomas for you to pick from, depending on your interest or aptitude.

**Engineering Science (ES)**
Get a strong foundation in engineering and related domains such as mathematics, physics, applied science and research.

**Aerospace Engineering (AEG)**
The only aerospace diploma that allows you to choose between the Avionics and Mechanical specialisation options, two engineering disciplines in the aerospace industry.

**Automation & Mechatronic Systems (AMS)**
A well-designed curriculum that combines mechanics, electronics and programming to engineer smart machines such as autonomous vehicles, robots and smart devices.

**Biomedical Engineering (BME)**
The only poly diploma that bridges engineering and life sciences.

**Electrical Engineering (EE)**
A broad-based course that prepares you for careers in diverse sectors ranging from clean energy, power engineering, transportation to practising licensed electrical work.

**Electronic & Computer Engineering (ECE)**
A solid diploma that gives you a strong foundation in electronic hardware design, software programming skills and computer networks.

**Marine & Offshore Technology (MOT)**
A unique course that covers both naval architecture and offshore engineering.

**Mechanical Engineering (ME)**
A broad-based curriculum that prepares you for the future economy in precision engineering and manufacturing, facilities and infrastructure; environment and energy; and transportation.

**Common Engineering Programme (CEP)**
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 the Electrical & Electronic Track at the end of your first semester. Find out more about CEP on Page 9.
SKILLSFUTURE INITIATIVES

Enhanced Internships
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.

SkillsFuture Work-Study Post-Diploma Programme
You can join the SkillsFuture Work-Study Post-Diploma 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.
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.

Future City Programme
Shape the Singapore of tomorrow through this unique programme! You will get exposed to or be involved in future city projects through mentorships, learning journeys and internships.

Scan the QR code to find out more about the Future City Programme!

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 skill sets.

University Research
Work with professors from NUS, NTU and SUTD 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.
The Math and Science Whiz

Vhora Shrayans Suresh
Mechanical Engineering graduate, Class of 2016

A strong interest in physics and math, coupled with inspiration 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 is pursuing Mechanical Engineering at NTU 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 diploma has been renamed as Aerospace Engineering since AY2019.
The Biomedical Engineer

Tey Ming Chuan
Biomedical Engineering graduate, Class of 2018

Ming Chuan decided to pursue the Biomedical Engineering course in NP as he wanted to explore the seemingly limitless possibilities in integrating biology and engineering.

His opportunity came in his final year when he undertook a project in collaboration with the National University Hospital. Ming Chuan and his team mate worked on a new innovation to aid in administering liquid food to patients with swallowing difficulties. Instead of tapping on traditional x-rays to trace the internal placement of the feeding tube, the project utilises air pressure from an electromechanical pneumatic system which is a safer, simpler and cheaper method.

The project took six months, as well as numerous hospital visits for collecting feedback, to come to pass. The team’s efforts were recognised, as the project received a Merit Prize at the Tan Kah Kee Young Inventors’ Award and a Bronze Award (Polytechnic Category) at the Biomedical Engineering Society’s 11th Scientific Meeting.

Looking ahead, Ming Chuan hopes to use his technical skills and knowledge to develop a new innovation that can benefit the community in future.

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.
N71 COMMON ENGINEERING PROGRAMME

- Get more time to discover your interests
- Common foundational modules expose you to different engineering disciplines
- Eight engineering diplomas to choose from
WHAT THE COURSE IS ABOUT
Interested in the world of Engineering but unsure about what course to go for? With the Common Engineering Programme (CEP), you will have more time to explore the many fields of engineering instead of deciding on a specific discipline straight away.

During the first semester, you will build a broad-based foundation in mechanical, electronic and electrical engineering, as well as mathematics and programming. Apply the knowledge that you’ve learnt by working on an integrated real-world project. You’ll also gain real-world experience through industry visits and dialogues, and receive career guidance to help you make a more informed decision in your course selection.

You’ll get to choose either the Mechanical Track or Electrical & Electronic Track after your first semester, and choose a specific engineering diploma* to major in by the end of your first year. Upon graduation, you will receive the same diploma as your peers who have enrolled for a particular course right from the start.

* Choose One of the Eight Engineering Diplomas!

Mechanical Track
- Aerospace Engineering (Mechanical Option) (page 16)
- Automation & Mechatronic Systems (page 20)
- Marine & Offshore Technology (page 34)
- Mechanical Engineering (page 37)

Electrical & Electronic Track
- Aerospace Engineering (Avionics Option) (page 16)
- Engineering Science (page 12)
- Biomedical Engineering (page 24)
- Electrical Engineering (page 27)
- Electronic & Computer Engineering (page 31)

WHAT YOU WILL LEARN
YEAR 1
Semester 1
- Engineering Mathematics 1
- Electrical Engineering Fundamentals
- Mechanical Engineering Fundamentals
- Programming
- Integrated Real-world Project 1
- Innovation Made Possible*
- English Language Express**

Choose either the Mechanical Track or Electrical & Electronic Track at the end of your first semester.

Mechanical Track
YEAR 1
Semester 2
- Engineering Mathematics 2
- Electrical & Electronics Technology
- Materials & Manufacturing Technology
- Thermofluids
- Integrated Real-world Project 2
- Communication Essentials For Engineers*
- Health & Wellness*

Electrical & Electronic Track
YEAR 1
Semester 2
- Engineering Mathematics 2
- Analogue Electronics
- AC Circuits
- Digital Fundamentals
- Integrated Real-world Project 2
- Communication Essentials For Engineers*
- Health & Wellness*
Select your preferred diploma towards the end of your second semester and refer to the module listing in the respective diploma pages:

YEAR 2
- Core modules under the engineering diploma you major in
- World Issues: A Singapore Perspective*

YEAR 3
- Core modules under the engineering diploma you major in
- Project ID: Connecting the Dots*

* Interdisciplinary Studies (IS) modules account for up to 13 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.

