NGEE ANN POLY

School of Engineering

- Common Engineering Programme **Revamped**
- Engineering Science
- Aerospace Engineering
- Biomedical Engineering
- Electrical Engineering **Revamped**
- Electronic & Computer Engineering **Revamped**
- Mechanical Engineering
- Mechatronics & Robotics **Revamped**
- Offshore & Sustainable Engineering **Revamped**

Engineering with that Something Xtra!

From industry induction to mentorship and overseas exposure, you'll find engineering with that something xtra at Ngee Ann Polytechnic's School of Engineering (SoE), where we are strengthening our ties with the industry and pushing the frontiers of robotics research. Translate your ideas into innovative solutions to improve lives through our top-notch courses like the Common Engineering Programme and Diploma in Engineering Science!

8 Diplomas + 1 Common Engineering Programme

Common Engineering Programme (N71) Revamped
- Gain exposure to various engineering fields before making an informed choice
- After the first semester, choose from:
  - Electrical & Electronic Track
  - Mechanical Track
  - Diploma in Offshore & Sustainable Engineering

Engineering Science (N93)
- Designed for university-bound students with a strong passion for applied science
- Develop skills in emerging technologies, including artificial intelligence and machine learning
- Choose to specialise in:
  - AI for Autonomous Systems
  - Data Analytics & Security

Aerospace Engineering (N65)
- Drive the future of aviation with this course, gaining cutting-edge skills in data analytics, artificial intelligence, and machine learning.
- Choose from two specialisations:
  - Avionics
  - Mechanical

Biomedical Engineering (N60)
- Be at the forefront of healthcare innovation with a diploma that bridges engineering and life sciences
- Learn to design and test medical devices and master key skills in the rapidly expanding MedTech sector

Electrical Engineering (N43) Revamped
- Power the future with Singapore's only dedicated electrical engineering diploma focused on sustainability and the green economy
- Gain expertise in key areas such as decarbonisation, decentralisation, and digitalisation
- Choose to specialise in:
  - Power Engineering
  - Clean Energy Management

Electronic & Computer Engineering (N44) Revamped
- Shape the future of computer systems and real-world applications with this established diploma
- Build a strong foundation in electronics, circuits, and software programming
- Gain in-demand skills in cutting-edge areas such as the Internet of Things (IoT), Artificial Intelligence of Things (AIoT), and data analytics

Mechanical Engineering (N41)
- Broad-based curriculum focused on sustainability, preparing you for diverse careers in precision engineering, public transport, energy and chemicals, engineering services, and more
- Specialise in one of two areas:
  - Automation Design Engineering
  - Mobility Design Engineering

Mechatronics & Robotics (N50) Revamped
- Focus on autonomous mobile and collaborative robotics, preparing you for careers in robotics engineering and automation
- Specialise in one of two areas:
  - Autonomous Systems
  - Automation & Industrial Cybersecurity
- Gain hands-on experience with future mobility technologies at MooVita, located on campus

Offshore & Sustainable Engineering (N42) Revamped
- Unique diploma in naval architecture focused on sustainability, decarbonisation, and renewable energy, preparing you for careers in the marine and offshore engineering sector
- Explore exciting opportunities in clean and renewable energy, such as offshore wind

Why Choose SOE

An Xtra Edge

Accelerate your university pathway with our renowned diplomas! Stretch your potential with prestigious scholarships and our talent development programme. Plus, get global-ready through overseas internships and immersion programmes to countries such as China, Vietnam, Cambodia and the Philippines.

Expertise In Robotics

Acquire valuable skills in emerging technologies such as robotics, autonomous systems, artificial intelligence and data analytics at NP's Robotics Research & Innovation Centre.

Sustainability Focused

With our new on-campus green energy infrastructure, there's no better place to acquire the skills to seize opportunities in the growing renewable energy field! Experiment with sustainable energy solutions at synergy.lab and gain hands-on experience in managing a solar farm and EV charging infrastructure.

Strong Industry Links

Our strong links with leading organisations offer exciting opportunities for learning and talent development.

What Industry Says

"MooVita is pleased to work with NP to co-develop curriculum. We are providing students with operational insights and hands-on experience in autonomous systems, equipping them with the skill sets to become proficient specialists in robotics and autonomous systems. This is our long-term strategy to nurture a ready pipeline of talents for achieving Singapore's smart nation vision."

KEN CHAN
Vice-President
MooVita

"With sustainability being a key part of Grundfos' DNA, our partnership with NP demonstrates our commitment to introducing cleaner, more energy efficient technologies that can help the built environment sector reduce its energy consumption and carbon footprint. We look forward to working with NP to spur innovative thinking among students that can help advance the region's sustainability trajectory."

KENTH HVID NIELSEN
Senior Regional Sales Director, APAC, Commercial Buildings
Grundfos

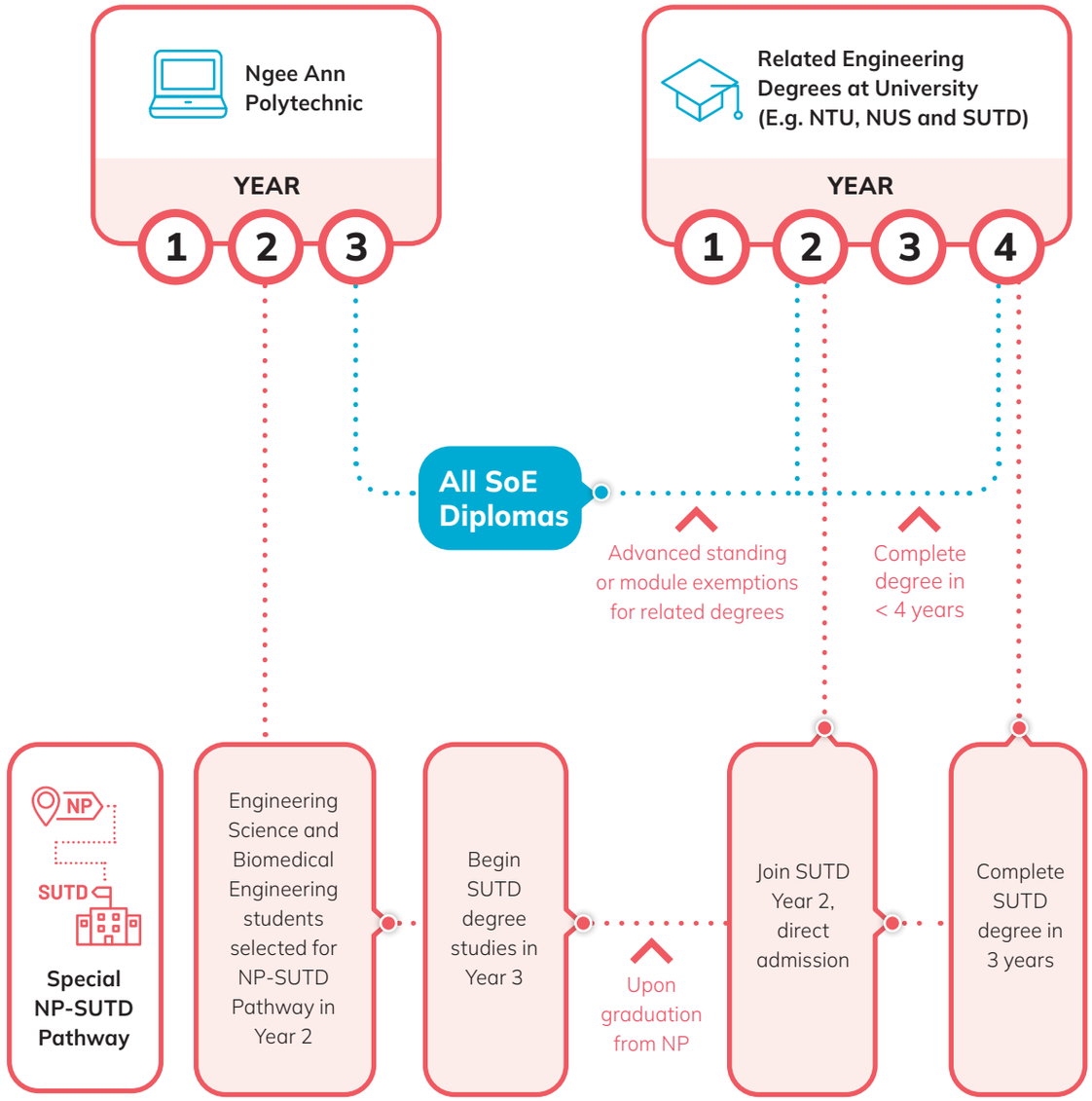
"With significant growth in the industrial robotics industry, Bosch Rexroth is proud to work with NP as a technology partner to co-develop comprehensive industrial robotics courses that cover Industry 4.0 concepts and applications. Bosch Rexroth is also excited to collaborate with the Mechatronics & Robotics diploma course through curriculum development and internship opportunities. The partnership aims to drive adoption and understanding of automation and industrial robotics fundamentals within the Advanced Manufacturing sector."

PETER PEH
Centre Director
Bosch Rexroth Regional Training Centre

"What sets NP apart is its proactive collaboration with industry partners to ensure their courses are kept practical and relevant. Their curriculum, such as NI LabVIEW modules, are designed in close consultation with industry experts to ensure students graduate with employable skills. National Instruments is glad to work with NP to offer industry insights and prepare students to tackle the real-world challenges confidently."

YIH-HSIUNG GOH
Director, ASEAN and ANZ
National Instruments

University Pathway



Pair Your Diploma with THAT SOMETHING XTRA

Take 1 or 2 Learning Units in an area that piques your interest. Or complete 3 Learning Units to get a Minor.

WHY PLP?

Because you get to:
- Try out something interesting.
- Gain additional skills outside of your course.
- Graduate with Xtra qualifications: Diploma + Minor.
- Take charge of your own learning and enjoy the journey.

The choice is yours. Our **Personalised Learning Pathway (PLP)** lets you choose what you'd like to learn from 4 different pathways and more than 50 Learning Units (LUs).

Mix and match your LUs or take up 3 specific LUs to earn a Minor. Go on an overseas trip or attend a masterclass. Discover fun, freedom and fulfillment when you personalise your learning with PLP!