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You must also fulfill the aggregate computation requirements for the ELR2B2-C Aggregate Type listed at www.np.edu.sg/admissions/Documents/ELR2B2.pdf

For students with other qualifications, please refer to the NP website for the entry requirements and admissions exercise period.

Candidates with hearing deficiency or severe vision deficiency should not apply for the course. Those with colour vision deficiency may be considered, subject to an in-house test.

/ CAREER /
Refer to the Career section on the respective diploma pages.

/ FURTHER STUDIES /
Refer to the Further Studies section on the respective diploma pages.

CONTACT US
For the most up-to-date information on NPs Common Engineering Programme, log on to www.np.edu.sg/cep
N93 DIPLOMA IN ENGINEERING SCIENCE

- A taste of university life with applied R&D projects at NTU, NUS and SUTD
- Overseas study visits and early R&D exposure at top-notch universities in Singapore, Japan and China as well as renowned research institutes such as A*STAR
WHAT THE COURSE IS ABOUT

You’re passionate about engineering applications, but also love the sciences. You’re strong in both math and physics. You’re also keen to explore scientific research and discover new ways to solve real-world problems. You don’t have to settle on a compromise – how about honing all these interests through the Diploma in Engineering Science (ES)?

With a curriculum designed in collaboration with Nanyang Technological University (NTU), ES prepares you well for a wide range of careers and degrees in engineering fields such as artificial intelligence and machine learning, computer, electrical, electronic and mechanical as well as material science.

During the first two years, you will be equipped with a strong foundation in engineering and related domains such as mathematics, physics, applied science and research. You will attend distinguished guest lectures and go on industry visits. You may also be exposed to short stints with research establishments and institutes such as NUS and A*STAR.

In your second year, you may also get to visit top overseas universities such as Tokyo Metropolitan University (Japan), Tokyo Metropolitan College of Industrial Technology (Japan) or Nanjing University of Science & Technology (China). There, you will interact with students and professors, and be exposed to the latest developments in technology and innovation.

In the third year, you will be exposed to the skills and knowledge in emerging technologies in artificial intelligence and machine learning, and embark on a final-year project or R&D-oriented internship.

You may have the opportunity to be attached to Nanyang Technological University (NTU), National University of Singapore (NUS), Singapore University of Technology & Design (SUTD) or a research institute, where you will be involved in projects supervised by university professors and researchers. There might also be opportunities to work on a R&D-oriented internship with local startups and multinational companies, as well as an overseas internship. These projects and internships will cover a wide range of topics such as artificial intelligence, automotive vehicles, additive manufacturing, Internet of Things (IoT), robotics, biomedical engineering, green energy and material science.

If you’re looking for an Engineering diploma that attracts the brightest minds, look no further!

18% ES students received the NP Scholarship and Merit Award in 2018

9 ES students received external scholarships (e.g. A*STAR Science Award (Poly), DSO Diploma Scholarship, Singtel Engineering Cadet Scholarship) in 2018, which provides R&D internship opportunities

80% ES graduates offered admission in prestigious local and overseas universities
WHAT YOU WILL LEARN

YEAR 1
- AC Circuits
- Analogue Electronics
- Applied Mathematics 1 & 2
- Digital Fundamentals
- Electrical Engineering Fundamentals
- Mechanical Engineering Fundamentals
- Programming
- Integrated Real-World Project 1 & 2
- Health & Wellness*
- Innovation Made Possible*
- Communication Essentials For Engineers*
- English Language Express**

Off-campus Exposure
Your exposure to engineering will be broadened with visits and short stints at multinational companies (MNCs) and renowned research institutes such as A*STAR and NUS Research.

YEAR 2
- Physics 1 & 2
- Data Structures & Algorithms
- Embedded System
- Object-Oriented Programming
- Thermofluids
- Materials & Manufacturing Technology
- Integrated Real-World Project 3 & 4
- World Issues: A Singapore Perspective*

Off-campus Exposure
You will expand your horizons with study visits to top overseas universities and institutions such as Tokyo Metropolitan University (Japan), Tokyo Metropolitan College of Industrial Technology (Japan) or Nanjing University of Science & Technology (China).

YEAR 3
- Circuit Analysis & Design
- Artificial Intelligence & Machine Learning
- System Modelling & Control
- Integrated Real-World Project 5
- Final-Year Project or Internship (Local/Overseas)
- Project ID: Connecting the Dots*

Off-campus Exposure
You may get to work on applied R&D projects in NTU, NUS, SUTD or research institutes. Alternatively, you might get internship opportunities in multinational or startup companies (local or overseas).

* Interdisciplinary Studies (IS) modules account for up to 15 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.
**/ CAREER /**
Armed with an ES diploma, you will enjoy good career prospects in areas such as research & development, product design and development, and manufacturing and services.

**/ FURTHER STUDIES /**
Both NTU and NUS have accredited ES for a wide range of their degree programmes. In addition, SUTD offers course/module exemptions for ES graduates who have met the criteria in their Compact Courses. With your strong foundation as an ES graduate, you can also apply for a wide range of degree programmes offered by overseas universities. For example, overseas universities that offer degrees in engineering science include:

- University of Toronto (Canada)
- Oxford University (UK)
- University of California, Berkeley (USA)
- Osaka University (Japan)
- University of Hong Kong (China)

About 80 per cent of our graduates were offered admission to various local and overseas universities.

**/ ENTRY REQUIREMENTS /**

**AGGREGATE TYPE ELR2B2-C**
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For students with other qualifications, please refer to the NP website for the entry requirements and admissions exercise period.

Candidates with hearing deficiency or severe vision deficiency should not apply for the course. Those with colour vision deficiency may be considered, subject to an in-house test.

**CONTACT US**
For the most up-to-date information on NP’s Diploma in Engineering Science and its modules, log on to [www.np.edu.sg/es](http://www.np.edu.sg/es)

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**A Brainy Solution**
ES graduates Sunny Despande and S. Suren developed a system that allows clinicians to accurately diagnose epileptic seizures during brain signal screenings. The Brainwave Screening system has an accuracy rate of up to 83 per cent, based on the project’s database and samples of 7,500 brainwave signals.

N65 DIPLOMA IN AEROSPACE ENGINEERING

- A strong focus on aerospace design and manufacture of aircraft components
- Curriculum aligned to CAAS Airworthiness Requirements gives you a head start in getting your licence as an Aircraft Maintenance Engineer
- Get hands-on experience by working on real-world aerospace projects every semester
- Immersive learning experience at our Aerospace Hub
WHAT THE COURSE IS ABOUT

Growing up, were you fascinated with how a heavy machine can fly? Do you ever imagine yourself designing and handling the next generation of aircraft? Do you find yourself interested in aviation news? Then the Diploma in Aerospace Engineering (AEG) is the course for you.

In AEG, you will gain a strong engineering foundation with a focus on major aerospace disciplines. In your first semester, we will strengthen your engineering knowledge with modules such as Engineering Mathematics, Mechanical Engineering Fundamentals and Electrical Engineering Fundamentals to prepare you for the core aerospace modules in the later semesters.

At the end of your first semester, you can pick one of our two specialisation options (Avionics or Mechanical) that will build on your engineering foundation and areas of interest.

Throughout your three years, there will be opportunities for you to apply your engineering knowledge and design skills through an integrated real-world project every semester.

With our strong emphasis on design thinking in the integrated real-world projects, you will be well prepared for any challenges and jobs in the future.

Then in your final year, put your knowledge to the test with a six-month local or overseas internship with companies such as Airbus Helicopters, Collins Aerospace, Pratt & Whitney, Scoot, ST Engineering and Thales Solutions Asia.

Students who are interested to get their Private Pilot Licence (PPL) can choose to participate in the Singapore Youth Flying Club PPL Course as their internship.

SPECIALISATION OPTIONS

Avionics
You will get to study the principles of flight and the various sophisticated systems on an aircraft, such as navigation, surveillance, communication and electrical systems.

Mechanical
You will learn the fundamentals of engineering system design, aircraft structures and materials, applied thermofluids as well as aircraft maintenance practices.
WHAT YOU WILL LEARN

YEAR 1
Common Modules
– Engineering Mathematics 1 & 2
– Mechanical Engineering Fundamentals
– Electrical Engineering Fundamentals
– Programming
– Integrated Real-world Project 1 & 2
– Health & Wellness^*
– Innovation Made Possible^*
– Communication Essentials For Engineers^*
– English Language Express**

Specialisation Option Modules
Avionics
– AC Circuits
– Analogue Electronics
– Digital Fundamentals

Mechanical
– Thermofluids
– Electrical & Electronics Technology
– Materials & Manufacturing Technology

YEAR 2
Common Modules
– Aerospace Fundamentals
– World Issues: A Singapore Perspective^*

Specialisation Option Modules
Avionics
– Applied Digital Electronics
– Applied Analogue Electronics
– Communication Systems
– Human Factors & Aviation Legislation
– Integrated Real-world Project 3 & 4 (Avionics)
– Object-oriented Programming
– Materials & Manufacturing Technology
– Principles & Applications of Aircraft Science

Mechanical
– Aircraft Maintenance Practices
– Aircraft Structures & Materials
– Applied Thermofluids
– Engineering System Design
– Integrated Real-world Project 3 & 4 (Mechanical)
– Strength of Materials
– Quality Systems & Analytics

YEAR 3
Common Modules
– Six-month Internship
– Project ID: Connecting the Dots^*

Specialisation Option Modules
Avionics
– Aircraft Navigation & Surveillance Systems
– Aircraft Electrical & Instrumentation Systems
– Final-Year Project
– Integrated Real-world Project 5 (Avionics)
– Quality Systems & Analytics

Mechanical
– Aircraft Propulsion Systems
– Aircraft Mechanical Systems
– Human Factors & Aviation Legislation
– Integrated Real-world Project 5 (Mechanical)
– System Modeling & Control

^ Interdisciplinary Studies (IS) modules account for up to 13 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.
CAREER

With the growth of the local and global aerospace industry, the expansion and development of new airports and the continued growth of Singapore’s Seletar Aerospace Park, there is a strong demand for skilled aerospace professionals. AEG is recognised by many established aerospace organisations, which gives you an advantage when exploring such careers.

You can look forward to being employed in the various aerospace industries such as maintenance, repair and operations, research and development, engineering design, technical sales and marketing.

What’s more, AEG prepares you for modules in the Civil Aviation Authority of Singapore (CAAS) Airworthiness Requirements (SAR 66) examinations so you get a head start in acquiring your licence as an Aircraft Maintenance Engineer.

You can also enrol in various skills-deepening programmes or apply for the SkillsFuture Work-Study Post-Diploma Programme, if applicable, upon graduation.

FURTHER STUDIES

As an AEG graduate, you will be able to pursue an aerospace-related degree at the Singapore Institute of Technology, Singapore University of Social Sciences or overseas universities in Australia, New Zealand, USA and UK.

Or you can choose to pursue related engineering degrees with advanced standing at prestigious local universities like National University of Singapore, Nanyang Technological University, and Singapore University of Technology and Design.