To check out the wide range of interesting LUs, visit **www.np.edu.sg/plp** or scan the QR code here!

Personalise Your Learning with 4 Exciting Pathways & 12 Minors

PROFESSIONAL SKILLS PATHWAY

Minor In
- Applied Psychology
- Cybersecurity
- Data Analytics & AI
- Fundamentals of Internet of Things
- Social Media Marketing
- User Experience Design

ENTREPRENEURSHIP PATHWAY

Minor In
- Entrepreneurship

GLOBAL READINESS PATHWAY

Minor In
- Foreign Languages
- Global Readiness

SOCIAL LEADERSHIP PATHWAY

Minor In
- Sustainable Care New
- Environmental Sustainability
- Social Leadership

N71

Common Engineering Programme Revamped

Get latest updates on course

- **Get more time to explore** different fields of engineering and discover your interests before deciding on one of our eight diplomas
- **Common foundational modules** equip you with broad-based fundamental knowledge and skills in engineering
- **Unique Induction Programme** provides early industry and diploma exposure to help you make an informed course choice

WHAT THE COURSE IS ABOUT

If you are keen on engineering but unsure which course suits you, the Common Engineering Programme (CEP) may be the perfect fit. Through CEP, you will gain exposure to different engineering domains, helping you make a more informed course choice.

In your first semester, you will experience our unique Induction Programme, which includes learning journeys, the Diploma Exposure Programme, industry visits, dialogues, and career advice to help you in course selection.

You will also build a strong foundation in mechanical, electronic and electrical engineering, as well as mathematics and programming. Then, put your new-found knowledge into practice by working on exciting projects that will boost your portfolio!

After your first semester, you can opt for the **Electrical & Electronic Track, Mechanical Track or the Offshore & Sustainable Engineering diploma.** For those on the learning tracks, you will select an engineering diploma to specialise in by the end of your first year.

OVERVIEW OF YOUR CEP JOURNEY

YEAR 1

Semester 1
Common Engineering Modules

At end of Year 1, Semester 1:
Choose from the Electrical & Electronic Track, Mechanical Track or the Offshore & Sustainable Engineering diploma

Year 1, Semester 2
Electrical & Electronic Track
(Choose your preferred course within this track)
- Engineering Science: Pg 11
- Aerospace Engineering (Avionics Option): Pg 17
- Biomedical Engineering: Pg 22
- Electrical Engineering: Pg 27
- Electronic & Computer Engineering: Pg 32

Year 1, Semester 2
Mechanical Track
(Choose your preferred course within this track)
- Aerospace Engineering (Mechanical Option): Pg 17
- Mechanical Engineering: Pg 37
- Mechatronics & Robotics: Pg 42

Year 1, Semester 2
- Offshore & Sustainable Engineering: Pg 47

WHAT YOU WILL LEARN

YEAR 1
- Engineering Mathematics 1
- Electrical Engineering Fundamentals
- Mechanical Engineering Fundamentals
- Programming
- Engineering & Society
- Communication: Find Your Voice (VOICE)^
- Innovation Made Possible^
- Health & Wellness^
- English Language Express^*

Choose the **Electrical & Electronic Track**, **Mechanical Track** or **Diploma in Offshore & Sustainable Engineering** at the end of your first semester.

Electrical & Electronic Track
- Applied Mathematics 2B
- Analogue Electronics
- AC Circuits
- Digital Fundamentals
- Engineering Mathematics 2
- Fundamental Electronic & Electrical Skills

Mechanical Track
- Engineering Mathematics 2
- Electrical & Electronics Technology
- Materials & Manufacturing Technology
- Thermofluids
- Engineering Drawing Fundamentals

Offshore & Sustainable Engineering
- Engineering Mathematics 2
- Engineering Drafting
- Geometry & Buoyancy
- Thermofluids

If you opt for the Electrical & Electronic Track or Mechanical Track, you will select your preferred diploma towards the end of your second semester.

Refer to the module listing in the respective diploma pages for more details.

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^

^ Critical Core modules account for 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. NP 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.

FURTHER STUDIES

Refer to the Further Studies section on the respective diploma pages.

CAREER

Refer to the Career section on the respective diploma pages.

ENTRY REQUIREMENTS

Aggregate Type ELR2B2-C
To be eligible for consideration, candidates must have the following GCE 'O' Level examination (or equivalent) results.

Subject	'O' level Grade
English Language	1-7
Additional Mathematics/Mathematics	1-6
Any one of the following subjects: Biology Biotechnology Chemistry Computing/Computer Studies Design & Technology Electronics/Fundamentals of Electronics Physics Science (Chemistry, Biology) Science (Physics, Biology) Science (Physics, Chemistry)	1-6

Applicants must also fulfil the aggregate computation requirements for the ELR2B2-C Aggregate Type (English Language, 2 relevant subjects and 2 other best subjects) listed at **www.np.edu.sg/docs/ELR2B2.pdf**.

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

Candidates with colour vision deficiency, severe vision deficiency, profound hearing deficiency, uncontrolled epilepsy and/or severe physical impairments may encounter difficulties meeting the course requirements and expectations.

CONTACT US

For the most up-to-date information on NP's Common Engineering Programme, log on to **www.np.edu.sg/cep**

N93

Get latest updates on course

Diploma in
Engineering Science

- Tailor-made for university-bound students with a **strong passion in applied science**, this unique engineering course has a strong focus on **mathematics, physics and computing**
- Acquire in-demand skills for the future economy by specialising in either **AI for Autonomous Systems** or **Data Analytics & Security**
- Develop valuable **applied R&D** experience at local universities and research institutes that will build your expertise and network
- Opportunities to secure **prestigious scholarships** from PSC, A*STAR and DSTA!

WHAT THE COURSE IS ABOUT

You're passionate about engineering applications, but also love the sciences. You're strong in both maths and physics. You enjoy scientific research and discovering new ways to solve problems. How about honing all these interests through our top-notch Diploma in Engineering Science (ES), whose students have topped NP's graduating cohorts and secured places in prestigious university programmes?

The unique ES diploma prepares you well for a wide range of degrees and careers in fields such as artificial intelligence and machine learning; computer, electrical, electronic and mechanical engineering; data analytics; and even medical science.

Strong STEM Foundation
During the first two years, you will be equipped with a strong foundation in engineering and related domains such as mathematics, physics, computing and applied science.

Specialise in Emerging Areas
In your third year, you can choose between two exciting specialisations to deepen your knowledge in emerging technologies.

- **AI for Autonomous Systems**
  Gain the skills to develop autonomous system solutions for the transportation sector. You will get the opportunity to explore AV technology and work on smart urban mobility projects.

- **Data Analytics & Security**
  Harness the power of big data. This specialisation equips you with sought-after skills in data analytics and data security management for cloud platforms.

Early University Exposure
A key highlight of ES is early exposure to and immersion in a university environment. As early as the first semester in Year 3, you will spend half a day per week at local universities, working on applied industrial or R&D projects under the guidance of university faculty.

These projects can be extended into your final-year project, where you will explore cutting-edge research and technology innovations to enhance your portfolio. Choose from a wide variety of topics, including artificial intelligence, autonomous vehicles, the Internet of Things, robotics, green energy, and material science.

FAST TRACK TO A DEGREE VIA NP-SUTD PATHWAY

Get a head start on your university journey while still an NP student! With the NP-SUTD Pathway Programme*, you'll fast-track your way to a Bachelor's degree in engineering and design, graduating a year ahead of your peers.

Expand your knowledge with humanities and science modules taught by SUTD faculty, integrated with your existing NP curriculum. This pathway equips you with diverse skills, making you a well-rounded professional.

To top it off, you'll have the chance to work on cutting-edge research projects under the guidance of SUTD professors and researchers, enhancing your university experience.

*for selected students only

OVERVIEW OF YOUR ES JOURNEY

Build a strong STEM foundation

- Advanced Level Maths & Physics
- Mechanical & Electronic Engineering
- In-depth Computing skills
- Emerging Technologies (e.g. AI, Data Analytics, Autonomous Systems)

Early immersion in university life

- Projects mentored by university faculties
- Exchange programme with overseas colleges
- Take university modules via NP-SUTD Pathway*

Choose a specialisation in Year 3

AI for Autonomous Systems

OR

Data Analytics & Security

Fast-track to a degree via NP-SUTD Pathway* after graduation

NP-SUTD Pathway*
Enter 2nd Year at SUTD and graduate one year ahead of your peers

*For selected students only

WHAT YOU WILL LEARN

YEAR 1

- AC Circuits
- Analogue Electronics
- Applied Mathematics 1
- Applied Mathematics 2A
- Digital Fundamentals
- Engineering & Society
- Electrical Engineering Fundamentals
- Fundamental Electronic & Electrical Skills
- Mechanical Engineering Fundamentals
- Programming
- Innovation Made Possible^
- Communication: Find Your Voice (VOICE)^
- Health & Wellness^
- English Language Express^*

YEAR 2

- Applied Mathematics 3
- Data Structure & Algorithms
- Engineering & Sustainability
- Materials & Manufacturing Technology
- Microcontroller & Interfacing
- Object Oriented Programming
- Physics 1 & 2
- System Modelling & Control
- Thermofluids
- World Issues: A Singapore Perspective^

YEAR 3

- AI & Machine Learning
- Final-Year Project OR Six-month Internship (Local/Overseas)
- Project ID: Connecting the Dots^

AI for Autonomous Systems Specialisation

- Autonomous Systems & IoT
- Computer Vision & Deep Learning
- Design Project in AI

Data Analytics & Security Specialisation

- Data Analytics & Cloud Fundamentals
- Data Security & Blockchain
- Design Project in Data Analytics

^Critical Core modules account for 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. NP 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.

FURTHER STUDIES

Both NTU and NUS have accredited ES for a wide range of their degree programmes. In addition, SUTD offers conditional admission to students enrolled in the NP-SUTD pathway and module exemptions for ES graduates. With your strong foundation as an ES graduate, you can also apply for a wide range of degree programmes offered by overseas universities.