ENTRY REQUIREMENTS

AGGREGATE TYPE ELR2B2-C

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You must also fulfil the aggregate computation requirements for the ELR2B2-C Aggregate Type listed at www.np.edu.sg/admissions/Documents/ELR2B2.pdf

For students with other qualifications, please refer to the NP website for the entry requirements and admissions exercise period.

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

Related Courses

– Automation & Mechatronic Systems
– Common Engineering Programme
– Electrical Engineering
– Electronic & Computer Engineering
– Mechanical Engineering

CONTACT US

For the most up-to-date information on NP’s Diploma in Aerospace Engineering and its modules, log on to www.np.edu.sg/aeg

"I had an enriching experience at NP. My lecturers were very supportive and have shaped me into becoming a better learner. I learnt how to use critical thinking skills to solve complex problems, or even to develop new inventions that can benefit people."

LERCY CHOW
AEROSPACE ELECTRONICS* GRADUATE, CLASS OF 2017
Lercy was a Gold Medallist and is currently on the University Engineering Scholarship (UES), pursuing her Bachelor of Engineering in NTU.

*Renamed as the Diploma in Aerospace Engineering
DIPLOMA IN
AUTOMATION &
MECHATRONIC SYSTEMS

- A broad-based curriculum that enables you to combine mechanics, electronics and programming to engineer smart machines such as autonomous vehicles and robots
- Strong focus on emerging trends & skills in Advanced Robotics & Automation, Data Analytics, Internet of Things (IoT) and Design Thinking for the new Digital Industry
- Get prepared for exciting careers in the precision engineering, electronics, aerospace and marine & offshore engineering sectors
WHAT THE COURSE IS ABOUT

Imagine stepping out of your smart home, taking a self-driving vehicle to your favourite restaurant, and getting served by a robotic waitress. The field of automation is steadily growing and finding its way into every home, company and industry. If you want to engineer the next generation of smart machines, the Diploma in Automation & Mechatronic Systems (AMS) is your ideal choice.

AMS prepares students for exciting careers in diverse sectors ranging from precision engineering, aerospace, electronics, energy and chemical, food manufacturing, marine & offshore and sea transport. You will learn to use emerging skills in robotics and automation, design thinking, Internet of Things (IoT) and data analytics to develop high-tech solutions for consumer products and industrial applications.

What’s more, AMS’s emphasis on project-based learning, design thinking and experiential learning will give you an edge in developing applications of industrial robots, autonomous vehicles, modular production systems and smart sensor technology.

In the first two years, you will build a strong foundation in the various disciplines of engineering - electrical, electronics, mechanical and programming. You will also learn practical skills in Computer-Aided Design and development of control software for smart devices and automated lines.

In your third year, you will learn how to control industrial robots and build an autonomous vehicle. You will also go on a six-month internship with companies such as ST Land Systems, PSA Singapore, Keppel Offshore & Marine and A*STAR. Or you can choose to work on a final-year project to design and develop a high-tech product prototype.

You will also get to work on an Integrated Real-world Project in every semester. These projects will develop your critical thinking, problem-solving and technical skills.

During my internship with Rolls-Royce Singapore, I was part of the research team that played a pivotal role in helping Rolls-Royce to improve the efficiency and performance of its manufacturing processes. I worked on developing virtual commissioning solutions that help automate processes of surface modification technologies. I was excited to be able to apply my skills in the workplace.

JAVIER TEO
AMS GRADUATE, CLASS OF 2018
WHAT YOU WILL LEARN

YEAR 1
- Electrical Engineering Fundamentals
- Electrical & Electronics Technology
- Engineering Mathematics 1 & 2
- Integrated Real-world Project 1 & 2
- Materials & Manufacturing Technology
- Mechanical Engineering Fundamentals
- Programming
- Thermafluids
- Health & Wellness*
- Innovation Made Possible*
- Communication Essentials For Engineers*
- English Language Express**

YEAR 2
- Applied Mechanics
- Computer-Aided Design & Drafting
- Engineering System Design
- Industrial Automation
- Integrated Real-world Project 3 & 4
- Microcontroller & System
- Network Fundamentals
- Quality Systems & Analytics
- Strength of Materials
- World Issues: A Singapore Perspective*

YEAR 3
- Industrial Robot System & Application
- Integrated Real-world Project 5
- Sensor & Drive Systems
- System Modelling & Control
- Six-month Internship or Final-Year Project
- Project ID: Connecting the Dots*

* Interdisciplinary Studies (IS) modules account for up to 15 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.

One Step Ahead
Meet the unbeatable DoodleBot - an industrial robot that loves playing Tic-Tac-Toe with you! This smart system is a product of several automation technologies combined, including robotics, computer vision, image processing and control algorithm programming! Using its simple web-camera, the Doodlebot can locate the square grids and circles drawn by you, analyse the game and counter your moves!
CAREER

As a designer and engineer of automation systems, you will be well-sought after in jobs that involve the design, development and manufacturing of "intelligent" products and systems. Examples of some industries where you can pursue such careers include precision engineering, electronics, chemicals and petrochemicals, aerospace, marine & offshore, and information and communication. You can also find jobs related to process development, process automation, port automation, engineering tests as well as the maintenance and operation of high-tech equipment and facilities.

The AMS course is a broad-based course and caters to various SkillsFuture sectors: Precision Engineering, Aerospace, Electronics, Energy and Chemical, Food Manufacturing, Marine & Offshore Engineering and Sea Transport.

You can deepen your skills through SkillsFuture Work-Study Post-Diploma Programmes, such as the Specialist Diploma in Aircraft Maintenance and Engineering and Specialist Diploma in Marine Production respectively.

FURTHER STUDIES

You will be well prepared for further studies in mechanical, electrical or electronic engineering at both local and overseas universities. You may even be granted advanced standing in related engineering courses at:

- Nanyang Technological University
  - Bachelor of Engineering in Computer Science, Computer Engineering, Electrical & Electronic Engineering, Information Engineering and Media, Mechanical Engineering or Materials Engineering
- National University of Singapore
  - Bachelor of Engineering in Computer, Electrical or Mechanical Engineering
- University of Manchester (UK)
  - Bachelor of Engineering in Mechatronic Engineering
- University of Sheffield (UK)
  - Bachelor of Engineering in Mechatronic and Robotic Engineering or Systems & Control Engineering
- University of New South Wales [Australia]
  - Bachelor of Engineering in Mechatronic Engineering
- Monash University [Australia]
  - Bachelor of Engineering in Mechatronic Engineering or IT & Systems
- Singapore Institute of Technology-University of Glasgow
  - Bachelor of Engineering with Honours in Mechanical Engineering

ENTRY REQUIREMENTS

AGGREGATE TYPE ELR2B2-C

To be eligible for consideration, candidates must have the following GCE ‘O’ Level examination (or equivalent) results.

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You must also fulfill the aggregate computation requirements for the ELR2B2-C Aggregate Type listed at www.np.edu.sg/admissions/Documents/ELR2B2.pdf

For students with other qualifications, please refer to the NP website for the entry requirements and admissions exercise period.

Candidates with hearing deficiency or severe vision deficiency should not apply for the course. Those with colour vision deficiency may be considered, subject to an in-house test.

Related Courses

- Aerospace Engineering
- Common Engineering Programme
- Electrical Engineering
- Electronic & Computer Engineering
- Engineering Science

CONTACT US

For the most up-to-date information on NP’s Diploma in Automation & Mechatronic Systems and its modules, log on to www.np.edu.sg/ams
DIPLOMA IN
BIOMEDICAL ENGINEERING

- The first poly diploma that bridges engineering and life sciences
- Acquire the skills to work on the design, development and servicing of medical devices and healthcare equipment
- Jointly delivered by the School of Engineering, the School of Life Sciences & Chemical Technology and industry partners
- Six-month internships with hospitals, medical technology multinational corporations (MNCs) and research institutes
WHAT THE COURSE IS ABOUT

Intrigued by how the marriage of engineering technology and life sciences can benefit mankind? That’s where biomedical engineering comes into play. This forward-thinking field is responsible for the design of sophisticated medical equipment such as diagnostic and therapeutic machines and lifesaving devices like the artificial heart and dialysis machine. In fact, you can be part of this fascinating industry when you join the Diploma in Biomedical Engineering (BME).

The first diploma of its kind in Singapore, BME is jointly delivered by Ngee Ann Polytechnic’s School of Engineering and School of Life Sciences & Chemical Technology. Besides teaching you how to develop medical equipment, BME also gives you a firm grounding in research that could lead to discovery of new treatments for medical conditions.

In your first year, you will acquire a strong foundation in engineering in topics covering electrical, electronic and mechanical engineering. You will also gain an overview of biomedical engineering. Then in your second year, you will study cell and molecular biology alongside medical instrumentation and clinical engineering. You will also be equipped with electronic design prototyping skills.

In your final year, you will focus on areas such as healthcare informatics as well as various types of medical equipment. You will also work in teams to design and develop technical projects. What’s more, you will have the opportunity to go on a six-month local or overseas internship with a university, hospital, MNC or research institute.

WHAT YOU WILL LEARN

YEAR 1
- AC Circuits
- Analogue Electronics
- Digital Fundamentals
- Electrical Engineering Fundamentals
- Engineering Mathematics 1 & 2
- Mechanical Engineering Fundamentals
- Programming
- Integrated Real-world Project 1 & 2
- Health & Wellness*
- Innovation Made Possible*
- Communication Essentials For Engineers*
- English Language Express**

YEAR 2
- Cell & Molecular Biology
- Clinical Engineering
- Embedded System
- Integrated Real-world Project 3 & 4
- Medical Electronics
- Medical Instrumentation
- Physiological Systems
- World Issues: A Singapore Perspective*

YEAR 3
- Biomechanics & Biomaterials
- Healthcare Informatics
- Integrated Real-world Project 5
- Internet of Things
- Six-month Internship
- Project ID: Connecting the Dots*

* Interdisciplinary Studies (IS) modules account for up to 13 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.
/ CAREER /
Your job prospects are bright as the biomedical engineering sector is booming. You can work in areas such as research & development (R&D) and engineering support. BME graduates who go into R&D carry out tasks such as clinical studies and trials, product prototyping and quality assurance and certification.

You can also work in healthcare establishments such as hospitals and medical centres as well as medical equipment suppliers and service providers. You can work as a Biomedical Technical Officer in a hospital or as a Sales or Service Engineer with a company that supplies medical equipment.

As part of the SkillsFuture initiative, you can enrol in various skills-deepening programmes or apply for the SkillsFuture Work-Study Post-Diploma Programme, if applicable, upon graduation. You may also apply for Workforce Skills Qualifications (WSQ) courses, such as Specialist Diploma in Workplace Safety & Health.