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

>10 ES graduates topped their cohorts to clinch the Ngee Ann Kongsi Gold Medal or Lee Kuan Yew Award since 2014

>10 ES students received NP as well as external scholarships (e.g. A*STAR Science Award (Poly), DSTA Polytechnic Scholarship, CSIT Diploma Scholarship) which offer R&D internship opportunities

>80% ES graduates offered admission into prestigious local and overseas universities

They chose ES and are going places!

Duan Jiafei
Class of 2016

A*STAR National Science Scholar. Pursuing a PhD in AI & Robotics at University of Washington, USA

Sui Hui Ping
Class of 2020

Lee Kuan Yew Award winner. Pursuing a Bachelor of Social Sciences at SMU under the prestigious Lee Kong Chian Scholars' Programme

Reuben Thomas
Class of 2021

Winner of the Ngee Ann Kongsi Gold Medal and the Lee Kuan Yew Award. Pursuing a Computer Science degree at NUS

Anne Lee
Class of 2022

Pursuing a master's degree in Design Engineering at Imperial College London's Dyson School of Design Engineering under the DSTA Overseas Scholarship

Saffron Salmah Yen Lim
Class of 2023

Recipient of the Public Service Commission (Engineering) Scholarship, Ngee Ann Kongsi Gold Medal and the Lee Kuan Yew Award. Pursuing a degree in Data Science & Artificial Intelligence at NTU

Nar Kang Jing
Class of 2024

Recipient of the Lee Kuan Yew Award & Ngee Ann Polytechnic Outstanding Achievement Award. Pursuing a degree in Computer Science at NUS

CAREER

Armed with an ES diploma, you will enjoy good career prospects in areas such as research and development, product design and development, manufacturing and services.

Ekko Chua
Class of 2014
Principal analyst at EMA

Benjamin Chia
Class of 2014
Business partner at Enterprise Singapore's transformation office

Zenas Lim
Class of 2015
Product operations lead at the Defence Science & Technology Agency

ENTRY REQUIREMENTS

Aggregate Type ELR2B2-C
To be eligible for consideration, candidates must have the following GCE 'O' Level examination (or equivalent) results.

Subject	'O' level Grade
English Language	1-7
Additional Mathematics/Mathematics	1-6
Any one of the following subjects: Biology Biotechnology Chemistry Computing/Computer Studies Design & Technology Electronics/Fundamentals of Electronics Physics Science (Chemistry, Biology) Science (Physics, Biology) Science (Physics, Chemistry)	1-6

Applicants must also fulfil the aggregate computation requirements for the ELR2B2-C Aggregate Type (English Language, 2 relevant subjects and 2 other best subjects) listed at **www.np.edu.sg/docs/ELR2B2.pdf**.

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

Candidates with colour vision deficiency, severe vision deficiency, profound hearing deficiency, uncontrolled epilepsy and/or severe physical impairments may encounter difficulties meeting the course requirements and expectations.

CONTACT US

For the most up-to-date information on NP's Diploma in Engineering Science, log on to **www.np.edu.sg/es**

N65

Diploma in
Aerospace Engineering

Get latest updates on course

- Gain **sought-after digital skills** in additive manufacturing, data analytics, artificial intelligence, machine learning, robotics and drones
- Choice of two specialisation options: **Avionics or Mechanical**
- Opportunities to **design and build your own aerial vehicle**
- Build a strong engineering foundation with **green aviation concepts** integrated into curriculum

WHAT THE COURSE IS ABOUT

Growing up, were you fascinated with how a heavy machine can fly? Do you ever imagine yourself working on the next generation of aircraft? Then come on board the Diploma in Aerospace Engineering (AEG).

As global travel resumes, the demand for aerospace professionals in the industry is set to soar.
With this broad-based diploma, you will gain a strong engineering foundation and discover how you can play a role in this fast-growing sector!

Future-ready Curriculum
Gain insights into the aerospace industry through modules such as Aerial System Design & Integration, Aircraft Electrical & Instrumentation Systems, as well as Aircraft Data Communications & Networking.
As more companies leverage the power of big data to monitor aircraft health and predict maintenance schedules, you will be equipped with next-gen skills such as data analytics, artificial intelligence and machine learning.

In addition, with green aviation concepts integrated into the AEG curriculum, you can contribute significantly to environmental sustainability efforts within the aerospace sector!

Specialise in Emerging Areas
In your second year, you can specialise in one of two areas:

- Avionics: Study the principles of flight and explore sophisticated aircraft systems, including navigation, surveillance, data communication, and networking systems.

- Mechanical: Learn about engineering system design, aircraft structures and materials, advanced thermofluids, and aircraft maintenance practices.

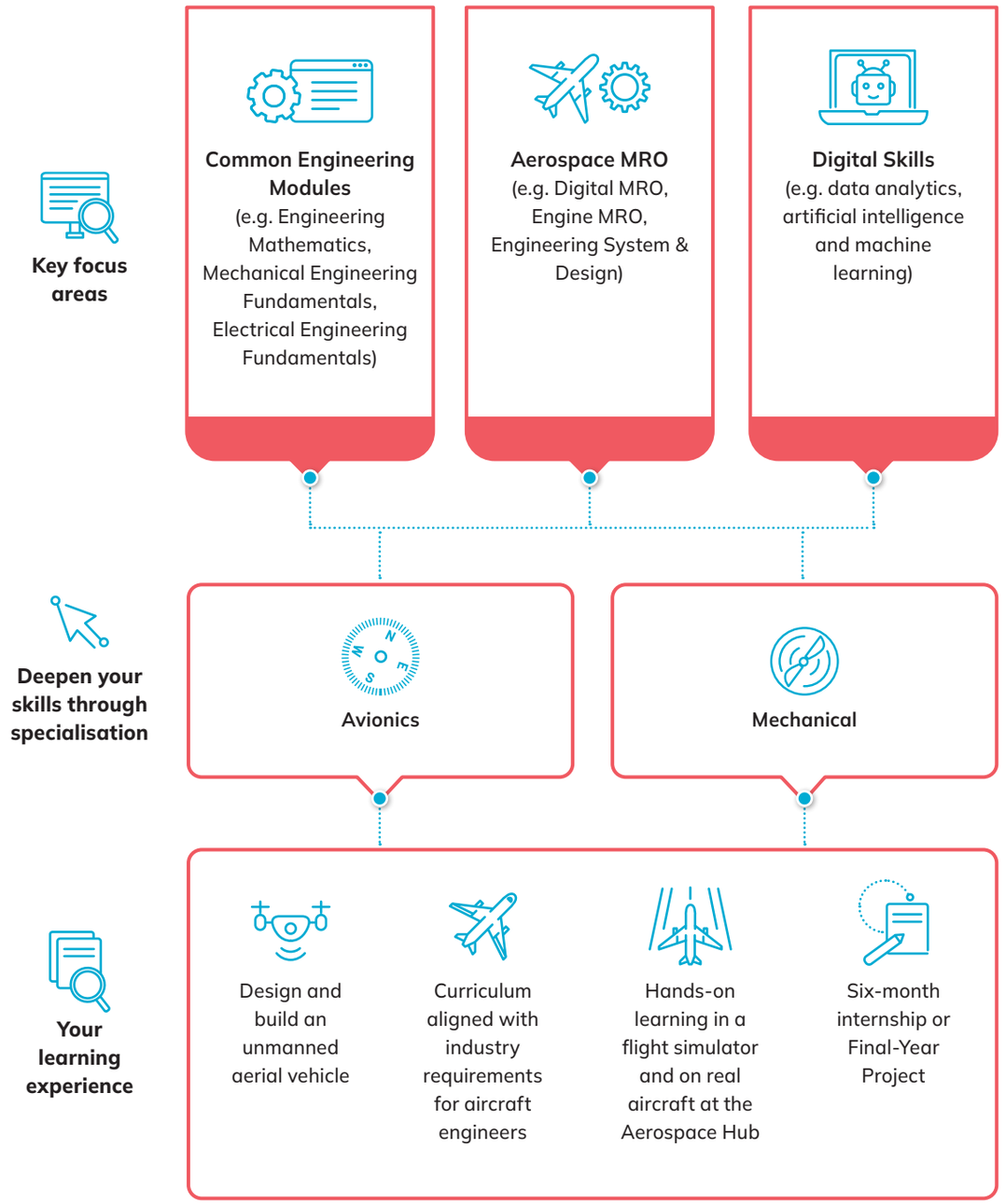
Strong Industry Links
Our strong links with the industry will provide you with real-world learning experiences. With some modules co-developed and co-delivered by our industry partners, you will gain valuable insights into the trends that are shaping the aerospace industry.

You will also get opportunities to apply your skills on integrated and capstone projects to solve real-world problems. For example, you will even get to design and build an unmanned aerial vehicle!

In your final year, put your knowledge to the test with a six-month local or overseas internship with companies such as Collins Aerospace, Pratt & Whitney, 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.