/ FURTHER STUDIES /
As a BME graduate, you can pursue degree programmes offered by Nanyang Technological University, National University of Singapore, Singapore University of Technology and Design, as well as Singapore Institute of Technology. You can also gain credit exemptions from overseas universities, including the following:

- University of Sheffield (UK)
  - Bachelor of Engineering (Biomedical Engineering)
- Cardiff University (UK)
  - Bachelor of Engineering/Master of Engineering (Medical Engineering)
- University of New South Wales (Australia)
  - Bachelor of Engineering (Honours) /Master of Engineering (Biomedical Engineering)
- Queensland University of Technology (Australia)
  - Bachelor of Engineering (Honours) (Medical)
- University of Queensland (Australia)
  - Bachelor of Engineering (Honours) (Medical and Biomedical Engineering)
- University of Sydney (Australia)
  - Bachelor of Engineering (Honours) (Biomedical)

/ ENTRY REQUIREMENTS /
AGGREGATE TYPE ELR2B2-C
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For students with other qualifications, please refer to the NP website for the entry requirements and admissions exercise period.

Candidates with severe vision deficiency should not apply for the course. Those with colour vision deficiency may be considered, subject to an in-house test.

Related Courses
- Automation & Mechatronic Systems
- Common Engineering Programme
- Electronic & Computer Engineering
- Mechanical Engineering

CONTACT US
For the most up-to-date information on NP’s Diploma in Biomedical Engineering and its modules, log on to www.np.edu.sg/bme
N43 DIPLOMA IN ELECTRICAL ENGINEERING REVAMPED

- Broad-based course that prepares you for careers in diverse sectors ranging from clean energy, power engineering, transportation to practicing licensed electrical work
- Deepen your knowledge by specialising in either Clean Energy Management or Power Engineering
- Exposure to smart city projects through Future City Programme
- SkillsFuture Work-Study Post-Diploma Programmes to give you a head start in your career
WHAT THE COURSE IS ABOUT

From everyday conveniences such as electric cars and robotic vacuum cleaners to industrial applications like power distribution and energy management, electrical engineers are practically needed everywhere. If you want to be grounded in one of the most fundamental and flexible engineering fields, the Diploma in Electrical Engineering (EE) is an excellent choice.

The course provides fundamental training in the areas of electricity & power systems, energy management and smart systems, and will equip you with the necessary skill sets to meet the challenges of the fast changing energy and power sector. In addition, the broad-based curriculum will also prepare you for a wide range of careers in other industries such as robotics and transportation.

In your first semester, you will learn the fundamentals in mechanical and electrical engineering, mathematics and programming. You will undertake modules to strengthen your foundation in electrical and electronic engineering in your second semester.

In your second year, you will deepen your engineering knowledge and skills through modules covering electronic devices, programmable logic controller (PLC), micro-controllers and electrical installation design. You will also gain a good grasp of the methods for analysing electrical systems and energy management systems.

In your final year, you can choose to specialise in either Power Engineering or Clean Energy Management. You will also get to put your skills and knowledge into practice with a six-month enhanced internship with industry leaders such as SP Group, ST Engineering, Keppel Corporation and Sembcorp. Or you can work on a design project to develop your very own products and patents.

To keep our curriculum current and robust, diploma modules are subject to change over the three years. Please visit our website for latest updates.

SPECIALISATION OPTIONS

Clean Energy Management
This specialisation prepares you for the sustainable energy sector with a strong focus on energy management and clean energy technologies. Key areas covered include solar photovoltaic (PV) systems and energy audit process and measurement techniques.

Power Engineering
This specialisation prepares you for exciting careers in diverse sectors such as power and energy, as well as transportation. You’ll also get a head start to practise licensed electrical work. Discover more about electrical system design and smart electricity systems.

Virtual Assistant
EE staff and students developed a life-sized humanoid Telebot which allows caregivers to stay in touch with seniors living alone. It also keeps them engaged in their daily lives, and acts as a social companion and guardian. For example, the “personal assistant” can help its "human bosses" remember to take their pills, and even connect them to family and medical professionals through video calls.
/ WHAT YOU WILL LEARN /

YEAR 1
- Engineering Mathematics 1 & 2
- Mechanical Engineering Fundamentals
- Electrical Engineering Fundamentals
- Programming
- Integrated Real-world Project 1 & 2
- AC Circuits
- Analogue Electronics
- Digital Fundamentals
- Health & Wellness*
- Innovation Made Possible*
- Communication Essentials For Engineers*
- English Language Express**

YEAR 2
- Electrical Machines
- Electric Circuit Analysis
- Microcontroller & System
- PLC & Automation
- Integrated Real-world Project 3 & 4
- Power Electronics
- Electrical Installation Design
- Energy Management Systems
- Project Management
- World Issues: A Singapore Perspective*

YEAR 3
- Integrated Real-world Project 5
- 6-month Internship
- Project Design & Development
- Project ID: Connecting the Dots*

SPECIALISATION OPTIONS
Power Engineering
- Systems Modelling & Control
- Smart Electricity System
- Power Systems Design & Operation

Clean Energy Management
- Energy Studies & Audit
- Clean Energy Technologies
- Design & Operation of Distributed Power Systems

* Interdisciplinary Studies (IS) modules account for up to 13 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.
/ ENTRY REQUIREMENTS /

AGGREGATE TYPE ELR2B2-C

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For students with other qualifications, please refer to the NP website for the entry requirements and admissions exercise period.

Candidates with hearing deficiency or severe vision deficiency should not apply for the course. Those with colour vision deficiency may be considered, subject to an in-house test.

Related Courses
- Biomedical Engineering
- Common Engineering Programme
- Electronic & Computer Engineering
- Engineering Science

/ FURTHER STUDIES /

This diploma is recognised by leading universities both locally and abroad. You may be granted credit exemptions or direct entry into the second or third year of related engineering courses at:

- National University of Singapore
- Nanyang Technological University
- Singapore Institute of Technology
- Singapore University of Technology and Design
- University of Manchester (UK)
- University of Southampton (UK)
- University of Sheffield (UK)
- University of New South Wales (Australia)
- Queensland University of Technology (Australia)

CONTACT US

For the most up-to-date information on NP’s Diploma in Electrical Engineering and its modules, log on to www.np.edu.sg/ee
DIPLOMA IN
ELECTRONIC &
COMPUTER ENGINEERING

- One of the most established electronic and computer engineering diplomas in Singapore
- Strong links to the industry as well as local and overseas universities
- Choose to specialise in either Computer Networks or Robotics & Communication
- Six-month internships with leading organisations such as Xilinx, STATS ChipPAC and ST Kinetics
WHAT THE COURSE IS ABOUT

You only need to look around to know that electronics and computers are part of your daily lives – from the smartphones and laptops that you use to the vehicles that you travel in. You can play a part in shaping the way people live, work and play with the Diploma in Electronic & Computer Engineering (ECE).

ECE gives you a strong foundation in electronic hardware design, software programming skills and computer networks. With our industry-relevant curriculum, you will be well-placed to meet the needs of the industry when you graduate.

In your first year, you will learn the fundamental aspects of engineering with modules such as Computer Programming, Analogue Electronics and Digital Fundamentals. In your second year, you can choose to deepen your expertise in a particular field by pursuing one of our two specialisation options. Then in your final year, put your knowledge to the test with a six-month internship with industry leaders such as Xilinx, STATS ChipPac, ST Kinetics, M1 and Singtel.

What’s more, you may even get the chance to work on industry sponsored projects at our technology centres. Plus, you will go on local and overseas study trips that will widen your exposure to the exciting world of engineering.

SPECIALISATION OPTIONS

Computer Networks
Find out how data travels through cyberspace and learn about cloud computing.

Robotics & Communication
Learn how to create smart products and robotic systems with intelligent devices.

WHAT YOU WILL LEARN

YEAR 1
- AC Circuits
- Analogue Electronics
- Digital Fundamentals
- Electrical Engineering Fundamentals
- Engineering Mathematics 1 & 2
- Mechanical Engineering Fundamentals
- Programming
- Integrated Real-world Project 1 & 2
- Health & Wellness*
- Innovation Made Possible*
- Communication Essentials For Engineers*
- English Language Express**

YEAR 2
Common Modules
- Applied Digital Electronics
- Integrated Real-world Project 3 & 4
- Microcontroller & Interfacing
- Network Fundamentals
- Object Oriented Programming
- Quality Systems & Analytics
- World Issues: A Singapore Perspective*

Specialisation Option Modules
Computer Networks
- Servers & Cloud Fundamentals
- Routing & Switching

Robotics & Communication
- Applied Analogue Electronics
- Communication Systems

YEAR 3
Common Modules
- Internet of Things
- Integrated Real-world Project 5
- Mobile Application Programming
- Six-month Internship or Six-month Final-Year Project
- Project ID: Connecting the Dots**

Specialisation Option Modules
Computer Networks
- Scaling & Connecting Networks

Robotics & Communication
- Embedded Robotics

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** For selected students only.
/ CAREER /
Electronics is one of the world's largest industries – that means you will enjoy many diverse and exciting career opportunities. Seek employment as an electronics engineer, product specialist or sales and marketing specialist.

You can also provide engineering support in the aerospace industry or work in the manufacturing sector. As demand for manpower surges in the areas of networking, mobile computing and digital media, you will also be able to find work as a network support engineer, mobile app developer or communications engineer.

As part of the SkillsFuture initiative, you can enrol in various skills-deepening programmes or apply for a SkillsFuture Work-Study Post-Diploma Programme, if applicable, upon graduation.

/ FURTHER STUDIES /
This diploma is recognised by leading universities both locally and abroad. You may be granted advanced standing of up to 18 months when applying for related degree programmes at the following universities:

– National University of Singapore
– Nanyang Technological University
– Singapore Institute of Technology
– Singapore University of Technology and Design
– University of Manchester (UK)
– University of Edinburgh (UK)
– University of New South Wales (Australia)

/ ENTRY REQUIREMENTS /
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Candidates with severe vision deficiency should not apply for the course. Those with colour vision deficiency may be considered, subject to an in-house test.

Related Courses
– Biomedical Engineering
– Common Engineering Programme
– Electrical Engineering
– Engineering Science

To keep our curriculum current and robust, diploma modules are subject to change over the three years. Please visit our website for latest updates.

CONTACT US
For the most up-to-date information on NP's Diploma in Electronic & Computer Engineering and its modules, log on to www.np.edu.sg/ece
The only diploma that covers both naval architecture and offshore engineering
Enhanced internships and SkillsFuture Work-Study Post-Diploma Programmes to deepen your skills
Prestigious ASMI-MOT Scholarship that covers 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 Integrated Real-world Projects 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.

WHAT YOU WILL LEARN

YEAR 1
- Electrical Engineering Fundamentals
- Electrical & Electronics Technology
- Engineering Mathematics 1 & 2
- Integrated Real-world Project 1 & 2
- Materials & Manufacturing Technology
- Mechanical Engineering Fundamentals
- Programming
- Thermofluids
- Health & Wellness*
- Innovation Made Possible*^*
- Communication Essentials For Engineers*
- English Language Express**^*

YEAR 2
- Naval Architecture 1
- Marine CAD
- Naval Architecture 2
- Marine Design Drafting
- Marine Auxiliary Systems
- Marine Production Technology
- Marine & Offshore Technology
- Strength of Materials
- Integrated Real-world Project 3 & 4
- World Issues: A Singapore Perspective*

YEAR 3
- Integrated Real-world Project 5
- Marine Propulsion Systems
- Marine & Offshore Design
- Marine Design Applications
- Offshore Engineering
- Six-month Internship
- Project ID: Connecting the Dots*

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^* 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.
/ 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

/ ENTRY REQUIREMENTS /

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For students with other qualifications, please refer to the NP website for the entry requirements and admissions exercise period.