OVERVIEW OF YOUR AEG JOURNEY

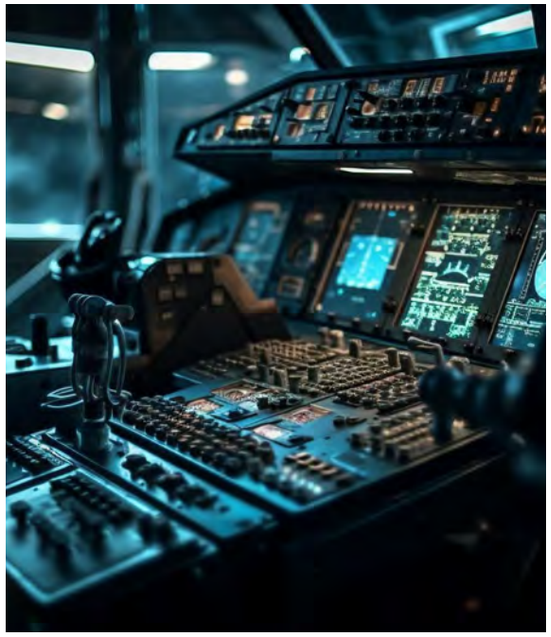


WHAT YOU WILL LEARN

YEAR 1
- Engineering Mathematics 1 & 2
- Electrical Engineering Fundamentals
- Mechanical Engineering Fundamentals
- Programming
- Engineering & Society
- Communication: Find Your Voice (VOICE)^
- Innovation Made Possible^
- Health & Wellness^
- English Language Express^*

Avionics Specialisation
- AC Circuits
- Analogue Electronics
- Digital Fundamentals
- Fundamental Electronic & Electrical Skills

Mechanical Specialisation
- Thermofluids
- Electrical & Electronics Technology
- Materials & Manufacturing Technology
- Engineering Drawing Fundamentals



YEAR 2
- Aerospace Fundamentals
- Aerial System Design & Integration
- Engineering & Sustainability
- Quality Systems & Analytics
- World Issues: A Singapore Perspective^

Avionics Specialisation
- Aircraft Data Communications & Networking
- Aircraft Material & Maintenance Practices
- Applied Analogue Electronics
- Applied Digital Electronics
- Avionics Maintenance Practices
- Object-oriented Programming

Mechanical Specialisation
- Advanced Thermofluids
- Aircraft Maintenance Practices
- Aircraft Structures & Materials
- Applied Mechanics
- Engineering System Design
- Strength of Materials

YEAR 3
- Digital Maintenance, Repair & Overhaul Application
- System Modelling & Control
- Six-month Internship
- Final-Year Project
- Project ID: Connecting the Dots^

Avionics Specialisation
- Aircraft Navigation & Surveillance Systems
- Aircraft Electrical & Instrumentation Systems

Mechanical Specialisation
- Aircraft Propulsion Systems
- Aircraft Mechanical Systems
- Engine Maintenance, Repair & Overhaul

^Critical Core modules account for 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. NP 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.

FURTHER STUDIES

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

Nick Chua
Class of 2020
Pursuing an Information Security degree at NUS

Choo Jing Yi
Class of 2021
Pursuing a Mechanical Engineering degree at NTU under the Nanyang Scholarship

CAREER

With Singapore as a leading aerospace MRO provider in Asia, demand for trained professionals is high. AEG is recognised by established aerospace organisations, giving you an edge in exploring careers such as:

- Planning Executive
- Planning Supervisor
- Senior Technician (Engine/Component Repaire & Overhaul)
- Senior Technician (Avionics/Mechanical)
- Quality Engineer
- Technical Service Engineer
- Workshop Engineer

Additionally, AEG prepares you for Civil Aviation Authority of Singapore (CAAS) Airworthiness Requirements (SAR 66) exams, giving you a head start towards becoming a licensed Aircraft Maintenance Engineer. You can also pursue skills-deepening programmes or the SkillsFuture Work-Study Post-Diploma Programme after graduation.

Denzel Lee
Class of 2015
Chief technology officer and co-founder of Datature Analytics

Ting Jia Lin
Class of 2017
Operations leader at Eagle Services Asia Pte Ltd

ENTRY REQUIREMENTS

Aggregate Type ELR2B2-C
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English Language	1-7
Additional Mathematics/Mathematics	1-6
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Candidates with colour vision deficiency, severe vision deficiency, profound hearing deficiency, uncontrolled epilepsy and/or severe physical impairments may encounter difficulties meeting the course requirements and expectations.

CONTACT US
For the most up-to-date information on NP's Diploma in Aerospace Engineering, log on to **www.np.edu.sg/aeg**

N60

Diploma in

Biomedical Engineering

Get latest updates on course

- The first poly diploma that bridges **engineering with life sciences** and **trains clinical engineering professionals**
- Acquire the skills to **design, develop and test medical devices** and competencies in **MedTech engineering** to seize opportunities in the fast-growing MedTech sector
- Go on **curated internships** and work on **industry projects** with leading MedTech companies and healthcare institutions such as ZOLL Medical and SingHealth
- Get a head start in gaining a prestigious degree with the **NP-SUTD Pathway Programme**!

WHAT THE COURSE IS ABOUT

Fascinated by how engineering and biology can benefit society? Or are you interested in helping medical professionals do their work better? If you're passionate about the MedTech field, then the Diploma in Biomedical Engineering (BME) is perfect for you. This fast-growing field is responsible for the design of sophisticated medical devices and healthcare equipment such as personal health trackers — which range from wearable glucose meters to electrocardiography (ECG) monitors — and lifesaving devices including the pacemaker and dialysis machine.

Jointly developed by Ngee Ann Polytechnic's School of Engineering and leading industry partners, BME gives you a firm grounding in research that could lead to the discovery and development of faster and more accurate tools for medical treatment.

A Holistic Curriculum

BME will provide you with a solid grounding in both engineering and the life sciences. You will acquire a strong foundation in areas such as programming, electrical, electronic and mechanical engineering, cell and molecular biology, as well as human physiology.

You will also learn about MedTech engineering, and be equipped with knowledge of relevant quality assurance standards and industry best practices. Our partnerships with industry will ensure that you stay on top of industry developments and the latest strategies, such as Lean Six Sigma, to improve efficiency.

Develop Skills in Emerging Technologies

As medical devices become more connected, there is an increased need to ensure these devices are safe from cyber threats. BME will equip you with the skills to embed cybersecurity requirements in the development of MedTech solutions.

You will also be exposed to emerging technologies like Artificial Intelligence and the Internet of Medical Things (IoMT), which are increasingly adopted for clinical applications.

Industry-relevant Learning

Apply your skills and knowledge to solve real-world problems! Work on a MedTech project, where you'll get to design and build a wearable medical device. To help you deepen your skills and gain industry experience, embark on an internship or Final-Year Project sponsored by multinational companies, leading MedTech organisations, innovative local start-ups, and established healthcare institutions such as Karl Storz, Medtronic, National University Hospital and Tan Tock Seng Hospital.

FAST TRACK TO A DEGREE VIA NP-SUTD PATHWAY

Get a head start on your university journey while still an NP student! With the NP-SUTD Pathway Programme*, you'll fast-track your way to a Bachelor's degree in engineering and design, graduating a year ahead of your peers.

Expand your knowledge with humanities and science modules taught by SUTD faculty, integrated with your existing NP curriculum. This pathway equips you with diverse skills, making you a well-rounded professional.

To top it off, you'll have the chance to work on cutting-edge research projects under the guidance of SUTD professors and researchers, enhancing your university experience.

*for selected students only

OVERVIEW OF YOUR BME JOURNEY

Key focus areas

LIFE SCIENCES	TEST & MEASUREMENT	MEDTECH ENGINEERING	EMERGING TECHNOLOGIES
Biomechanics & Biomaterials	Medical Technology Instrumentation	Manufacturing Process & Optimisation	Cybersecurity for Medical Devices
Human Physiology	Clinical Engineering	Fundamentals of Medical Technology	Healthcare Informatics
Cell & Molecular Biology	Engineering Skills Practice	Medical Technology Project	Internet of Medical Things

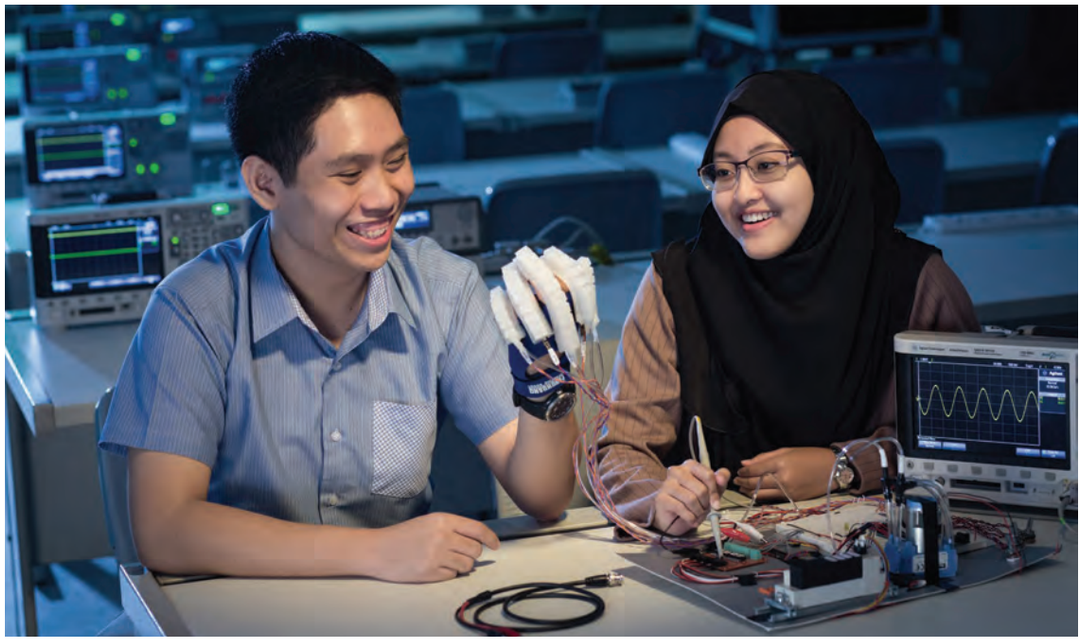
How do you learn?

- Work on university-linked or industry-sponsored MedTech projects
- Internships at MedTech manufacturing companies, healthcare institutions and Internet of Medical Things companies
- Industry visits to MedTech manufacturers
- Workplace learning at external R&D clinical lab and major healthcare institutions

Career prospects

- Assistant Research Engineer
- Biomedical Assistant Engineer
- Field Service Engineer
- Project Engineer
- Quality Assurance Specialist
- Research Associate
- Regulatory Specialist

WHAT YOU WILL LEARN



YEAR 1

- AC Circuits
- Analogue Electronics
- Electrical Engineering Fundamentals
- Engineering & Society
- Engineering Mathematics 1 & 2
- Digital Fundamentals
- Fundamental Electronic & Electrical Skills
- Mechanical Engineering Fundamentals
- Programming
- Communication: Find Your Voice (VOICE)^
- Innovation Made Possible^
- Health & Wellness^
- English Language Express^*

YEAR 2

- Cell & Molecular Biology
- Clinical Engineering
- Cybersecurity Essentials
- Engineering Skills Practice
- Engineering & Sustainability
- Fundamentals of Medical Technology
- Human Physiology
- Medical Technology Instrumentation
- Healthcare Informatics
- World Issues: A Singapore Perspective^

YEAR 3

- Biomechanics & Biomaterials
- Internet of Medical Things
- Final-Year Project
- Manufacturing Process & Optimisation
- Medical Technology Project
- Six-month Internship
- Project ID: Connecting the Dots^

^Critical Core modules account for 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. NP 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.

FURTHER STUDIES

As a BME graduate, you can pursue various degree programmes at local universities. You can also gain credit exemptions from overseas universities, including the following:

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

United Kingdom
- University of Sheffield
  - Bachelor of Engineering (Biomedical Engineering)
- Cardiff University
  - Bachelor of Engineering/Master of Engineering (Medical Engineering)

Tey Ming Chuan
Class of 2018
Pursuing a Master of Science in Business Analytics at NUS.

CAREER

Singapore is fast becoming a global hub for biomedical research and the healthcare industry, and is home to a growing number of multinational MedTech companies and innovative MedTech start-ups. With bright job prospects in this field, you can look forward to pursuing careers in these job roles:

- Assistant Biomedical Engineer
- Assistant Equipment Engineer
- Assistant Product Engineer
- Assistant Process Engineer
- Field Service Engineer
- Quality Assurance Specialist
- Quality Control Laboratory Analyst
- Research Associate
- Sales Engineer

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

Peggy Yeo
Class of 2016
Clinical application and regulatory specialist at Healthstats International Pte Ltd

ENTRY REQUIREMENTS

Aggregate Type ELR2B2-C
To be eligible for consideration, candidates must have the following GCE 'O' Level examination (or equivalent) results.

Subject	'O' level Grade
English Language	1-7
Additional Mathematics/Mathematics	1-6
Any one of the following subjects: Biology Biotechnology Chemistry Computing/Computer Studies Design & Technology Electronics/Fundamentals of Electronics Physics Science (Chemistry, Biology) Science (Physics, Biology) Science (Physics, Chemistry)	1-6

Applicants must also fulfil the aggregate computation requirements for the ELR2B2-C Aggregate Type (English Language, 2 relevant subjects and 2 other best subjects) listed at **www.np.edu.sg/docs/ELR2B2.pdf**.

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

Candidates with colour vision deficiency, severe vision deficiency, profound hearing deficiency, uncontrolled epilepsy and/or severe physical impairments may encounter difficulties meeting the course requirements and expectations.

CONTACT US
For the most up-to-date information on NP's Diploma in Biomedical Engineering, visit **www.np.edu.sg/bme**

N43

Diploma in
Electrical Engineering Revamped

Get latest updates on course

- The only dedicated electrical engineering diploma in Singapore with an **emphasis on sustainability**
- Strong focus on growth areas in **decarbonisation, decentralisation and digitalisation** – so you can access exciting opportunities in the **green energy economy**!
- Choose to specialise in either **Power Engineering or Clean Energy Management**, alongside green economy-related elective modules
- **Recognised by the Energy Market Authority** for the application of Electrical Technician Licence

WHAT THE COURSE IS ABOUT

As Singapore embarks on Green Plan 2030, our energy infrastructure and electrical systems will also undergo exciting transformations. The Diploma in Electrical Engineering (EE) is future-focused and will help prepare you to support Singapore's green transition in the energy and power landscape!

Built on the three leading-edge concepts of decarbonisation, decentralisation and digitalisation, you will be well-equipped with skill sets to meet the growing demand for innovative sustainable energy solutions.

Develop a Strong Foundation

The course will give you a solid grounding in numerous areas of electrical engineering, including the design and operation of electrical services, and integration of energy systems. You will also get to deepen your exposure to decarbonised, decentralised and digitalised electrical systems. Learn core skills such as system integration, data engineering, and sustainable engineering to effectively support Singapore's digitalisation efforts and our green economy in the energy and power sector.

Specialise in Power Engineering or Clean Energy Management

- **Power Engineering:** Focus on electrical distribution and utility systems, while gaining knowledge of sustainable energy technologies. You'll also work on projects in sectors like energy, transport, and the built environment.

- **Clean Energy Management:** Explore clean energy solutions such as solar photovoltaic systems, and develop the skills to design, integrate, and manage clean energy systems.

What's more, with the new green economy-related elective modules in the EE curriculum, you will build competencies to take on job roles in emerging areas such as sustainability engineering.

Industry-relevant Learning

Engage in real-world learning through the EE curriculum, where you will get to work with leading industry players such as Beckhoff Automation, National Instruments, Delta Electronics and Yinson GreenTech.

You'll also put your knowledge and skills into practice through a six-month internship with industry leaders such as SP Group, EDPR Sunseap and Sembcorp. Or you can work on a design or industry project in diverse engineering fields!

THE FUTURE IS GREEN

Thanks to our collaboration with Yinson GreenTech, you can explore real-world engineering solutions through our new green energy infrastructure. Comprising the synergy.lab, an IoT-enabled smart energy management technology centre, a solar farm, and on-site EV charging facilities, this purpose-built living lab is designed to prepare you for exciting careers in the renewable energy field.

OVERVIEW OF YOUR EE JOURNEY

Key focus areas

Decarbonisation
(e.g. Clean Energy Systems, Electric Vehicle & Charging Technologies, Sustainable Energy Technologies)

Decentralisation
(e.g. Distributed Smart Grid Technologies, Systems Integration)

Digitalisation
(e.g. Data Engineering & Analytics, Computer-aided Design)

Deepen your skills through specialisation

Power Engineering

Clean Energy Management

Career prospects

With well-rounded skill sets, including in-demand skills in sustainability and digitalisation, you will be well prepared for careers in the green energy economy, as well as sustainability-related sectors ranging from energy and power to transport and the built environment

WHAT YOU WILL LEARN

YEAR 1

- AC Circuits
- Analogue Electronics
- Digital Fundamentals
- Electrical Engineering Fundamentals
- Engineering Mathematics 1 & 2
- Engineering & Society
- Fundamental Electronic & Electrical Skills
- Mechanical Engineering Fundamentals
- Programming
- English Language Express^*
- Communication: Find Your Voice (VOICE)^
- Innovation Made Possible^
- Health & Wellness^

YEAR 2

- Computer-Aided Design
- Digitalisation & Data Engineering
- Electric Circuit Analysis
- Electrical Installation Design
- Electrical Machines
- Engineering & Sustainability
- Integrated Real-World Project – LabVIEW System Integration
- Microcontroller & System
- Power Electronics
- PLC & System Integration
- World Issues: A Singapore Perspective^

YEAR 3

- Integrated Real-World Project – Decentralised System
- Power Systems Design & Operation
- Final-Year Project OR Six-month Internship (Local/Overseas)
- Project ID: Connecting the Dots^

Power Engineering Specialisation
- Systems Modelling & Control
- Sustainable Energy Technologies

Clean Energy Management Specialisation
- Clean Energy Systems
- Energy Management & Studies

Elective Modules
- Smart Grid Technologies
- Electric Vehicle & Charging Technologies

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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.

FURTHER STUDIES

This diploma is recognised by leading universities both locally and abroad. You may be granted advanced standing or module exemptions when applying for related degree programmes at local universities and overseas universities in countries such as Australia and the United Kingdom.

Graduates can further upgrade their skills through the Specialist Diploma in Solar Photovoltaic Engineering and Monitoring offered by NP.

Loh Jia Wen
Class of 2022

Pursuing a degree in Electrical and Electronic Engineering at NTU under the prestigious Nanyang Scholarship

Ryan Soh
Class of 2023

Pursuing NTU's flagship Renaissance Engineering Programme, which leads to a dual degree: a Bachelor of Engineering Science and a Master of Science in Technology Management

CAREER

Singapore is fast becoming a global hub for biomedical research and the healthcare industry, and is home to a growing number of multinational MedTech companies and innovative MedTech start-ups. With bright job prospects in this field, you can look forward to pursuing careers in these job roles:

- Assistant Engineer in
  - Power
  - Project Development
  - Commissioning
  - Operation and Maintenance
- Solar PV Project Development Supervisor
- Sustainable Engineer
- Technical Officer (Power Distribution Systems, Engineering & Maintenance)

Valencia Chong
Class of 2020

Electrical engineer at Jacobs

ENTRY REQUIREMENTS

Aggregate Type ELR2B2-C
To be eligible for consideration, candidates must have the following GCE 'O' Level examination (or equivalent) results.

Subject	'O' level Grade
English Language	1-7
Additional Mathematics/Mathematics	1-6
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Applicants must also fulfil the aggregate computation requirements for the ELR2B2-C Aggregate Type (English Language, 2 relevant subjects and 2 other best subjects) listed at **www.np.edu.sg/docs/ELR2B2.pdf**.

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

Candidates with colour vision deficiency, severe vision deficiency, profound hearing deficiency, uncontrolled epilepsy and/or severe physical impairments may encounter difficulties meeting the course requirements and expectations.