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

/ 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. 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.

You can also apply for the SkillsFuture Work-Study Post-Diploma Programmes 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.

Head Start in His Career
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.

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
DIPLOMA IN MECHANICAL ENGINEERING

- A broad-based curriculum that prepares you for the future economy in precision engineering and manufacturing; facilities and infrastructure; environment and energy, and transportation
- Work on unique Integrated Real-World Projects, with a strong focus on computer-aided design and service-learning
- Overseas or local internship with organisations such as ST Engineering’s Land Systems and A*STAR
- Get advanced standing when you further your studies at local or overseas universities
WHAT THE COURSE IS ABOUT
Mechanical engineering touches virtually every aspect of modern life. Imagine an autonomous car powered by renewable energy and a robotic exoskeleton that can help seniors improve their range of motions. With the Diploma in Mechanical Engineering (ME) to give you a head start into building such sleek technology, you’ll soon be winning on all fronts. One of the core disciplines of engineering, mechanical engineering is needed practically everywhere - from precision engineering, facilities and infrastructure to environment and energy, as well as the transportation sectors.

A highly versatile course, ME provides a broad-based education that enables you to excel in diverse career choices. Its strong emphasis on applied design thinking skills gives you an edge in creating innovative solutions for using clean energy, developing new materials and processes, designing and manufacturing products that range from consumer products to medical devices.

In your first year, you will learn the fundamentals of mechanical engineering with a focus on materials and design skills. It covers modules such as Thermofluids, Materials & Manufacturing Technology and Mechanical Engineering Fundamentals. In your second year, you will deepen your understanding with modules such as Engineering System Design and Strength of Materials.

In your final year, you will get to work on a final-year project that involves the design and development of a new product prototype with real-world application. Or you can round off your learning journey with a local or overseas internship with established organisations such as ST Engineering and A*STAR.

Ivan Cheong
ME Graduate, Class of 2018
Ivan embarked on a Global Entrepreneurial Internship Programme (GEIP) with a start-up in Silicon Valley, USA.

The stint in USA has opened up my perspective on managing business. I was involved in every part of the business. I’ve gained valuable insight into the life of an entrepreneur. This experience has inspired me to carve out my own future in the business field.
WHAT YOU WILL LEARN

YEAR 1
- Engineering Mathematics 1 & 2
- Mechanical Engineering Fundamentals
- Electrical Engineering Fundamentals
- Programming
- Integrated Real-world Project 1 & 2
- Thermofluids
- Electrical & Electronics Technology
- Materials & Manufacturing Technology
- Health & Wellness*
- Innovation Made Possible*
- Communication Essentials For Engineers*
- English Language Express**

YEAR 2
- Advanced Materials
- Industrial Automation
- Applied Thermofluids
- Integrated Real-world Project 3 & 4
- Project Management
- Advanced Manufacturing Technology
- Engineering Systems Design
- Quality Systems and Analytics
- Strength of Materials
- World Issues: A Singapore Perspective*

YEAR 3
- Applied Mechanics
- System Modelling & Control
- Integrated Real-world Project 5
- Mechanics of Machines & Materials
- 6-Month Internship or Final-Year Project
- Project ID: Connecting The Dots*

* Interdisciplinary Studies (IS) modules account for up to 13 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.

CAREER
With your solid foundation in engineering giving you sought-after skills, you will enjoy excellent job prospects in diverse industries. These include the marine, aerospace, automotive, pharmaceutical, power generation, consumer products, logistics management and electronics industries, as well as the chemical and precision engineering sectors.

ME is a broad-based course and caters to various SkillsFuture sectors such as Aerospace, Precision Engineering and Offshore & Marine Engineering. You can enrol in SkillsFuture Work-Study Post-Diploma programmes, such as the Specialist Diploma in Aircraft Maintenance and Engineering and Specialist Diploma in Marine Production.

FURTHER STUDIES
You will be well prepared for further studies at both local and overseas universities. You may even be granted advanced standing in related engineering courses at:

- Nanyang Technological University
  - Bachelor of Engineering in Mechanical or Materials Engineering
- National University of Singapore
  - Bachelor of Engineering in Mechanical Engineering
- University of Manchester (UK)
  - Bachelor of Engineering in Mechanical Engineering
- University of Warwick (UK)
  - Bachelor of Engineering in Mechanical Engineering
- University of New South Wales (Australia)
  - Bachelor of Engineering in Mechanical Engineering
- University of Melbourne (Australia)
  - Bachelor of Engineering in Mechanical Engineering
- University of Glasgow (UK) & Singapore Institute of Technology
  - Bachelor of Engineering with Honours in Mechanical Design

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>
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<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>
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<tr>
<td>(with Physics, Chemistry or Biology component)</td>
<td></td>
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<tr>
<td>or Biotechnology</td>
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<tr>
<td>or Computing/Computer Studies</td>
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<td>or Design &amp; Technology</td>
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<td>or Electronics/Fundamentals of Electronics</td>
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<td>or Engineering Science</td>
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<tr>
<td>or Physical Science</td>
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</table>

You must also fulfill the aggregate computation requirements for the ELR2B2-C Aggregate Type listed at www.np.edu.sg/admissions/Documents/ELR2B2.pdf

For students with other qualifications, please refer to the NP website for the entry requirements and admissions exercise period.

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

CONTACT US
For the most up-to-date information on NP's Diploma in Mechanical Engineering and its modules, log on to www.np.edu.sg/me