CONTACT US

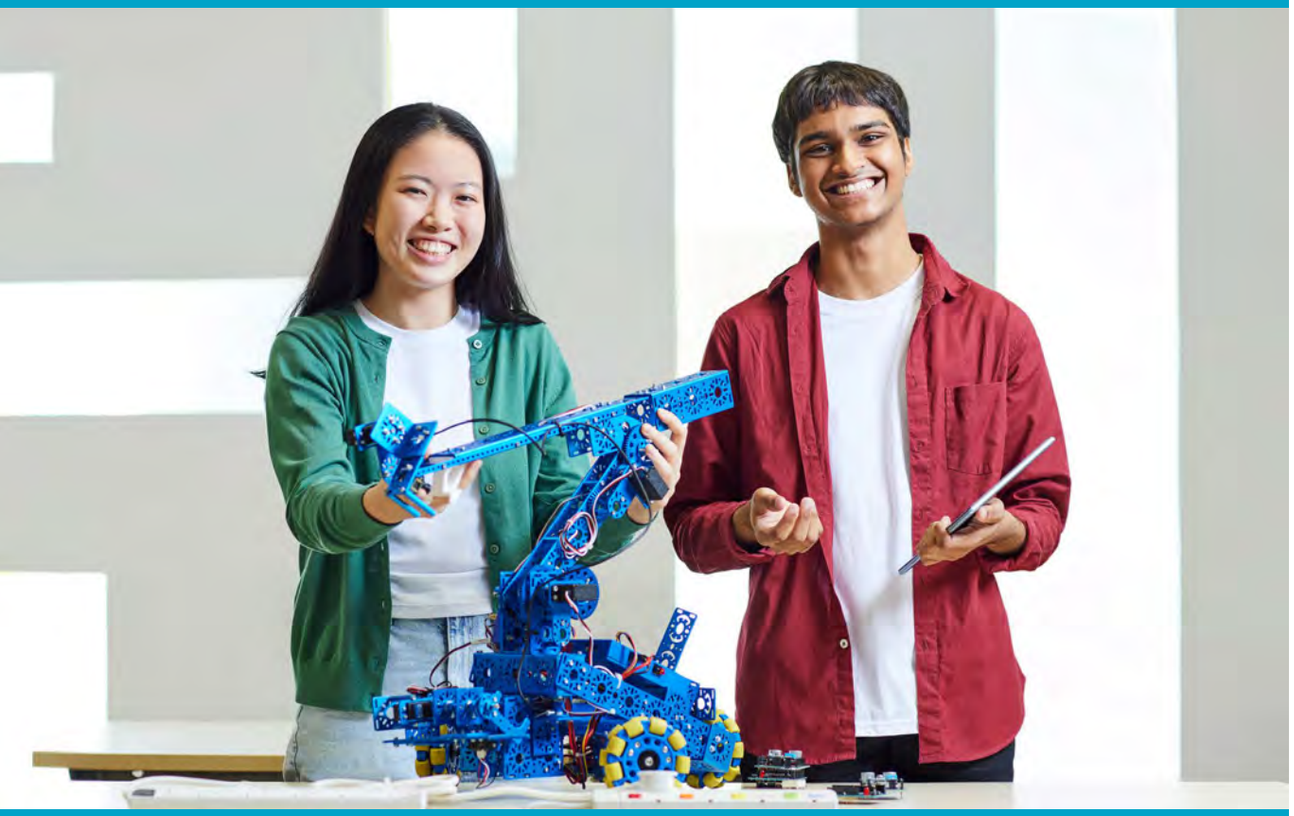
For the most up-to-date information on NP's Diploma in Electrical Engineering, visit **www.np.edu.sg/ee**

N44

Diploma in

Electronic & Computer Engineering Revamped

Get latest updates on course



- One of the **most established** electronic and computer engineering diplomas in Singapore
- **Broad-based curriculum** with strong foundation in electronics and circuits, software programming, and **in-demand technologies** such as Data Analytics, Cloud Computing and Machine Learning
- Choose between two in-demand specialisations – **Artificial Intelligence of Things (AIoT) or Microelectronics**
- Real-world learning through **industry-sponsored projects and internships** with reputable partners

WHAT THE COURSE IS ABOUT

Who can live without electronics and computers in this day and age? From our smart phones and laptops, to the vehicles that we travel in daily, play a part in transforming the way we work and play with the Diploma in Electronic & Computer Engineering (ECE).

Building a Strong Foundation
ECE will introduce you to the important fields of electronic engineering, as well as computer hardware and software. You will develop essential core knowledge in electronics and circuit designs, software programming, as well as networking and communication.

Gain Leading-edge Skills
You will be exposed to semiconductor manufacturing, and the latest digital technologies of Industry 4.0, such as Artificial Intelligence & Machine Learning, Internet of Things, Data Analytics, Cloud Computing, and Networking & Security.

Industry-relevant Learning
Get career ready with our industry-driven curriculum, co-developed with key partners such as Amazon Web Services (AWS), CISCO Systems, Micron and National Instruments. In addition, gain opportunities to top up your knowledge and skills to attain relevant industry certifications such as AWS Certified Cloud Practitioner through vacation bootcamps.

Put your knowledge to the test with a six-month internship with industry leaders such as ST Engineering and GlobalFoundries, and industry-sponsored projects at NP's technology centres.

Plus, undertake local or overseas study trips to widen your exposure to the exciting world of engineering!

Specialise in Emerging Areas
In your final year, you can choose to specialise in:

- **Artificial Intelligence of Things:** Learn how AI is applied in electronics and the Internet of Things (IoT) to develop smarter devices and systems with optimised features and functionalities.
- **Microelectronics:** Gain hands-on experience in the manufacturing of integrated circuits, covering both front- and back-end semiconductor fabrication, quality control, reliability, and integrated circuit testing.

AWARD-WINNING DUO

ECE graduate Reginald Loo (left) and EE graduate Kuang Zin Thu won the Lee Hsien Loong Interactive Digital Media Smart Nation Award for developing a cutting-edge autonomous cleaning service robot. It can independently navigate to specific locations, identify cleaning targets and perfrom cleaning tasks without any human intervention.

OVERVIEW OF YOUR ECE JOURNEY

Key focus areas

Electronics & Circuits
- Analogue Circuits
- Digital Systems
- Electronic & Electrical Skills

Computer Programming
- Object-Oriented Programming
- Microcontroller, Interfacing & Embedded Programming

Microelectronics
- Semiconductor Manufacturing
- IC Testing
- Quality & Reliability

Internet of Things
- Artificial Intelligence & Machine Learning
- Data Analytics
- Cloud & Database
- Networking & Security

Deepen your skills through specialisation

Microelectronics

Artificial Intelligence of Things

Career prospects

- Assistant Process/Product/Equipment/Test Engineer
- Associate Embedded System Engineer
- Assistant IoT Solution Engineer

WHAT YOU WILL LEARN

YEAR 1
- AC Circuits
- Analogue Electronics
- Digital Fundamentals
- Engineering Mathematics 1 & 2
- Engineering & Society
- Electrical Engineering Fundamentals
- Fundamental Electronic & Electrical Skills
- Mechanical Engineering Fundamentals
- Programming
- Communication: Find Your (VOICE)^
- Innovation Made Possible^
- Health & Wellness^
- English Language Express^*

YEAR 2
- Applied Analogue Electronics
- Applied Digital Electronics
- Communication Systems
- Data Analytics
- Engineering & Sustainability
- Internet of Things
- Microcontroller & Interfacing
- Network Fundamentals
- Object-Oriented Programming
- Servers & Cloud Fundamentals
- World Issues: A Singapore Perspective^

YEAR 3
- Embedded Systems
- Six-month Internship
- Final-Year Project
- Project ID: Connecting the Dots^

Artificial Intelligence of Things Specialisation
- AI Applications
- IoT & Cloud Security
- Machine Learning with Python

Microelectronics Specialisation
- IC Testing, Assembly & Packaging
- Quality & Reliability
- Semiconductor Manufacturing

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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.

FURTHER STUDIES

This diploma is recognised by leading universities both locally and abroad. You may be granted advanced standing or module exemptions when applying for related degree programmes at local universities and overseas universities in countries such as Australia and the United Kingdom.

Nicholas Lee
Class of 2021

Nicholas is pursuing a Bachelor of Engineering in Computer Science at NTU

Christopher Chia
Class of 2022

Pursuing an undergraduate degree with a major in Engineering Product Development, under a bond-free SUTD scholarship

Jonathon Chu
Class of 2023

Pursuing a degree in Computer Science under the NTU-University Scholars Programme

CAREER

Electronics is one of the world's largest industries – that means you will enjoy many diverse and exciting career opportunities, such as:

- Associate Embedded Systems Engineer
- Assistant IoT Solutions Engineer
- Assistant Equipment Engineer
- Assistant Process Engineer
- Assistant Product Engineer
- Assistant Quality Engineer
- Assistant Facility Engineer
- Assistant Integration Engineer

Frank Quek
Class of 2009

CEO of Ty Innovations Pte Ltd.

Yee Sheng Jie
Class of 2014

Quality engineer at GovTech.

ENTRY REQUIREMENTS

Aggregate Type ELR2B2-C
To be eligible for consideration, candidates must have the following GCE 'O' Level examination (or equivalent) results.

Subject	'O' level Grade
English Language	1-7
Additional Mathematics/Mathematics	1-6
Any one of the following subjects: Biology Biotechnology Chemistry Computing/Computer Studies Design & Technology Electronics/Fundamentals of Electronics Physics Science (Chemistry, Biology) Science (Physics, Biology) Science (Physics, Chemistry)	1-6

Applicants must also fulfil the aggregate computation requirements for the ELR2B2-C Aggregate Type (English Language, 2 relevant subjects and 2 other best subjects) listed at **www.np.edu.sg/docs/ELR2B2.pdf**.

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

Candidates with colour vision deficiency, severe vision deficiency, profound hearing deficiency, uncontrolled epilepsy and/or severe physical impairments may encounter difficulties meeting the course requirements and expectations.

CONTACT US

For the most up-to-date information on NP's Diploma in Electronic & Computer Engineering, visit **www.np.edu.sg/ece**

N41

Diploma in
Mechanical Engineering

Get latest updates on course

- A broad-based curriculum that prepares you for **wide range of exciting careers in precision engineering, public transport, energy and chemicals, engineering services and more**
- Ride the Industry 4.0 wave with **in-demand digital skills** like advanced modelling, industrial automation & robotics and predictive maintenance & analytics
- **New sustainability focus** to prepare you to help companies optimise decarbonisation efforts
- Opportunity to specialise in **Automation Design Engineering** or **Mobility Design Engineering** with industry immersion at organisations such as ST Engineering, A*STAR and TÜV SÜD PSB

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 motion. With the Diploma in Mechanical Engineering (ME) to give you a head start into building such sleek technology, you'll be well positioned to excel in diverse fields from precision engineering, environment and energy, facilities and infrastructure, to the transportation sectors.

Get Equipped with In-demand Skills
In your first year, you will learn the fundamentals of mechanical engineering with a focus on materials and design skills through modules such as Thermofluids, Materials & Manufacturing Technology and Mechanical Engineering Fundamentals. Then deepen your understanding with modules such as Engineering System Design and Strength of Materials in your second year.

You will also gain insights into the latest technologies that are reshaping the industry, such as Artificial Intelligence, robotics and the Internet of Things (IoT). Apply your skills by creating innovative clean energy solutions, developing new materials and processes, as well as designing and manufacturing products ranging from consumer products to medical devices.

Specialise in Emerging Areas
In your final year, you can specialise in one of two areas:

- **Automation Design Engineering:** Focused on system design and integration, this specialisation equips you with design, manufacturing, and maintenance skills for advanced manufacturing. These skills are applicable across various industries, preparing you for roles in design, assembly, production, and maintenance.

- **Mobility Design Engineering:** Through modules in Mechanical Drive Systems, Electrical Technology Systems, and Mobility System Design & Integration, you will develop electro-mechanical mobility skills that are in high demand within the mobility technology sector.

Industry-relevant Learning
At ME, you will always be at the forefront of the latest technologies by learning and collaborating on industry-relevant projects with our partners such as Akribis, HOPE Technik, Autodesk, Grundfos, Carrier, PSA Singapore and the Smart Nation Digital Government Office.

At the same time, you will get to work on a Final-Year Project that involves the design and development of a new product prototype with real-world applications. Or round off your learning journey with a local or overseas internship with established organisations such as ST Engineering, A*STAR and TÜV SÜD PSB!

PASSION FOR CARS

"During my time at NP, I worked on a Final-Year Project focused on automotive technologies and motorsports. I even represented NP at the Shell Eco-marathon Asia in 2019, with the energy-efficient car I built with my teammates, and came in second place in the region! This success inspired me to continue my journey in Mechanical Engineering at NTU, where I contributed to the development of NTU's first Formula Student race car, NVF-1."

Justin Wong
Class of 2019

Justin (far right) was one of the 12 successful applicants who got accepted into the prestigous master's degree programme in race car aerodynamics at the University of Southhampton, United Kingdom in 2022.

OVERVIEW OF YOUR ME JOURNEY

YEAR 1

Build a strong foundation in core skills

Engineering Fundamentals
(e.g. Engineering Drawing Fundamentals, Programming, Materials & Manufacturing Technology, Engineering Mathematics)

YEAR 2 & 3

Enhance your real-world learning

Work on real-world projects with industry partners such as Akribis, Hope Technik, Autodesk and PSA Singapore

Design and develop a new integrated system for real-world applications

Six-month local/overseas internships at companies such as ST Engineering and A*STAR

YEAR 3

Deepen your skills through specialisation

Automation Design Engineering

Mobility Design Engineering

Pursue a wide range of exciting careers in precision engineering, public transport, energy and chemicals, engineering services and more!

WHAT YOU WILL LEARN

YEAR 1
- Engineering & Society
- Engineering Drawing Fundamentals
- Engineering Mathematics 1 & 2
- Electrical Engineering Fundamentals
- Electrical & Electronics Technology
- Materials & Manufacturing Technology
- Mechanical Engineering Fundamentals
- Programming
- Thermofluids
- Communication: Find Your Voice (VOICE)^
- Innovation Made Possible^
- Health & Wellness^
- English Language Express^*

YEAR 2
- Advanced Materials
- Advanced Manufacturing Technology
- Applied Mechanics
- Applied Thermofluids
- Computer-Aided Design & Analysis
- Engineering & Sustainability
- Engineering System Design
- Industrial Automation
- Project Management
- Strength of Materials
- World Issues: A Singapore Perspective^

YEAR 3
- Mechanics of Machines & Materials
- Quality Systems & Analytics
- Final-Year Project
- Six-month Internship
- Project ID: Connecting the Dots^

Automation Design Engineering Specialisation
- Automation System Design & Integration
- Design for Manufacturing & Assembly
- Smart Sensors & Actuator

Mobility Design Engineering Specialisation
- Mobility System Design & Integration
- Mechanical Drives System
- Electrical Technology System

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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.

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:

Singapore
- Nanyang Technological University
- National University of Singapore
- Singapore Institute of Technology-University of Glasgow

Australia
- University of New South Wales
- University of Melbourne
- University of Sydney
- RMIT University
- Monash University

New Zealand
- Auckland University of Technology
- University of Auckland

United Kingdom
- University of Edinburgh
- University of Birmingham
- University of London
- Loughborough University
- Newcastle University

Cheng Shi Hui
Class of 2020
Pursuing a PhD in additive manufacturing at NTU

CAREER

With a solid engineering foundation and sought-after skills, you'll have excellent job prospects across many industries. You can look forward to pursuing roles such as:

- Assembly Engineer
- Automation Assistant Engineer
- Automotive Engineer
- Facility Engineer
- Manufacturing Engineer
- Mechanical Engineer
- Mobility Design Engineer
- Precision Engineer
- Product Engineer
- Project Engineer
- Process Engineer
- Procurement Assistant
- Quality Assurance Engineer
- Sales Engineer

Ivan Cheong
Class of 2018
Chief business development officer of FATFreq, a start-up that specialises in in-ear monitors

ENTRY REQUIREMENTS

Aggregate Type ELR2B2-C
To be eligible for consideration, candidates must have the following GCE 'O' Level examination (or equivalent) results.

Subject	'O' level Grade
English Language	1-7
Additional Mathematics/Mathematics	1-6
Any one of the following subjects: Biology Biotechnology Chemistry Computing/Computer Studies Design & Technology Electronics/Fundamentals of Electronics Physics Science (Chemistry, Biology) Science (Physics, Biology) Science (Physics, Chemistry)	1-6

Applicants must also fulfil the aggregate computation requirements for the ELR2B2-C Aggregate Type (English Language, 2 relevant subjects and 2 other best subjects) listed at **www.np.edu.sg/docs/ELR2B2.pdf**.

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

Candidates with severe vision deficiency, colour vision deficiency, profound hearing deficiency, uncontrolled epilepsy and/or severe physical impairments may encounter difficulties meeting the course requirements and expectations.

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

N50

Diploma in

Mechatronics & Robotics Revamped

Get latest updates on course

- A broad-based curriculum with a strong focus on **autonomous mobile and collaborative robotics**
- **Acquire skills in emerging technologies** such as Augmented Reality, Robot Operating System, Computer Vision and Industrial IoT for exciting career opportunities in **robotics engineering and automation**!
- Choose to specialise in either **Autonomous Systems** or **Automation & Industrial Cybersecurity**
- Opportunities to work on projects sponsored by **leading industry partners and innovative technology companies** such as Omron Electronics, Universal Robots, HOPE Technik, MooVita and Bosch Rexroth

WHAT THE COURSE IS ABOUT

Robots are changing our daily lives – imagine stepping out of your smart home, taking a self-driving vehicle to your favourite restaurant, and getting served by a robot waiter! The field of robotics and automation is steadily growing and finding its way into every home, company and industry. If you want to engineer the next generation of robots and smart machines, the Diploma in Mechatronics & Robotics (MR) is your ideal choice.

With our broad-based curriculum, you will learn to use emerging technologies in robotics and automation, such as augmented reality, computer vision and Industrial Internet of Things, to develop high-tech solutions for consumer products and industrial applications. This will give you an edge when you pursue exciting careers in growing fields such as service robotics, autonomous driving technologies and industrial automation and applications.

A Strong Engineering Foundation

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, applications of artificial intelligence, and how to develop functional applications using Robot Operating System (ROS).

Specialisations in Emerging Areas

In your final year, you can choose to specialise in one of two areas:

- **Autonomous Systems:** Gain expertise in autonomous mobile robot development, collaborative robot (cobot) programming, and autonomous vehicle deployment. This specialisation equips you with the skills needed for a career as a robotics engineer.
- **Automation & Industrial Cybersecurity:** Get a head start in programming mechatronics systems using industrial controllers, while also learning how to secure industrial control systems by applying cybersecurity strategies and solutions.

Industry-relevant Learning

With many modules co-developed, co-delivered and co-assessed with our industry partners such as Omron Electronics, Universal Robots, HOPE Technik and MooVita, you can be sure that you will be prepared for the industry when you graduate. To give you an edge in your career, there are also opportunities to go on a six-month internship at companies such as PSA Singapore, Bosch Rexroth, LKH Precicon, A*STAR and Omron Electronics.

Plus, gain hands-on experience at high-tech mobility solutions provider MooVita, situated right on campus!

WORLDSKILLS CHAMPIONS

Automation & Mechatronic Systems* graduates Mack Kai Hin and Ethan Ong clinched gold in the mechatronics category at the 2023 WorldSkills ASEAN competition. A biennial event that brings competitors from Southeast Asia, the duo demonstrated their expertise in handling industrial equipment, programming equipment control systems, and human machine interfaces.

*Renamed the Diploma in Mechatronics & Robotics

OVERVIEW OF YOUR MR JOURNEY

YEAR 1 & 2

Building a strong foundation in core skills

Mechatronic Engineering
(e.g. Mechanics, Electrical & Electronic Technology, Programming)

Robotic Systems & Artificial Intelligence
(e.g. Robot Operating System, Computer Vision in AI)

Automation Technologies
(e.g. Programmable Logic Controllers, Industrial Internet of Things, Microcontrollers)

YEAR 3

Specialise in an emerging area

Autonomous Systems

Automation & Industrial Cybersecurity

Explore career opportunities in various industries

Mechatronics Engineering
- Assistant/ Associate Engineer
- Process Engineer

Robotics Engineering
- Robotics Engineer
- Application Engineer

Automation Technologies
- Automation Engineer
- Systems Integrator

WHAT YOU WILL LEARN

YEAR 1
- Electrical & Electronics Technology
- Electrical Engineering Fundamentals
- Engineering Drawing Fundamentals
- Engineering Mathematics 1 & 2
- Engineering & Society
- Materials & Manufacturing Technology
- Mechanical Engineering Fundamentals
- Programming
- Thermofluids
- Communication: Find Your Voice (VOICE)^
- English Language Express^*
- Health & Wellness^
- Innovation Made Possible^

YEAR 2
- Applied Mechanics
- Computer Aided System Design
- Computer Vision in Artificial Intelligence
- Engineering & Sustainability
- Industrial Automation
- Mechatronic Drive Systems
- Microcontroller & System
- Network Fundamentals
- Robot Operating System
- Strength of Materials
- World Issues: A Singapore Perspective^

YEAR 3
- Final-Year Project
- Systems Modelling & Control
- Six-month Internship (Local/Overseas)
- Project ID: Connecting the Dots^

Autonomous Systems Specialisation
- Advanced Robotic Systems & Applications
- Autonomous Platform Systems
- Autonomous System Deployment

Automation & Industrial Cybersecurity Specialisation
- Advanced Automation System
- Operational Technology Security
- Augmented Reality & Robotics Systems

^Critical Core modules account for 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. NP 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.

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:

Singapore
- Nanyang Technological University
- National University of Singapore
- Singapore Institute of Technology-University of Glasgow

Australia
- Monash University
- University of New South Wales

United Kingdom
- University of Manchester
- University of Sheffield

Danish Abrisam Bin Ismail
Class of 2019

Pursuing Mechatronics Engineering at Baden-Wuerttemberg Cooperative State University while currently a student trainee at German multinational company Pepperl+Fuchs.

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. You can look forward to pursuing careers in the following job roles:

- Robotics Engineer
- Automation Engineer
- Application Engineer
- Procurement Coordinator/Executive
- WSH Coordinator

Assistant Engineer/Associate Engineer in
- Equipment
- Facility
- Process
- Product
- Production
- Quality
- Quality Assurance
- Quality Control

Clement Chen
Class of 2012

Design engineer at Dyson Singapore

ENTRY REQUIREMENTS

Aggregate Type ELR2B2-C
To be eligible for consideration, candidates must have the following GCE 'O' Level examination (or equivalent) results.

Subject	'O' level Grade
English Language	1-7
Additional Mathematics/Mathematics	1-6
Any one of the following subjects: Biology Biotechnology Chemistry Computing/Computer Studies Design & Technology Electronics/Fundamentals of Electronics Physics Science (Chemistry, Biology) Science (Physics, Biology) Science (Physics, Chemistry)	1-6

Applicants must also fulfil the aggregate computation requirements for the ELR2B2-C Aggregate Type (English Language, 2 relevant subjects and 2 other best subjects) listed at **www.np.edu.sg/docs/ELR2B2.pdf**.

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

Candidates with colour vision deficiency, severe vision deficiency, profound hearing deficiency, uncontrolled epilepsy and/or severe physical impairments may encounter difficulties meeting the course requirements and expectations.

CONTACT US
For the most up-to-date information on NP's Diploma in Mechatronics & Robotics, visit **www.np.edu.sg/mr**

N42

Get latest updates on course

Diploma in
Offshore & Sustainable Engineering Revamped

- A unique diploma that covers naval architecture with a focus on **sustainability, decarbonisation and renewable energy** that prepares you for careers in the marine and offshore engineering sector, and exciting opportunities in clean and renewable energy such as offshore wind
- Learn about **essential digital skills** used in AI and data analytics to give you an edge in managing marine operations and processes
- Apply for **prestigious MaritimeONE Scholarships** that cover tuition fees and allowances
- **Enjoy advanced standing** for Naval Architecture & Marine Engineering degree with SIT-Newcastle University and related degrees with local or overseas universities

WHAT THE COURSE IS ABOUT

With the growing importance of sustainability, the marine and offshore sector presents new and exciting career opportunities! Set sail on your 'green' sea adventure with our Diploma in Offshore & Sustainable Engineering (OSE).

You will get trained in naval architecture and marine engineering, with a green focus on sustainability, decarbonisation and renewable energy. Through OSE, you will gain expertise in designing and building offshore vessels and structures. By delving into crucial areas of green technology – such as low-carbon and green-fuelled systems, as well as hydrogen infrastructure – you will gain the knowledge needed for careers in the sustainable engineering sector. With offshore wind identified as a key sector for sustainable energy growth in Singapore and Asia, OSE will give you a head start in this emerging field.

Moreover, the course will hone your knowledge in Artificial Intelligence (AI) applications, including autonomous vessels. You will also learn about essential digital skills, such as data analytics for technical operations and processes.

Work on Industry-based Projects

Our strong emphasis on industry-based 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.

In your final year, you may undertake a capstone project focusing on conventional energy, new energy, renewables, or decarbonisation solutions. There will be opportunities for you to work with students from other engineering disciplines to solve real-world problems related to the marine and offshore industry.

Local and Overseas Industry Exposure

You will gain extensive work experience through our one-year or six-month internship with key industry players, such as the Association of Singapore Marine & Offshore Energy Industries (ASMI), Dyna-Mac Holdings and Seatrium Limited. There are also opportunities for you to go on overseas study trips to sharpen your global perspective! What's more, our industry partners offer attractive scholarships covering tuition fees and allowances for your diploma.

OVERVIEW OF YOUR OSE JOURNEY

Key focus areas

NAVAL ARCHITECTURE New

- Geometry & Buoyancy
- Hydrostatics and Stability
- Structure & Resistance

MARINE ENGINEERING

- Marine Propulsion & Systems
- Maritime Decarbonisation New

SUSTAINABLE ENGINEERING New

- Engineering & Sustainability
- Offshore Renewables
- Capstone Project

Your learning experience

- Learn how to design marine vessels and offshore structures
- Hone your proficiency in artificial intelligence applications and develop essential digital skills
- Embark on a one-year or six-month internship at local/overseas marine and offshore companies New
- Opportunity to work on multidisciplinary projects in conventional energy, new energy, renewables or decarbonisation solutions New

Career prospects

- Assistant Design Engineer
- Assistant Production Engineer
- Assistant Project Engineer
- Assistant Quality Assurance
- Assistant Quality Control Engineer

WHAT YOU WILL LEARN

YEAR 1
- Engineering & Society
- Engineering Drafting
- Engineering Mathematics 1 & 2
- Electrical Engineering Fundamentals
- Geometry & Buoyancy
- Mechanical Engineering Fundamentals
- Programming
- Thermofluids
- Health & Wellness^
- Innovation Made Possible^
- Communication: Find Your Voice (VOICE)^
- English Language Express^*

YEAR 2
- Engineering & Sustainability
- Hydrostatics & Stability
- Marine Engineering Systems
- Marine Propulsion Systems
- Maritime Decarbonisation
- Offshore Topside Systems
- Offshore Wind
- Project Management
- Strength of Materials
- Structure & Resistance
- World Issues: A Singapore Perspective^

YEAR 3
- Capstone Project
- Engineering Modelling
- Marine Production Technology
- Six-month Internship/ Final-Year Project OR One-year Internship
- Project ID: Connecting the Dots^

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^* For selected students only.

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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. You can also enjoy advanced standing at these universities:

Singapore
- Nanyang Technological University
- National University of Singapore

Australia
- University of Sydney
- University of Tasmania

United Kingdom
- Newcastle University
- University of Glasgow
- University of Strathclyde

Together with Newcastle University, the Singapore Institute of Technology offers you the chance to pursue a prestigious Bachelor of Engineering with Honours in Naval Architecture and Marine Engineering degree programme.

Keith Hah
Class of 2020
Pursuing a Mechanical Engineering degree at NTU

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 look forward to pursuing careers in these job roles:

- Assistant Design Engineer
- Assistant Production Engineer
- Assistant Quality Assurance
- Assistant Quality Control Engineer
- Assistant Project Engineer

Leow Wei Chi
Class of 2017
Commercial executive at Penguin Shipyard

ENTRY REQUIREMENTS

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CONTACT US
For the most up-to-date information on NP's Diploma in Offshore & Sustainable Engineering, visit **www.np.edu.sg/ose**

Our Graduates with That Something XTRA

BUSINESS WHIZ

Frank graduated from NTU with a double degree in business and computer science under the NTU College Scholarship. He is the CEO of Ty Innovations Pte Ltd.

FRANK QUEK
Electronic & Computer Engineering graduate, Class of 2009

HEALTHCARE CYBERCOP

Zhe Zhi holds a bioengineering degree from NTU and currently serves as a manager in the cybersecurity and medical devices division at MOH.

HUI ZHE ZHI
Biomedical Engineering graduate, Class of 2011

RESEARCH ENGINEER

Teo Yee graduated from NTU with a degree in mathematical sciences. He is now a senior research engineer at the Adaptive Robotics & Mechatronics Group in A*STAR's Singapore Institute of Manufacturing Technology.

TEO YEE
Mechatronic Engineering* graduate, Class of 2012

*Renamed the Diploma in Mechatronics & Robotics

MASTER IN ROBOTICS

Benjamin graduated from University College London with a Master of Science in Robotics and Computation. He is currently a senior robotics software engineer at Dyson Singapore.

BENJAMIN TAN
Automation & Mechatronic Systems* graduate, Class of 2015

*Renamed the Diploma in Mechatronics & Robotics

PROJECT MANAGER

Guoli graduated from NTU with a degree in mechanical engineering and is currently a senior project planner at Seatrium Limited.

YEO GUOLI
Marine & Offshore Technology* graduate, Class of 2015

*Renamed the Diploma in Offshore & Sustainable Engineering

DATA SCIENTIST

Pavatharani graduated from NTU's Renaissance Engineering Programme with a Bachelor of Aerospace Engineering and Master of Science in Technology Management. She is working as a senior data scientist at Visa.

PAVATHARANI SENTHIL KUMAR
Aerospace Technology* graduate, Class of 2016

*Renamed the Diploma in Aerospace Engineering

ENGINEER ON THE MOVE

Vhora graduated with a mechanical engineering degree from NTU and is currently working as a project engineer at LTA.

VHORA SHRAYANS SURESH
Mechanical Engineering graduate, Class of 2016

TRANSIT EXPERT

A recipient of the Singapore-Industry Scholarship, Jin Li graduated from NUS with a degree in Electrical Engineering. She is a senior engineer at SBS Transit.

TENG JIN LI
Electrical Engineering graduate, Class of 2016

ENGINEER & DOCTOR

Kellie was accepted into the SUTD-Duke-NUS Special Track for an Engineering Degree & Doctor of Medicine Degree. She also received the SUTD Global Distinguished Scholarship.

KELLIE SIM
Engineering Science graduate, Class of 2020

ngee ann polytechnic

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Admissions Hotline: 6463 1233
askNP@np.edu.sg

All information is correct at time of printing (Dec 2024)
Printed on environmentally friendly paper